PLANNING COMMISSION

November 19, 2025
6:00 P.M.

AGENDA

www.ci.bonney-lake.wa.us

The City of Bonney Lake's Mission is to protect the community's livable identity and scenic beauty through responsible growth planning and by providing accountable, accessible and efficient local government services.

Location: Public Services Building, 21719 96th Street East, Buckley, Washington.

The public is invited to attend Planning Commission Meetings. Options for attending are provided below.

In-Person: Public Services Building, 21719 96th Street East, Buckley, WA 98321
By Phone: (323) 792-6234 (Meeting ID: 502 056 540)
By Internet: https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting (Meeting ID: 502 056 540, Passcode: VS6FD93j)

All public online cameras and microphones will be disabled except during citizen comments. Only staff and presenters will be visible and unmuted during the entire meeting.

I. CALL TO ORDER: Commissioner Grant Sulham, Chair.

II. ROLL CALL: Commissioner Grant Sulham, Commissioner Jessica Bennion, Commissioner Brad Doll, Commissioner Sara Hallstead, Commissioner Debbie Strous-Boyd, Commissioner Ernie Gilmer, and Commissioner Jeffery Wilkins.

III. NEXT MEETING POLL: December 03, 2025.

Pg. 3 **IV. APPROVAL OF CORRECTED MINUTES:** November 05, 2025, Planning Commission Meeting.

V. PUBLIC COMMENTS AND CONCERNS:
Public comments can be made in-person, by phone or virtually during this portion of the meeting. Comments are limited to 5 minutes. Public mics and video will be enabled-you will need to personally turn them on during this section only. All who comment will be asked to state their name and if you would like, your address for the meeting record.

VI. PUBLIC HEARING:
Public comments can be made in-person, by phone or virtually during this portion of the meeting. Comments are limited to 5 minutes. Public mics and video will be enabled-you will need to personally turn them on during this section only. All who comment will be asked to state their name and if you would like, your address for the meeting record.

Pg. 5 **1. AB25-79 – Ordinance D25–79 –** 2024 Comprehensive Plan Periodic Update and **AB25-80 – Ordinance D25-80 –** 2024 Development Code Periodic Update Amendments

VII. OLD / CONTINUING BUSINESS: None.

VIII. NEW BUSINESS: None.

IX. FOR THE GOOD OF THE ORDER:

A. **Correspondence:**

B. **Staff Comments:**

C. **Commissioner Comments:**

X. ADJOURNMENT

Anything submitted at the Planning Commission Meeting will be added to the end of the packet the next day.

The City of Bonney Lake encourages everyone to participate in its programs and activities. If you need language assistance, interpretation services, translation, or an auxiliary aid or accommodation to fully participate, please contact Human Resources at 253-862-8062 (TTY 711) or humanresources@bonneylake.gov at least five (5) business days before the meeting; urgent requests will be accommodated when feasible. This notice is available in other languages upon request.

PLANNING COMMISSION

November 05, 2025
6:00 P.M.

MINUTES

www.ci.bonney-lake.wa.us

The City of Bonney Lake's Mission is to protect the community's livable identity and scenic beauty through responsible growth planning and by providing accountable, accessible and efficient local government services.

Location: Public Services Building, 21719 96th Street East, Buckley, Washington.

I. CALL TO ORDER: Commissioner Grant Sulham, Chair, called the meeting to order at 6:00 p.m.

II. ROLL CALL: Commissioner Grant Sulham, Commissioner Jessica Bennion, Commissioner Brad Doll, Commissioner Sara Hallstead, Commissioner Debbie Strous-Boyd, Commissioner Ernie Gilmer, and Commissioner Jeffery Wilkins. Commissioner Bennion was not in attendance. Commissioner Hallstead was not in attendance.
Commissioner Doll moved to excuse the absence of Commissioner Bennion and Commissioner Hallstead. Commissioner Wilkins seconded the motion.

Motion approved 5-0.

Staff members in attendance at the physical location were Development Services Manager Lauren Balisky, City Engineer Ken Gill, and Planning Commission Clerk Kennedy Spietz.

III. NEXT MEETING POLL:

Audio starts at: 00:01:44

By Common Consent, Commissioners agreed to hold the next Planning Commission Meeting on November 19th, 2025.

Audio starts at: 00:03:39

IV. APPROVAL OF CORRECTED MINUTES:

Minutes from the October 01, 2025 Planning Commission Meeting were approved with minor corrections.

Audio starts at: 00:05:06

V. PUBLIC COMMENTS AND CONCERNS: *For efficient use of city resources, comments will be a short summary and not verbatim. An audio recording to the state digital archives if needing a complete review of comments.*

None.

Audio starts at: 00:05:18

VI. PUBLIC HEARING: None.

VII. OLD / CONTINUING BUSINESS:

Audio starts at: 00:05:24

A. Draft Safety Action Plan – Ken Gill, City Engineer

City Engineer Gill gave an overview of the Draft Safety Action Plan. Commission discussed and shared their concerns, including:

- Commissioner Doll asked about the shared use path as part of the Angeline-Veterans Memorial Drive Roundabout.
- Commissioner Doll asked about the 410 and 214th intersection and what the Draft Safety Action Plan is proposing.
- Chair Sulham asked about W Tapps Hwy E and the concerns a city resident has previously brought up, and how those have been addressed.

VIII. NEW BUSINESS:

Audio starts at: 00:34:24

A. 2024 Periodic Update – Draft Ordinances – Lauren Balisky, Development Services Manager

Development Services Manager Balisky gave an overview of the Draft Ordinance. Commission discussed and shared their concerns, including:

- Commissioner Wilkins had a few corrections.
- Commissioner Doll was curious where Alternative housing/Low Income housing came from.

IX. FOR THE GOOD OF THE ORDER:

Audio starts at: 00:51:39

A. **Correspondence: None.**

Audio starts at: 00:51:42

B. **Staff Comments: None**

C. **Commissioner Comments:**

Audio starts at: 00:51:51

The Commission agreed to do their gift exchange at the first meeting in December.

X. ADJOURNMENT

At 6:54 p.m. the Meeting was adjourned by Commissioner Grant Sulham, Chair with the common consent of the Commission.

Kennedy Spietz, Assistant Planner

Commissioner Grant Sulham, Chair

Note: Unless otherwise indicated, all documents submitted at Planning Commission meetings are added to the back of the packet the next day. For detailed information on agenda items, please view the corresponding Agenda Packets, which are posted on the city website and on file with the City Clerk.

Public Services Briefing Memorandum

Meeting Date: November 19, 2025

Memo Date: November 7, 2025

Staff Contact: Lauren Balisky – Development Services Manager

Prepared By: Lauren Balisky – Development Services Manager

Action Type: Public Hearing

Agenda Title: AB25-79 – Ordinance D25-79 – 2024 Comprehensive Plan Periodic Update

AB25-80 – Ordinance D25-80 – 2024 Development Code Periodic Update Amendments

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PURPOSE:

The purpose of this item is to hold a public hearing on the draft adoption ordinance for the Comprehensive Plan (AB25-79) and the draft updates to the official zoning map and Bonney Lake Municipal Code (AB25-80) required as part of the 2024 Comprehensive Plan Periodic Update process.

EXECUTIVE SUMMARY:

The City of Bonney Lake is required to review and update its comprehensive plan and development regulations to ensure compliance with the Washington State Growth Management Act (GMA), Chapters 36.70A and 36.70B RCW. Staff has completed drafting the amendments to *Envision Bonney Lake* and the necessary amendments to the Official Zoning Map and the development regulations necessary to implement *Envision Bonney Lake*.

ATTACHMENTS:

A. Draft Ordinance D25-79
B. Draft Ordinance D25-79 – Attachment A – Findings of Fact and Conclusions
C. Draft Ordinance D25-79 – Attachment B – Response to Comments
D. Draft Ordinance D25-79 – Attachment C – Stamps Future Land Use Map Redesignation Request – Application Materials (PLN-2023-02837)
E. Draft Ordinance D25-79 – Attachment D – Comprehensive Plan
F. Draft Ordinance D25-79 – Attachment E – Department of Commerce, Periodic Update Checklist for Fully-Planning Cities – Section I, and Expanded Housing Element Checklist – Section I

G. Draft Ordinance D25-79 – Attachment F – Puget Sound Regional Council, Consistency Tool for Local Comprehensive Plans
H. Draft Ordinance D25-79 – Attachment G – City of Bonney Lake, Goal-Policy Comparison Tables
I. Draft Ordinance D25-80
J. Draft Ordinance D25-80 – Attachment A – Findings of Fact and Conclusions
K. Draft Ordinance D25-80 – Attachment B – Response to Comments
L. Draft Ordinance D25-80 – Attachment C – Stamps Zoning Reclassification Request – Application Materials (PLN-223-02838)
M. Draft Ordinance D25-80 – Attachment D – Official Zoning Map
N. Draft Ordinance D25-80 – Attachment E – Department of Commerce, Critical Areas Checklist
O. Draft Ordinance D25-80 – Attachment F – Department of Commerce, Periodic Update Checklist for Fully-Planning Cities – Section II, and Expanded Housing Element Checklist – Section II

ORDER OF PUBLIC HEARING:

1. Chair opens the public hearing.
2. Brief presentation by staff.
3. Public testimony.
4. Commissioner questions.
5. Chair closes or continues the public hearing.
6. Commission action.

DISCUSSION:

Background

Washington's Growth Management Act (GMA) adopted as Chapter 36.70A RCW mandates that the City adopt and regularly update a comprehensive plan. The City's comprehensive plan is intended to serve as the policy framework to effectively manage growth and development within the City, protect the property rights of the City's residents, facilitate economic development, and guide land use decisions and infrastructure investments.

As part of the major periodic update to the comprehensive plan, the city must also ensure that the zoning map and development regulations implement and are consistent with the comprehensive plan (RCW 36.70A.040(3), WAC 365-196-800 and WAC 365-196-810). The GMA does not exempt any portion of the City's comprehensive plan or development regulation from being subject to review and evaluation as part of the required period update.

Staff has completed drafting the amendments to the development regulations necessary to implement the final draft version of *Envision Bonney Lake*, consistent with Preferred Growth Alternative 2 – Bend the Trend (City Council Motion M24-33, passed April 23, 2024).

Updates from November 5, 2025, Version of Draft Ordinance D25-80

- Updated the definition of "public utility" in proposed changes to BLMC 14.10.030
- Added back in the word "the" to proposed changes in BLMC 15.20.120
- Added explanation for signature process to proposed changes in BLMC 17.40.010 and 17.40.020

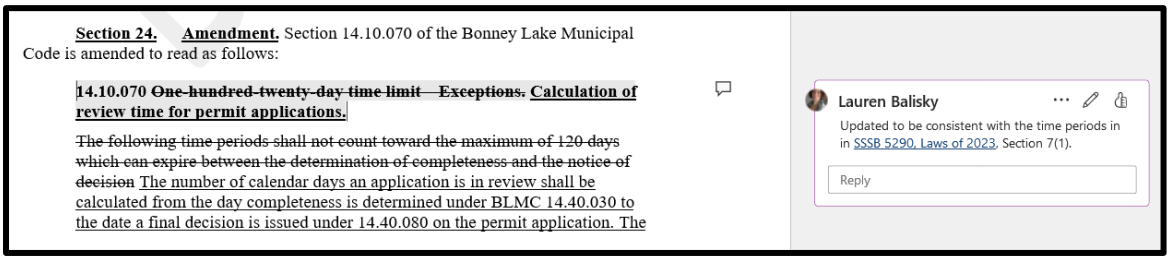
PUBLIC COMMENTS:

As of the date of this staff report, the City received four public comments. These comments are available in Attachment B of each respective ordinance, as appropriate. Additional comments will be added to https://www.ci.bonney-lake.wa.us/envisionbonneylake as they are received, and will be read into the record at the public hearing.

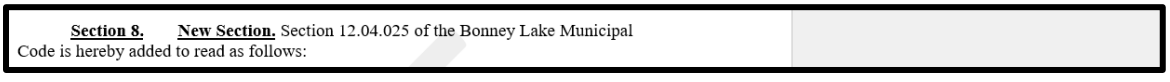
1. *August 5, 2024 – Erika Harris, Senior Planner, PSRC*
2. *September 16, 2025 – Dennis Rattie, President, Tarragon LLC*
3. *October 29, 2025 – Erika Harris, Senior Planner, PSRC*
4. *November 7, 2025 – Tricia Sears, Geologic Planning Liaison, Washington State Department of Natural Resources*

FORMATTING:

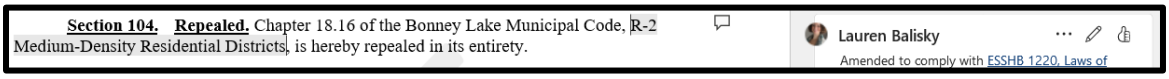
- Draft Ordinance D25-80 is presented in sequential order in the existing Bonney Lake Municipal Code (BLMC), with comments noting the reason for each change, and a link to applicable state legislation:



- Removed text within an existing section of the BLMC is shown with ~~strikethrough~~.
- Added text within an existing section of the BLMC is shown with underline.
- New sections are noted as new, and presented without strikethrough or underline formatting:



- Repealed sections are noted as follows:



ADDITIONAL REVIEW:

Review by the City Attorney is complete. Review by the Finance Department, City Council, and the Washington State Department of Commerce are also in progress.

The public is invited to participate as part of the public hearing process.

ADDITIONAL RESOURCES:

- **Administrative Lot Splits:** Master Builders Association of King and Snohomish Counties (MBAKS) *Creating More Housing Through Lot Splitting: A Tool for Increasing Homeownership Opportunities* (https://www.mbaks.com/docs/default-source/documents/advocacy/issue-briefs/creating-more-housing-through-lot-splitting_mbaks.pdf?sfvrsn=c3ce234f_5)
- **Co-Living Housing:** Washington State Department of Commerce *Co-Living Guidance (February 2025)* (https://deptofcommerce.app.box.com/s/8zh89f3rvn4fksn5mv7vel7bi2d4e179)
- **Emergency Shelters and Emergency Housing:** Municipal Research Services Center (MRSC) *Homeless Shelter and Housing Zoning Codes* website (https://mrsc.org/explore-topics/housing-homelessness/homeless/homeless-housing)
- **Unit Lot Subdivisions:** Washington State Department of Commerce *Unit Lot Subdivisions Fact Sheet (July 2025)* (https://deptofcommerce.app.box.com/s/ozi8jpuvtmsfa7p9pfqv77k3xajnsnow)

ANTICIPATED SCHEDULE:

Below is the anticipated schedule for review by Planning Commission and City Council:

- **November 18:** City Council Discussion on Implementing Development Regulations – Housing Amendments

- **November 19:** Planning Commission Public Hearing on full Comprehensive Plan and Development Regulations

- **December 2:** City Council Workshop on full Comprehensive Plan and Implementing Development Regulations – Permit Processing and Consistency Amendments

- **December 9:** City Council Decision on full Comprehensive Plan and Implementing Development Regulations

SUGGESTED MOTION:

Adopt as presented:

I recommend that the City Council adopt Ordinance D25-79, regarding the 2024 Comprehensive Plan Periodic Update; amending the future land use designation for real property commonly known as parcel numbers 2925000210 and 2925000220; adopting Envision Bonney Lake as the comprehensive plan for the City of Bonney Lake; and I recommend that the City Council adopt Ordinance D25-80, regarding implementing actions associated with the 2024 Comprehensive Plan Periodic Update; amending the official zoning district for real property commonly known as parcel numbers 2925000210 and 2925000220; amending the Official Zoning Map; amending the Bonney Lake Municipal Code for consistency with the comprehensive plan and state law, as presented.

ALTERNATIVE MOTIONS:

Adopt with amendments:

I recommend that the City Council adopt Ordinance D25-79, regarding the 2024 Comprehensive Plan Periodic Update; amending the future land use designation for real property commonly known as parcel numbers 2925000210 and 2925000220; adopting Envision Bonney Lake as the comprehensive plan for the City of Bonney Lake, and I recommend that the City Council adopt Ordinance D25-80, regarding implementing actions associated with the 2024 Comprehensive Plan Periodic Update; amending the official zoning district for real property commonly known as parcel numbers 2925000210 and 2925000220; amending the Official Zoning Map; amending the Bonney Lake Municipal Code for consistency with the comprehensive plan and state law, with the following amendment(s): [*list amendments*].

Do not adopt:

I recommend that City Council does not adopt Ordinance D25-79 or Ordinance D25-80.

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printing purposes.

DRAFT ORDINANCE NO. D25-79

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, REGARDING THE 2024 COMPREHENSIVE PLAN PERIODIC UPDATE; AMENDING THE FUTURE LAND USE DESIGNATION FOR REAL PROPERTY COMMONLY KNOWN AS PARCEL NUMBERS 2925000210 AND 2925000220; ADOPTING ENVISION BONNEY LAKE AS THE COMPREHENSIVE PLAN FOR THE CITY OF BONNEY LAKE; PROVIDING FOR SEVERABILITY AND CORRECTIONS; AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the City of Bonney Lake adopted its first Comprehensive Plan on March 11, 1964 (Ordinance No. 195); and

WHEREAS, in 1990, the Washington State Legislature enacted the Growth Management Act (GMA), codified as Chapter 36.70A of the Revised Code of Washington (RCW), that requires cities and counties throughout the state to adopt comprehensive plans for a twenty-year planning period that includes various elements for land use, housing, capital facilities, utilities, transportation, and economic development, and which may include other elements such as parks and recreation and conservation; and

WHEREAS, the City adopted a GMA Comprehensive Plan on May 30, 1995, after study, review, community input, public workshops and public hearings;

WHEREAS, RCW 36.70A.130(4) requires that each comprehensive land use plan and development regulations be subject to continuing review and evaluation by the county or city that adopted them, and, that the jurisdiction should periodically review and, if needed, revise their comprehensive plans and development regulations to ensure the plan and regulations comply with the requirements of the Growth Management Act (GMA) – Chapter 36.70A RCW; and

WHEREAS, the GMA provides for amendments to the Comprehensive Plan no more than once per year; and

WHEREAS, the last periodic update of the City's Comprehensive Plan was completed in 2015; and

WHEREAS, the City of Bonney Lake was required to conduct a major periodic update of its Comprehensive Plan and development regulations pursuant to RCW 36.70A.130 by December 31, 2024; and

WHEREAS, pursuant to RCW 36.70A.470(2), each city and county planning under RCW 36.70A.040 must include in its development regulations a procedure for any

interested person, including applicants, citizens, hearings examiners, and staff of other agencies, to suggest plan or development regulation amendments; and

WHEREAS, Chapter 14.140 of the Bonney Lake Municipal Code, titled Amendments to the Comprehensive Plan or Development Regulations, establishes procedures for comprehensive plan or development regulation amendments as required by RCW 36.70A.470(2); and

WHEREAS, as part of its periodic update process, the City of Bonney Lake accepted applications for non-city-initiated site-specific comprehensive plan amendments and concurrent zoning reclassifications between May 1, 2021, and April 30, 2023; and

WHEREAS, one (1) application was received, and the city chose to review the application concurrently with the 2024 comprehensive plan periodic update (City of Bonney Lake File Nos. PLN-2023-02837 – Stamps Comprehensive Plan Amendment, and PLN-2023-02828 – Stamps Rezone); and

WHEREAS, the City received periodic update grants totaling $125,000 from the Washington State Department of Commerce to help fund the preparation of specific components of the periodic update to its Comprehensive Plan, including the comprehensive plan consistency checklist, public participation plan, housing equity report, land capacity analysis, future land use map and scenario analysis, and the housing element (Contract Nos. 23-63210-046 and 24-63335-246); and

WHEREAS, the City Council passed Resolution No. 3151 to officially initiate the Comprehensive Plan process, including adoption of a Project Charter and Public Participation Plan; and

WHEREAS, procedures for amending the Plan were implemented in 2023, 2024, and 2025, including efforts to solicit public input, acceptance of proposals for Comprehensive Plan amendments through a docketing process, and evaluating the plan against State law; and

WHEREAS, the public participation plan included interviews with community-based organizations, outreach at various public events, surveys, distribution of information in multiple languages, social media communications, public meetings at Planning Commission, Community Development Committee, and City Council, and the public hearing; and

WHEREAS, the goals and policies for growth and the provision of services are guided by the GMA and are based, in part, upon state and regional goals, and reflect the vision and goals of the City's multiple communities and elected officials; and

WHEREAS, the City has planned for and accommodated housing affordable to all economic segments of the population, including units for moderate, low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing, as instructed by Engrossed Second Substitute House Bill 1220 (HB 1220), Laws of 2021; and

WHEREAS, the City has ensured consistency with Puget Sound Regional Council's (PSRC) Vision 2050 Multicounty Planning Policies and Pierce County Countywide Planning Policies; and

WHEREAS, copies of these proposed amendments were filed with the Washington State Department of Commerce on October 9, 2025, not less than sixty days prior to final action, pursuant to RCW 36.70A.106 and WAC 365-196-630; and

WHEREAS, copies of these proposed amendments and the Vision Comprehensive Plan Consistency Tool were submitted to the Puget Sound Regional Council on October 9, 2025, not less than thirty days prior to final action; and

WHEREAS, the Public Services Director acting as the State Environmental Policy Act (SEPA) Responsible Official determined the proposal will not have a probable significant adverse impact on the environment, and an environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c) and issued a Determination of Nonsignificance (DNS)on November 3, 2025, with a comment period through November 19, 2025. This DNS was [appeal status] and the decision [decision status]; and

WHEREAS, the City provided public notice of the hearing as required by Bonney Lake Municipal Code (BLMC) 14.140.040; and

WHEREAS, the Planning Commission held a public hearing on November 19, 2025, as required by BLMC 14.140.080 and recommended that the City Council [recommendation], as required by BLMC 14.140.100; and

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings of Facts and Conclusions. The findings of fact and conclusions set forth Attachment A, the response to comments submitted to the City provided in Attachment B, the application materials for the rezone of the Stamps property provided in Attachment C, *Envision Bonney Lake* and all appendices thereto provided in Attachment D, the Department of Commerce Periodic Update Checklist for Fully-Planning Cities and Expanded Housing Element Checklist provided in Attachment E, the Puget Sound Regional Council Consistency Tool for Local Comprehensive Plans provided in Attachment F, and the City of Bonney Lake Goal-Policy Comparison Tables provided in Attachment G are adopted in full by the City Council in support of its decision. The recitals listed above in this Ordinance are further adopted as legislative findings of fact.

Section 2. Redesignation of Stamps Property. Consistent with the Planning Commission's recommendation, Council hereby approves the proposed amendment to future land use map (City of Bonney Lake File No. PLN-2023-02827 – Stamps Comprehensive Plan Amendment) to change the future land use designation of Pierce County Tax Parcel Nos. 2925000210 and 2925000220, commonly known as 19401 94th St E and 19405 94th St E, from High-Density Residential to Commercial – Core. The

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application materials included as Attachment C, attached hereto and incorporated by this reference.

Section 3. Comprehensive Plan. The City Council adopts *Envision Bonney Lake* included as Attachment D, attached hereto and incorporated by this reference, as the official comprehensive plan superseding all previous versions of the Bonney Lake Comprehensive Plan. *Envision Bonney Lake* includes the Official Future Land Use map.

Section 4. Periodic Review. The adoption of *Envision Bonney Lake* signifies that the City of Bonney Lake has completed the periodic review and update of the City's comprehensive plan as required by RCW 36.70A.130.

Section 5. Direction to Clerk. The City Clerk is directed to maintain one copy of this Ordinance and one copy of each of the statutes, regulations, or standards referenced herein on file at the City Clerk's office for use and examination by the public during regular business hours.

Section 6. Direction to Public Services Director. The Public Services Director is directed to transmit one copy of the approved Ordinance to the Washington State Department of Commerce within ten days after final adoption, consistent with RCW 36.70A.106 and WAC 365-196-630. The Public Services Director is further directed to transmit a copy of this Ordinance together with copies of other Ordinances amending development regulations adopted within the preceding twelve months, the Pierce County Assessor pursuant to RCW 35A.63.260.

Section 7. Severability. If any section, sentence, clause, or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 8. Publication. This Ordinance shall be published by an approved summary consisting of the title.

Section 9. Corrections. Upon the approval of the city attorney, the city clerk, and/or the code publisher is authorized to make any necessary technical corrections to this ordinance, including but not limited to the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any reference thereto. Provided, however, that nothing in this section allows the city attorney, the city clerk, and/or the code publisher to change the intent of this Ordinance.

Section 10. Effective Date. This Ordinance shall take effect and be in full force on January 1, 2026, a minimum of five days after publication as provided by law.

ADOPTED by the City Council of the City of Bonney Lake and attested by the City Clerk in authentication of such passage on this ___ day of _____, 20___.

APPROVED by the Mayor this __ day of _____, 20___.

_____
Terry Carter, Mayor

AUTHENTICATED:

_____
Sadie A. Schaneman, MMC, City Clerk

AB____
Passed:
Valid:
Published:
Effective Date:
This Ordinance totals ____ page(s)

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Attachment A

Findings of Fact and Conclusions

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FINDINGS OF FACT AND CONCLUSIONS

Having considered in detail both the oral and documentary evidence received concerning adoption of *Envision Bonney Lake*, the Bonney Lake City Council now makes and adopts the following Findings of Fact and Conclusions:

FINDINGS OF FACT

1) The proposed 2024 Comprehensive Plan Periodic Update, *Envision Bonney Lake*, following Washington State Growth Management Act (GMA) requirements, will update and amend the City of Bonney Lake Comprehensive Plan. The update responds to guidance and requirements established under the GMA and other recently passed legislation. The proposed updates to the policies and goals will guide development in the City over the next 20 years.

2) Bonney Lake has chosen to extend the planning horizon in *Envision Bonney Lake* to 25 years to better coordinate other long-range planning efforts of the city, including for its water and sewer utilities.

Background

3) Between 2018 and 2021, the City worked collaboratively with Pierce County to assist with the preparation of the *2021 Buildable Lands Report*, which identifies land fully, partially, or unavailable for housing and employment development capacity. The report concluded that Bonney Lake would not need to take reasonable measures to reduce a gap between growth assumptions and growth targets as part of this comprehensive plan update, pursuant to Revised Code of Washington (RCW) 36.70A.215.

4) On October 29, 2020, Puget Sound Regional Council adopted *Vision 2050*, which contains the multicounty planning policies (MPPs) for jurisdictions in the central Puget Sound region. *Envision Bonney Lake* must be consistent with the multicounty planning policies in *Vision 2050*, pursuant to RCW 36.70A.210.

5) In 2021, the Washington State Legislature passed Engrossed Second Substitute House Bill 1220 (ESSHB 1220), Laws of 2021, related to supporting emergency shelters and housing through local development regulations. ESSHB 1220 amended the GMA to introduce new requirements for the Housing Element of each jurisdiction's comprehensive plan and required that jurisdictions plan for the number of housing units as provided by the Washington State Department of Commerce, including the number of housing units needed by moderate, low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

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6) On May 17, 2022, Pierce County Council adopted the *Pierce County Countywide Planning Policies* under Pierce County Ordinance No. 2022-29. *Envision Bonney Lake* must be consistent with the countywide planning policies (CPPs) in the *Pierce County Countywide Planning Policies*, pursuant to RCW 36.70A.210.

7) The City reviewed the comprehensive plan and development regulations currently in effect in Bonney Lake for consistency with the requirements of the GMA, other applicable state laws, Growth Management Hearings Board decisions, the MPPs in Puget Sound Regional's Council's *Vision 2050*, and the Pierce County CPPs.

   (a) Based on this review, on June 30, 2022, the City prepared the *Comprehensive Plan Update and Policy Gap Analysis*, which identified mandatory changes that the City would have to address during the periodic update process.

   (b) This analysis was presented to the Bonney Lake Planning Commission on July 6, 2022, and to the Bonney Lake City Council on August 16, 2022.

8) On August 16, 2022, Pierce County Council adopted population, housing and employment targets for the cities, towns, and unincorporated areas of Pierce County under Pierce County Ordinance No. 2022-46s. The growth targets were based in part on the *2021 Buildable Lands Report* and built on the recommendations of the Pierce County Growth Management Coordinating Committee (GMCC) and Pierce County Regional Council (PCRC).

9) On March 1, 2023, the Washington State Department of Commerce issued formal guidance on housing unit targets and the Housing for All Planning Tool (HAPT). The HAPT used the adopted population targets to calculate countywide housing unit targets and distribute housing unit and emergency housing, emergency shelters, and permanent supportive housing needs amongst the cities, towns, and unincorporated areas of Pierce County for the year 2044. As a result, the HAPT identified different housing unit targets than the housing unit targets adopted under Pierce County Ordinance No. 2022-46s.

10) On June 20, 2023, Pierce County Council repealed Pierce County Ordinance No. 2022-46s and adopted Pierce County Ordinance No. 2023-22s, which amended the housing targets and housing unit and emergency housing, emergency shelters, and permanent supportive housing needs amongst the cities, towns, and unincorporated areas of Pierce County.

11) As a result, Bonney Lake needed to restart work completed under the previous population, housing, and employment targets to evaluate local land capacity, growth alternatives, and transportation modeling.

12) On March 29, 2024, the City completed its analysis of two growth alternatives:

   (a) Alternative One "Stay the Course", which evaluated achieving housing targets through amplification of the current development pattern; and

(b) Alternative Two "Bend the Trend", which evaluated achieving housing targets through smaller-scale development with sufficient land capacity dedicated to low-income housing.

13) On April 3, 2024, the growth alternatives and associated land capacity analysis were presented to Planning Commission. Planning Commission recommended that City Council move forward with Growth Alternative Two "Bend the Trend".

14) City Council reviewed the growth alternatives, associated land capacity analysis, and Planning Commission recommendation on April 16 and April 23, 2024. On April 23, 2024, City Council moved to approve Motion M24-33, identifying Growth Alternative Two "Bend the Trend" as the City's Council's preferred growth alternative.

15) On June 13, 2023, the City of Bonney Lake passed Resolution 3151 adopting *Envision Bonney Lake: 2024 Comprehensive Plan Update and Public Participation Plan (May 30, 2023),* establishing a public participation program in accordance with RCW 36.70A.130(2) that identified procedures and schedules for reviewing and revising the City's comprehensive plan and development regulations.

16) In June 2024, the City completed an initial draft of the *Housing Equity Report* to analyze disparate impacts, exclusion, and displacement in Bonney Lake, consistent with ESSHB 1220. The findings of the *Housing Equity Report* were used to draft the Community Development Element.

17) In September 2024, the City completed an initial draft of the Community Development Element. The Future Land Use Map was updated consistent with the Preferred Growth Alternative Two "Bend the Trend", the findings of the *Comprehensive Plan Update and Policy Gap Analysis*, the findings of the *Housing Equity Report*, and the *Land Capacity Analysis* in order to ensure sufficient land capacity was dedicated to employment, low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

18) In February 2025, the City completed a transportation analysis of the growth alternatives, including the preferred growth alternative. The results of this analysis and associated traffic modeling were incorporated into the Community Mobility Element and the Capital Facilities & Services Element consistent with the Preferred Growth Alternative Two "Bend the Trend".

Public Participation

19) The City of Bonney Lake followed the public participation program adopted pursuant to Resolution 3151 during the periodic update process. Opportunities for public participation included:

(a) Outreach Events

- Summer 2023 — Tabling Events at City of Bonney Lake Tunes at Tapps – July 12, July 19, July 26, August 2, August 9, August 16, and August 23
- September 22, 2023 — Tacoma Pierce County Health Department Meeting
- October 11, 2023 — Tabling Event at Grocery Outlet
- October 18, 2023 — Parks, Trails, Recreation & Open Space Open House
- November 2, 2023 — Communities for Families Coalition Presentation
- November 9, 2023 — Tabling Event at the Bonney Lake Library
- November 16, 2023 — HOA Board Presentation
- November 29, 2023 — HOA Board Presentation
- November 30, 2023 — HOA Board Presentation
- December 2, 2023 — Tabling Event at City of Bonney Lake Tree Lighting
- December 7, 2023 — Bonney Lake Rotary Presentation
- December 8, 2023 — Bonney Like High School Youth Forum Presentation
- January 18, 2024 — Chamber Collective Presentation
- Summer 2024 — Tabling Events at City of Bonney Lake Tunes at Tapps – July 10, July 17, July 24, July 31, August 7, August 14, and August 21
- August 24, 2024 — Tabling Event at the City of Bonney Lake Bonney Lake Days
- Summer 2025 — Tabling Events at City of Bonney Lake Tunes at Tapps – July 9, July 16, July 23, July 30, August 6, August 13, and August 20

(b) Community Bulletin Boards

- Posted an informational flyer and survey at Petco for duration of Comprehensive Plan
- Ben Franklin's Crafts posted an informational flyer and survey on their website
- Ben's Espresso handed out informational flyers and surveys

(c) An online survey in English and Spanish.

(d) Posting information on the City's social media pages.

20) The City maintained both an email list of and a mailing list of stakeholders and individuals that requested notification of hearings related to periodic update

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process. Notices of all public hearings were either mailed or emailed to all stakeholders and parties that requested notification of public hearings.

Public Meetings

21) The Bonney Lake Planning Commission held 13 public meetings to discuss the periodic update and the different elements of *Envision Bonney Lake.* These meetings were held on:

(a)	July 6, 2022	Gap Analysis Briefing
(b)	March 22, 2023	Project Briefing
(c)	May 3, 2023	Project Charter and Public Participation Plan
(d)	September 13, 2023	Environmental Stewardship Element
(e)	March 27, 2024	Land Capacity Analysis and Growth Alternatives
(f)	April 17, 2024	Community Development Element
(g)	July 10, 2024	Community Development Element
(h)	August 28, 2024	Community Development Element
(i)	September 18, 2024	Environmental Stewardship Element
(j)	November 6, 2024	Historic Preservation & Cultural Resources Element
		Pedestrian Priority Index (Community Mobility Element Component)
(k)	July 9, 2025	Community Mobility Element
(l)	August 13, 2025	Community Mobility Element
(m)	October 1, 2025	Capital Facilities & Services Element

22) The Bonney Lake City Council held 18 public meetings to discuss the periodic update and the different elements of *Envision Bonney Lake*. These meetings were held on:

(a)	August 16, 2022	Gap Analysis Briefing
(b)	June 6, 2023	Project Charter and Public Participation Plan
(c)	June 13, 2023	Project Charter and Public Participation Plan

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(d)	April 16, 2024	Land Capacity Analysis and Growth Alternatives
(e)	April 23, 2024	Land Capacity Analysis and Growth Alternatives
(f)	September 10, 2024	Community Development Element
(g)	September 17, 2024	Community Development Element
(h)	September 24, 2024	Community Development Element
(i)	October 1, 2024	Environmental Stewardship Element
(j)	October 8, 2024	Environmental Stewardship Element
(k)	November 19, 2024	Historic Preservation & Cultural Resources Element
(l)	November 26, 2024	Historic Preservation & Cultural Resources Element Pedestrian Priority Index (Community Mobility Element Component)
(m)	September 16, 2025	Community Mobility Element
(n)	September 23, 2025	Community Mobility Element
(o)	October 7, 2025	Capital Facilities & Services Element
(p)	October 14, 2025	Capital Facilities & Services Element
(q)	December 2, 2025	Full Comprehensive Plan and Ordinances
(r)	December 9, 2025	Full Comprehensive Plan and Ordinances

Public Hearing

23) The City issued an official notice of the public hearing on November 3, 2025, which is 16 days prior to the hearing.

24) The notice of public hearing provided a comment period, which concluded on November 19, 2025.

25) Notice of the hearing was also published in the newspaper on November 5 and November 11, 2025, as required by BLMC 14.140.040(D).

26) The Bonney Lake Planning Commission held a public hearing on November 19, 2025, to discuss the periodic update and the different elements of *Envision Bonney Lake*. The public hearing for this matter was conducted in accordance with City of

Bonney Lake rules and regulations governing such matters for the Planning Commission.

27) The City prepared comment matrix, which included the comment provided and the City's response. This comment matrix attached as **Attachment B** to this Ordinance is hereby incorporated as part of the City's Findings of Fact.

Planning Commission Deliberations

28) The Puget Sound region is expecting 1.8 million in new population projected by 2050 per the Puget Sound Regional Council. There is an urgent need to allow and facilitate new housing in urbanized areas with existing infrastructure, and to promote a continuum of housing for low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing, while reasonably and responsibly protecting Bonney Lake's cherished natural environment and existing community members.

29) Stamps Docket Request.

(a) On April 25, 2023, Gary and Karen Stamps applied for a Comprehensive Plan Amendment (PLN-2023-02837) and concurrent rezone (PLN-2023-02838) for Pierce County Tax Parcel Nos. 2925000210 and 2925000220, commonly known as 19401 94th St E and 19405 94th St E. The requested amendment is to change the future land use designation from High-Density Residential to Midtown Core with a concurrent reclassification of the zoning district from R-3 to Midtown Core.

(b) On April 26, 2023, the application was deemed complete. The application materials are attached as **Attachment C** to this Ordinance

(c) The City chose to complete modeling and analysis for the proposal as part of the growth alternatives analysis, land capacity analysis, and transportation analysis for *Envision Bonney Lake*. This analysis determined that the Midtown Core future land use designation should be consolidated into the Commercial – General future land use designation. Midtown Core is one of two implementing zoning classifications for the Commercial – General future land use designation.

(d) Based on the foregoing analysis, the Stamps proposal was incorporated into the draft Community Development Element and Future Land Use Map for deliberation by Planning Commission and decision by City Council for redesignation from High-Density Residential to the Commercial – General future land use designation.

(e) The Planning Commission finds that the Stamps docket request to change the future land use classification of Pierce County Tax Parcel Nos. 2925000210 and 2925000220 from High-Density Residential to

Commercial – General meets the criteria for approval in BLMC 14.140.090, including that the proposal:

- Is consistent with the goals and policies of *Envision Bonney Lake*;
- Does not cause *Envision Bonney Lake* to be internally inconsistent;
- Is consistent with the countywide planning policies;
- Is consistent with the Growth Management Act; and
- Advances the public health, safety or welfare.

30) The 2024 Periodic Comprehensive Plan update, attached as **Attachment D** to this Ordinance, includes the revision of most elements. The Shoreline Element and the Eastown Plan were reformatted and renumbered only. The following Chapters and Appendices were considered as part of the Planning Commission's deliberations:

(a) Introduction

(b) Community Development Element

(c) Historic Preservation & Cultural Resources Element

(d) Community Mobility Element

(e) Capital Facilities & Services Element

(f) Environmental Stewardship Element

(g) Appendix A: Housing Equity Report

(h) Appendix B: Land Capacity Analysis

(i) Appendix C: Growth Alternatives Memo

(j) Appendix D: 2023 Existing and 2049 Projected Traffic Volumes

(k) Appendix E: 2023 Existing Intersection Level of Service (ILOS) Worksheets

(l) Appendix F: Pedestrian Priority Index Scores

(m) Appendix G: Transportation Evaluation of Land Use Alternatives

(n) Appendix H: Traffic Analysis Allan Yorke Park

(o) Appendix I: 2049 Projected Intersection Level of Service (ILOS) Worksheets Without Improvements

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(p) Appendix J: Intersection Control Evaluation Angeline Road at Veterans Memorial Drive

(q) Appendix K: Intersection Control Evaluation Church Lake Road E at W Tapps Highway

(r) Appendix L: 192nd Avenue Extension and 100th Street Extension Evaluation

(s) Appendix M: 2049 Projected Intersection Level of Service (ILOS) Worksheets With Improvements

(t) Department of Commerce *Periodic Update Checklist for Fully-Planning Cities*

(u) Puget Sound Regional Council *Consistency Tool for Local Comprehensive Plans*

(v) City of Bonney Lake *Goal-Policy Comparison Matrix*

31) *Envision Bonney Lake* includes a Future Land Use Map (FLUM) which updates land use designations throughout the City. The Planning Commission finds that the updates ensure that there is adequate land capacity to accommodate future population, employment, and low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

32) Section I of the completed Department of Commerce *Periodic Update Checklist for Fully-Planning* and Section I of the completed Department of Commerce *Expanded Housing Element Checklist* are attached as **Attachment E** to this Ordinance and were considered as part of the Planning Commission's deliberations. The Planning Commission finds that *Envision Bonney Lake* is consistent with the requirements of the Growth Management Act and **Attachment E** is hereby incorporated as part of the City's Findings of Fact.

33) The completed Puget Sound Regional Council's Consistency Tool for Local Comprehensive Plans, attached as **Attachment F** to this Ordinance, and was considered as part of the Planning Commission's deliberations. The Planning Commission finds that *Envision Bonney Lake* is consistent with the MPPs in *Vision 2050* and **Attachment F** is hereby incorporated as part of the City's Findings of Fact.

34) The City completed an evaluation of *Envision Bonney Lake* goals and policies, attached as **Attachment G** to this Ordinance, and was considered as part of the Planning Commission's deliberations. The Planning Commission finds that *Envision Bonney Lake* is consistent with the adopted Pierce County CPPs and **Attachment G** is hereby incorporated as part of the City's Findings of Fact.

State Environmental Policy Act

35) The adoption of *Envision Bonney Lake* and interdependent adoption of the Official Zoning Map and amendments to the Bonney Lake Municipal Code are considered a non-project action as defined in WAC 197-11-704(2)(b) under the Washington State Environmental Policy Act (SEPA).

36) This non-action is not categorically exempt from the SEPA pursuant to WAC 197-11-800; therefore, the City was required to prepare a SEPA Checklist.

37) Pursuant to WAC 197-11-926, the City of Bonney Lake is the lead agency for the SEPA review.

38) The Public Services Director acting as the SEPA Responsible Official reviewed the SEPA Checklist and issued a threshold Determination of Non-Significance under BLMC 16.10.040 on November 3, 2025.

39) A comment period on the Determination of Non-Significance was provided from November 3, 2025, to November 19, 2025.

40) There was [appeal status] of the Determination of Non-Significance and the threshold determination is final.

State Agency Review

41) The City Council passed six motions expressing the Council's intent to include the following documents as part of the City's submittal of the Notice of Intent to Adopt the 2024 Periodic Update to the Comprehensive Plan to the Washington State Department of Commerce:

   (a) **Preferred Growth Alternative:** Motion M24-33 (April 23, 2024)

   (b) **Community Development Element:** Motion M24-60 (September 24, 2024)

   (c) **Environmental Stewardship Element:** Motion M24-62 (October 8, 2024)

   (d) **Historic Preservation & Cultural Resources Element:** Motion M24-122 (November 26, 2024)

   (e) **Community Mobility Element:** Motion M25-75 (September 23, 2025)

   (f) **Capital Facilities & Services Element:** Motion M25-78 (October 14, 2025)

42) The City submitted a Notice of Intent to Adopt *Envision Bonney Lake* to the Washington State Department of Commerce on October 9, 2025, for review and comment by the Department and other State agencies required by RCW 36.70A.106.

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43) The 60-day notice period ends on December 8, 2025.

Puget Sound Regional Council Review

44) The City submitted the draft *Envision Bonney Lake* to Puget Sound Regional Council on October 9, 2025, for review and comment.

CONCLUSIONS

45) The *2021 Pierce County Buildable Lands Report* demonstrates that sufficient land capacity exists within the City's current incorporated boundaries to accommodate the projected growth identified in the Community Development Element of *Envision Bonney Lake*.

46) The Stamps docket request to change the future land use designation of Pierce County Tax Parcel Nos. 2925000210 and 2925000220 from High-Density Residential to Commercial – General meets the criteria for approval in BLMC 14.140.090 and should be approved.

47) The recommended version of *Envision Bonney Lake* has been drafted, noticed, reviewed by the public, and considered by the Planning Commission in accordance with all applicable laws of the State of Washington and the City of Bonney Lake, and the requirements established by the Washington State Department of Commerce for public participation and notification.

48) The recommended version of the Future Land Use Map (FLUM) establishes updated land use designations that have been incorporated into *Envision Bonney Lake*. The FLUM and *Envision Bonney Lake* respond to the population, housing, and employment targets for the next 20 years allocated under Pierce County Ordinance No. 2023-22s, including adequate land capacity to accommodate future population, employment, and low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

49) The recommended version of *Envision Bonney Lake* is necessary according to the Growth Management Act periodic update requirements, recently passed state legislation, multicounty planning policies, and countywide planning policies.

50) The recommended version of *Envision Bonney Lake*, including all draft elements and appendices as proposed to date, are in the best interest of the public health, safety, and welfare.

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Attachment B

Response to Comments

{to be updated as comments are received}

DRAFT

Lauren Balisky

From: Erika Harris <EHarris@psrc.org>
Sent: Monday, August 5, 2024 9:27 AM
To: Lauren Balisky
Subject: PSRC Comments on Bonney Lake's Draft Comp Plan Housing Element
Attachments: Comment Letter Bonney Lake Housing Element.pdf

Good morning,

PSRC's comments on the draft housing element are attached. Thank you for providing the opportunity to review the draft element. Please contact me if you have any questions or would like me to review additional drafts.

Cheers,

Erika

Erika Harris, AICP (she/her)
Senior Planner
Puget Sound Regional Council

206-464-6360
eharris@psrc.org
www.psrc.org

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Puget Sound Regional Council

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August 5, 2024

Lauren Balisky, Interim Planning Manager
City of Bonney Lake
9002 Main St E
Bonney Lake, WA 98391

Subject: PSRC Comments on City of Bonney Lake Comprehensive Plan Housing Element

Dear Ms. Balisky,

Thank you for providing an opportunity for the Puget Sound Regional Council (PSRC) to review the housing element of Bonney Lake's draft comprehensive plan. We appreciate that the city has invested a substantial amount of time and effort in developing the element and look forward to reviewing the rest of the draft plan. This timely collaboration provides an opportunity to review the draft plan and prepares the city well for certification by PSRC once the full plan has been adopted.

We suggest the city consider the following comments as further work is completed for the comprehensive plan update to align with VISION 2050 and the Growth Management Act. We reviewed the housing element using the housing section of the PSRC Plan Review Consistency Tool. We will look at other sections of the tool once we receive additional sections of the draft plan. Key sections of the consistency tool are listed below on the left along with relevant comments on the draft plan on the right.

Housing

Plan Review Consistency Tool	PSRC Comment on Draft Plan
Increase housing supply and densities to meet the region's current and projected needs at all income levels consistent with the Regional Growth Strategy (MPP-H-1)	The capacity analysis in the housing element is based on the "Bend the Trend" alternative in 2044 Growth Alternatives Memo. The element should be updated to include supportive information from the memo or a link to the memo and explanation on which alternative was selected.
Identify potential physical, economic, and cultural displacement of low-income households and marginalized populations and work with communities to develop anti-displacement strategies in when planning for growth (MPP-H-12, H-Action-6)	The plan has many excellent housing policies, including several to prevent and mitigate displacement. Many of the policies call for the city to "consider" supportive actions. The policies would be strengthened if "consider" were removed.

PSRC has resources available to assist the city in further development of the draft plan: https://www.psrc.org/planning-2050/vision/vision-2050-planning-resources.

We appreciate all the work the city is doing and the opportunity to review and provide comments. We are happy to continue working with you as the plan progresses through the draft and adoption process. If you have any questions or need additional information, please contact me at eharris@psrc.org.

Sincerely,

Erika Harris

Erika Harris, AICP, Growth Management Planning
Puget Sound Regional Council

cc: Review Team, Growth Management Services, Department of Commerce

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TARRAGON

SEPTERMBER 16, 2025

Bonney Lake City Council
9002 Main Street East, Suite 250
Bonney Lake, WA 98391

Via Email

Re: Draft Community Mobility Element – Recommended Transportation Improvements

Dear Members of the City Council:

We write on behalf of and as an authorized representative for Midtown Properties L.L.C. ("Midtown"), the owner of the property ("Property") located at the 21200 S. Prairie Road, concerning the draft proposed updates to the Community Mobility Element ("Draft Update"). We appreciate the City of Bonney Lake's ("City") ongoing efforts to ensure that the City transportation system can accommodate future growth, and we are grateful for the discussions that we have had with staff regarding future proposals for the Property. After reviewing the Draft Update, we respectfully request that you amend the list of Recommended Transportation Improvements in the Draft Update to include an extension of 192nd Ave E, instead of or in addition to the current proposed extension of 100th St E and 211th Ave E. This change would both better serve the City's mobility goals and avoid potential issues in the future.

As you know, the City's transportation concurrency management standards established by Bonney Lake Municipal Code ("BLMC" or "Code") Chapter 19.02, provide that new development may proceed only if adequate transportation facilities are in place or are planned sufficiently to maintain adopted level of service standards. The City establishes level of service based on compliance with volume-to-capacity ("V/C") ratios along designated screenlines. The Draft Update projects by 2049, without additional improvements, traffic volumes along Screenline C1 (north-south approaches on the south side of WA 410), will exceed concurrency standards.

In its previous examination of this issue, including in discussions with Midtown, the City has identified two potential projects that would address this projected deficiency. One project ("Alternative 1") would extend 192nd Ave E to connect with 190th Av E. The other project ("Alternative 2") would provide a new connection of 100th/101st St E to 214th Ave E including a new segment of 211th Ave E. Much of Alternative 2 would need to be constructed on Midtown's Property. Although either Alternative 1 or Alternative 2 would add sufficient capacity to the City's road network to ensure the satisfaction of concurrency standards at Screenline C1 by 2049, only Alternative 2 is included in the list of Recommended Transportation Improvements in the current Draft Update – specifically, Projects R7, R8, and I5, as listed in Exhibit 42 and mapped in Exhibit 41. Alternative 1 is not included.

Midtown requests that the Draft Update be amended to include Alternative 1 in the Recommended Transportation Improvements, either in addition to or in lieu of Alternative 2. The City's own analysis shows that Alternative 1 would deliver significantly greater mobility benefits at a substantially lower cost than Alternative 2. Specifically, the City estimates that Alternative 2 would

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serve approximately 80 new PM peak hour trips on 211th Avenue across Screenline C1. While the additional capacity provided from Alternative 2 results in an acceptable V/C ratio for Screenline C1 in 2049, it does so at a total cost of roughly $9.8 million (the total for Projects R7, R8, and I5) – not simply the $3.9 million figure identified in the Draft Update's Appendix O, which accounts only for the costs of Project R8. This would equate to a cost of approximately $125,000 per new PM peak hour trip utilizing 211th Ave.

By contrast, as established by prior City analysis, the 192nd Avenue extension (Alternative 1) would support approximately 515 new PM peak hour trips across Screenline C1 at a similar total construction cost, resulting in costs of about $20,000 per trip. Alternative 1 thus provides a far more efficient use of public resources while also serving a significantly larger number of trips. Not only is this approach more cost-effective, but it would deliver a greater overall mobility benefit for the community. Based on this analysis, we encourage the City to engage in further study regarding the most cost-effective option for satisfying anticipated concurrency requirements. At a minimum, the Draft Update should include Alternative 1 alongside Alternative 2 so that future decision-makers have the flexibility to select the project that best meets Bonney Lake's needs while being mindful of imposing an equitable burden on property owners.

Because the recommended transportation improvements included in the Draft Update may affect how concurrency requirements are applied to future development on the Property, we also respectfully call the City's attention to the principles of nexus and proportionality. As recently reaffirmed by the U.S. Supreme Court in *Sheetz v. County of El Dorado*, these protections apply to legislative exactions no less than to case-by-case conditions. In practical terms, this means that any transportation improvements required of Midtown's future project must be reasonably related to and proportionate with the actual traffic impacts of the project – not simply improvements that would help the City meet previously identified goals.

As noted above, current traffic analysis demonstrates that concurrency requirements can be satisfied along Screenline C1 (including with future traffic from the Property) via Alternative 1, rather than Alternative 2. Construction of Alternative 2 would require significantly *more* road, at significantly greater cost, for significantly *fewer* trips than Alternative 1. Because much of Alternative 2 would be located on Midtown's Property, it is anticipated that the new roads would be utilized primarily by traffic from this Property – and thus that the costs would be borne primarily or entirely by Midtown. It is also unclear if or how the value of the property required for such improvements has been accounted for in the project cost. This would make Midtown responsible for funding more than one third of the total cost for *all* transportation improvements in the vicinity of the Property, a requirement that would vastly exceed the transportation impact fee credits that would be available. Not only would this represent an inefficient use of City resources, it would raise serious concerns, because it would impose a much greater burden on Midtown than is required to mitigate the impacts of its development.

For these reasons, future construction of Alternative 1 appears to represent a more efficient and equitable approach to satisfying the City's concurrency requirements. We encourage the Council to reexamine its list of proposed improvements in light of this analysis and to keep in mind that, in any case, any future funding obligations imposed on individual property owners must reflect a fair-share approach that ties mitigation directly to a project's actual impacts. We appreciate the City's continued commitment to both mobility planning and fairness in the application of its standards.

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Sincerely,

Signed by:
Dennis L. Rattie
8500FD0D46804FC...

Dennis L. Rattie
President, Tarragon L.L.C.,
As Authorized Representative of Midtown Properties L.L.C.

Lauren Balisky

From: Erika Harris <EHarris@psrc.org>
Sent: Wednesday, October 29, 2025 2:53 PM
To: Lauren Balisky
Cc: Mettie Brasel; Jason Sullivan
Subject: PSRC Comments on Draft Comp Plan
Attachments: Comment Letter Bonney Lake Comp Plan Oct 2025.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Lauren,

PSRC's comments on the City of Bonney Lake's draft plan are attached. Thank you for providing the opportunity to review the draft. Please contact me if you have any questions.

Cheers,

Erika

Erika Harris, AICP (she/her)
Senior Planner
Puget Sound Regional Council

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October 29, 2025

Lauren Balisky, Interim Planning Manager
City of Bonney Lake
9002 Main St E
Bonney Lake, WA 98391

Subject: PSRC Comments on City of Bonney Lake Comprehensive Plan

Dear Ms. Balisky,

Thank you for providing an opportunity for the Puget Sound Regional Council (PSRC) to review the October 2025 draft of Bonney Lake's comprehensive plan. We appreciate that the city has invested a substantial amount of time and effort in developing the plan. This collaboration provides an opportunity to review the draft plan and prepares the city well for certification by PSRC once the full plan has been adopted.

We suggest the city consider the following comments as further work is completed for the comprehensive plan update to align with VISION 2050 and the Growth Management Act. In particular, we encourage the city to work towards a final plan with a complete 20-year transportation financing plan.

We reviewed the plan using the PSRC Plan Review Consistency Tool. Key sections of the consistency tool are listed below on the left along with relevant comments on the draft plan on the right.

Plan Review Consistency Tool	PSRC Comment on Draft Plan
Transportation/Community Mobility	
Include a 20-year financing plan, as well as an analysis of funding capability for all transportation modes (RCW 36.70A.070(3), RCW 36.70A.070(6)(a)(iv), WAC 365-196-415, WAC 365-196-430, MPP-RC-11-12, T-6, T-15)	The Growth Management Act requires local comprehensive plans to include a multiyear transportation financing plan for how the jurisdiction will meet the mobility needs identified for the planning period (RCW 36.70A.070(6)). The Community Mobility element includes a transportation project list through 2049 with cost estimates. The Capital Facilities & Services element includes revenues through 2030. PSRC recommends also including probable revenues available to the city through at least 2044, an analysis of the sufficiency of funding resources compared to estimated costs identified, and a reassessment strategy in the event revenues fall short of costs. Find further guidance on how to address the financial analysis in the plan in PSRC's Transportation Element Guidance.
Environment	
Support programs to ensure that all residents, regardless of race, social, or economic status, have clean air, clean water, and other elements of a healthy environment and prioritize the reduction of impacts to vulnerable populations that have been disproportionately affected (MPP-En-3-4, En-7-8, En-21)	The city is commended for including CD-LU-9.1 on reducing the negative health effects of air, noise and light pollution and Goal CD-LU-9 on improving access and opportunities to enhance the health of all Bonney Lake residents while reducing the negative factors that reduce their well-being. Prioritizing these efforts for vulnerable populations would more fully address VISION 2050 policies. VISION 2050

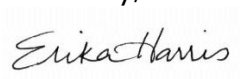
Plan Review Consistency Tool	PSRC Comment on Draft Plan
	defines vulnerable populations as people who are unable to avoid or have difficulty recovering from the impacts of hazardous conditions because of factors such as limited resources or impaired physical health.
Identify open space, trail, and park resources and needs, and develop programs for protecting and enhancing these areas (MPP-En-11-12, En-15, En-Action-4)	Consistent with VISION 2050 and national best practices, PSRC recommends including a policy and parks level-of-service to provide parks within a 10-minute walk of all residents. This will set the foundation for adding or expanding parks to create equitable access. PSRC uses the Trust for Public Land's ParkServe mapping tool to identify park gaps. ParkServe shows that 36% of Bonney Lake's residents live within a 10-minute walk of a park.
Development Patterns	
Evaluate planning in areas for potential residential and commercial displacement and use a range of strategies to mitigate displacement impacts (MPP-DP-23, Ec-12)	The plan includes goals and policies on preventing residential displacement. Consider addressing potential displacement of existing businesses that may result from redevelopment and market pressure in the plan. Resources on commercial displacement can be found in PSRC's Equity Planning Resources. PSRC's Toolbox webinar on preventing commercial displacement may also be helpful.
Public Services	
Promote working with school districts on school siting and design to support safe, walkable access, including strategies to	The plan includes a policy to coordinate with schools on safe routes to schools. The plan should also include a policy on

Plan Review Consistency Tool	PSRC Comment on Draft Plan
provide adequate urban capacity for new schools and to avoid serving urban students with schools in the rural area (MPP-PS-26-28)	working with school districts to plan and site new schools to support safe, walkable access for students and to provide adequate urban capacity for new schools.

PSRC has resources available to assist the city in further development of the draft plan: https://www.psrc.org/planning-2050/vision/vision-2050-planning-resources.

We appreciate all the work the city is doing and the opportunity to review and provide comments. We are happy to continue working with you as the plan progresses through the draft and adoption process. If you have any questions or need additional information, please contact me at eharris@psrc.org.

Sincerely,



Erika Harris, AICP, Growth Management Planning
Puget Sound Regional Council

cc: Review Team, Growth Management Services, Department of Commerce

Lauren Balisky

From: Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>
Sent: Friday, November 7, 2025 10:55 AM
To: Lauren Balisky
Cc: Sears, Tricia (DNR); Guida, Eric (COM); DNR RE SEPACENTER
Subject: Bonney Lake's Comprehensive Plan and Development Regulations Amendments (2025-S-10981A): WGS comments

Hello Lauren,

In keeping with the interagency correspondence principles, I am providing you with comments on Bonney Lake's Comprehensive Plan and Development Regulations Amendments (2025-S-10981A).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining, climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed Chapter 1 Introduction, Chapter 2 Community Development, Chapter 7 Environmental Stewardship Element, Chapter 8 Shoreline Element Reformatted, and AB25-80 Ordinance D-25-80-Development Code.

Chapter 1 Introduction
Exhibit 2 is very nice. Great to see the mention of the plans. Suggest mentioning plans like the climate plan and natural hazard mitigation plan. Suggest adding a paragraph that further explains and supports Exhibit 2.

Chapter 2 Community Development
Great information! Good to see critical areas mentioned multiple times. Suggest mentioning the connections of plans like the comprehensive plan, the climate plan, the natural hazard mitigation plan, etc to further interweave the topics. There could be a reference to chapter 1 for additional details on the plans.

Chapter 7 Environmental Stewardship Element
The geologically hazardous areas hazards are erosion, landslide, seismic (earthquake), and volcanic. Great to see exhibits 1-6 related to geologically hazardous areas! Page 7 edits show that the use of the term geologically hazardous areas replaces the term geological hazards. Suggest checking the other chapters to also replace the existing with new language. Chapter 8, for example, refers to geological hazards. On page 9, the last bullet point uses the term geological hazardous areas and geologically hazardous areas. Suggest revising to use geologically hazardous areas throughout the text.

Suggest moving and adding this sentence on page 15 "These categories are designed to protect citizens and their private property from damage during natural disasters" to follow this sentence on page 14 "The City categorizes landslide hazard areas into two categories." Great to see the mention of shallow and deep landslides, and the maps related to them. Great to see the volcanic hazards and lahar impact areas maps.

Good to see the resiliency provisions and the goals and policies. Goal ES-2 is interesting with "Protect the environment, public health, and property from erosion, landslides and unnecessary scars on the land that could occur as part of development." What are the unnecessary scars that are referenced?

Chapter 8 Shoreline Element Reformatted

There are no proposed changes by staff, it appears, but the format has been revised. The provision, "Policy SL-3.2: Manage development to avoid risk of damage to property and loss of life from geological hazards" is great to see. The subsequent paragraphs mention earthquake and landslide hazards. There is no mention of other geological hazards. Chapter 7 also identifies volcanic and erosion hazards. Suggest mentioning these two hazards in addition to the two described here.

AB25-80 Ordinance D-25-80-Development Code
The ordinance with code changes and staff comments.

Below, I include our usual language for this and future endeavors.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in current or future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to the definition of geologically hazardous areas, WAC 365-190-120, in other areas besides the CAO. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- Consider adding in other areas besides the CAO. If you have not checked our interactive database, the Washington Geologic Information Portal, lately, you may wish to do so. Geologic Information Portal | WA - DNR
- If you have not checked out our Geologic Planning page, you may wish to do so. Geologic Planning | WA - DNR

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 12/14/25.

Have a great day!
Tricia

Tricia R. Sears (she/her/hers)
Geologic Planning Liaison
Washington Geological Survey (WGS)
Washington Department of Natural Resources (DNR)
Cell: 360-628-2867 | Email: tricia.sears@dnr.wa.gov

Attachment C

Stamps Future Land Use Map Redesignation Request

Application Materials (PLN-2023-02837)

Master Land Use Application

City of Bonney Lake-Permit Center

Submitted On:
Apr 25, 2023, 11:36AM PDT

Project Information

Project Name:	Comprehensive Plan Amendment Request for Gary and Karen Stamps for Expanded Collision Center
Tax Parcel Number(s):	2925000210 and 2925000220
Site Address:	19401 94th Street East and 19405 94th Street East
Project Description:	Request a Comprehensive Map and Land Use Designation change from High Density Multifamily to Midtown Core District for both parcels.
Type of Land Use Approval requested (a separate application is required for each land use type):	Comprehensive Plan Map Amendment

Property Owner

Name:	Gary and Karen Stamps
Address:	**Street Address:** 19402 State Route 410 East, D Street SE **City:** Bonney Lake, **State:** WA **Zip:** 98391

Project Contact/Applicant

Name:	**First Name:** ALAN C. **Last Name:** KEIMIG*
Full Address	**Street Address:** 307 D Street SE D Street SE **City:** Auburn **State:** WA **Zip:** 98002
Phone Number:	253-939-3232
Email:	ackeimig@msn.com

Property Information

Zoning:	High-Density Residential (R-3)
Land Use Designation:	Residential - High Density

Current Use:	Parcel 2925000210 is vacant land; Parcel 2925000220 is a single family home
Total Acres:	1.155 acres
Upload Documents for Review (1-10)	Stamps Comp plan worksheet.pdf Stamps Owner authorization.pdf Stamps Comp Plan Narrative.pdf Collision 1 SITE 042523.pdf

Notices:

1. VESTED RIGHTS: In order for a short plat application or a plat application to vest, a complete application must be submitted the City. Land uses applications, to include plats and short plats do not vest the subsequent building permits to the development regulations in effect at the time the land use application was submitted. Pursuant to RCW 19.27.095, building permits are reviewed under the land use regulations in effect at the time that a complete application for a building permit is submitted to the City.
2. COMPLETENESS: Your application will be deemed complete 29 days after submittal, unless otherwise notified.
3. RIGHT OF ENTRY: By signing this application, the applicant grants unto the City and its agents the right to enter upon the premises for purpose of conducting all necessary inspection to determine compliance with applicable laws, codes and regulations. This right of entry shall continue until a certificate of occupancy is issued for the property.
4. BALD EAGLE PROTECTION: By signing this application, the applicant agrees to adhere to the Bald and Golden Eagle Protection Act and the U.S. Fish and Wildlife Service National Bald Eagle Management Guidelines (2007).
5. OWNERSHIP: The Owner of the property as identified on the Pierce County Tax Assessor's website must either sign this application form or submit a notarized letter stating that the Applicant and/or Project Contact to act as the Owners agent regarding the property at the above-referenced address for the purpose of filing land use applications and have full power and authority to perform on behalf of the Owner all acts required to enable the City to process and review such applications. If the property was recently purchased and sale is not reflected on the Pierce County Assessor's website, the new Owner must submit documentation demonstrating that he/she has purchased the property.

Certification

I am the:	Project Contact/Applicant
Signature Data	First Name: ALAN C. Last Name: Keimig Email Address: ackeimig@msn.com



Signed at: April 25, 2023 11:30am America/Los_Angeles

Submittal Worksheet

COMPREHENSIVE PLAN MAP AMENDMENT

WHAT IS THE PURPOSE OF THIS WORKSHEET?

This worksheet is to help prospective applicants prepare the required documentation needed to submit a complete application. Please note that this is not the official application, but a tool to assist in the compilation of the materials required for the review by the City. It is important that prospective applicants contact the Planning and Building Division prior to submitting an application as some projects may not require the submittal of all the materials listed or may require additional materials not listed. In order to help work out any potential problems before the formal submittal, the City of Bonney Lake encourages applicants to attend a pre-application meeting.

DIGITAL SUBMITTAL REQUIRED

The City has implemented a paperless permit system for all planning permits. All required application materials are required to either be submitted on a CD or uploaded to the City's Box System. All submittal documents are required to be consistent with the Digital Planning Permit Submittal Requirements.

☑ **Application:** Provided one (1) copy of the Land Use Application.

☑ **Fee:** Less than One Acre – $675
One to Three Acres – $2,000
More than Three Acres – $4,000

☑ **Project Narrative:** Provide one (1) copy of the project narrative that includes the following information:

1. Identification of all of the affect parcels, the existing and proposed land use designation, and propose of the proposed request.
2. A written explanation of the amendment and how the amendment is consistent with the City's comprehensive plan (*Bonney Lake 2035*), the Countywide Planning Policies, the Multi-Countywide Planning Policies of Vision 2040, and the Growth Management Act.
3. A written explanation regarding the amendment advances the public health, safety, or welfare and is in the best interest of the residents of Bonney Lake.

THE KEIMIG ASSOCIATES
ARCHITECTS–PLANNERS
307 D STREET SE, AUBURN, WA 98002
(253) 939-3232, FAX (253) 735-1309

April 24, 2023

Comprehensive Plan Map Amendment
Application for Gary and Karen Stamps of Collision 1, Inc.
Also known as Bonney Lake Collision Center
19402 State Route 410 East, Bonney Lake WA

Land Use Application;
Project Narrative:

1. Identification of all the affected parcel, The existing and Proposed Land Use Designation, and propose of the proposed request:

The Request is to amend the Comprehensive Plan Land Use designation of two parcels adjacent to the existing Collision 1 business location to expand the physical plant in order to continue providing quality automotive rebuilding services in an environment, which requires changing mythology due to conditions in the industry. This request would be to change the two parcels to Midtown Core District, the same as the existing business site, in lieu of the High Density Multifamily identification they currently have.

The application is to amend the designation of the two parcels, #2925000210, 19401 94th Street East and #2925000220, 19405 94th Street East, from High Density Multifamily to the Midtown Core District, changing zoning from R-3 to MC to allow the design and construction of additional capacity for the existing repair business. This would be an allowed inclusion under the new designation.

The two parcels are bordered on the South by the current Collision 1 business property, a functioning vehicle repair facility already in the designated Midtown Core District. The property to the West, situated at a lower elevation, also has a land use designation as Midtown Core District and is also occupied by a big box retailer, Target with CVS Pharmacy, and several sit-down venues of the food and entertainment establishments. The north parcel's property lines border 94th Street East, a city collector, with property parcels north of the street currently zoned R-3 under the designation of High Density Multifamily but developed years ago as individual single family residences. Similarly the adjacent parcel to the east is designated as High Density Multifamily use. This adjacent parcel is also owned by the individuals seeking the Comprehensive Plan Amendment, the Owners of Bonney Lake Collision Center. It is their intention to redevelop this parcel as a multifamily lot and move the current family residing at parcel number 2925000220 to the new location allowing the redevelopment of the subject lot with the expanded vehicle repair facility.

The intent is to construct this new repair structure adjacent to the existing business on the two adjoining lots to incorporate a new vehicle repair shop with a specific purpose, to participate in the ever changing atmosphere the repair industry is experiencing with the new products. This can only occur once allowed by the land use change and rezone. This operation is unique in that the adjacent parcels are contiguous to the existing physical plant thereby allowing the expansion to partially use the existing facilities in ways that can overlap without having to duplicate processes another remote location would require saving time, money, logistics, and labor support in a consolidated business area of the city. This saving of time, resources, and usefulness, is environmentally advantageous and,

believed to be consistent with the objectives of the Comprehensive Plan for the objectives and aspirations of the City of Bonney Lake and its stated directives and goals. It is apparent by utilizing the two subject parcels to support the existing adjacent use many of the visions of Bonney Lake's Community Development Visions would come to fruition under the proposed Land Use Amendment. This does, however, require the land use designation to be changed from High Density Multifamily to Midtown Core District, the same as the existing business site's location. It must be stated here that although both uses, the Multi Family Housing and the uses allowed in the Midtown Core District are desirable objectives in the Comprehensive and this can be herein demonstrated, the requested amendment does have a higher and best use for the overall Bonney Lake residents with the expanded business and features the more positive benefits to the overall plan goals with the approved amendment than will be experienced if the Housing Designation were to be retained. It appears the incidental negative loss of the High Density Multifamily Land Use adjacent to the existing business and the real life impacts of living directly adjacent to the existing designated Midtown Core District with the established vehicle repair facilities and the closer proximity to the activity and noise created by State Route 410 outweigh the positives recognized by the change.

2. A written explanation of the amendment and how the amendment is consistent with the City's comprehensive plan (*Bonney Lake 2030*) The Countywide Planning Policies, the Multi-Countywide Planning Policies of Vision 2040 and the Growth Management Act.

In order to support this amendment request, the following is offered to show consistency with the goals of the Bonney Lake Comprehensive Plan in the proposed change. The current Collision 1 business is located on the north side of state route 410 E with an already established access from the state highway. The expanded facility would still use this access and avoid any additional high traffic volumes to 94th Street. This will further be an advantage over other remote location, which would necessitate use of other major traffic circulation corridors through the city. Considerations must be given and should be considered that the major public utility infrastructure is already connected for the existing site and can be extended though to the subject sites. This expansion will tend to have less impact to the existing city facilities, water, storm and sanitary sewers and requirements for public safety than other isolated locations will have to the existing city infrastructure.

By consolidating the expansion of the light industry role in the amendment process with the existing collision center site, a desired larger industrial area, as sought under the Comprehensive Plan's directives, is achieved. Being such that much of the work of the vehicle repair is generated inside a building, nearby properties are shielded from impacts. Further, by the nature of the site's location being adjacent to 94th Street and across the street from the remaining High Density Multifamily uses with R-3 zoning the properties will be screened by landscape requirements, which will act as a pleasant softening transition. The adjacent parcel to the east is owned and controlled by the Collision Center owners who are intending to develop it as a part of this expansion with a multifamily unit for themselves and family. Again the current code requires a landscape buffer be installed as part of the Midtown Core District project to create a natural and pleasant separation between the two land uses. The remaining High Density Multifamily use is still contiguous to the existing retail facilities to the west and is within easy access to its convenience and services through pedestrian corridors.

In consideration, the amendment change request is consistent with both the county wide planning policies and the Multi Wide County Planning Policies of Vision 2040. The proposed change fits within the positive aspects of these Plans in creating a development that is not spot segregations, it provides the city with another opportunity for tax generation and provides, within the city of the Bonney Lake community, an enhanced employment base to support positive growth opportunities in worker community housing and increased use of localized services, which in turn manifests in amplified economic vitality throughout the city for all aspects of a wholesome community life. The proposal supports using adjacent existing vitality to infill the existing vacant and underused parcesl creating vitality, economic value, jobs and a positive vision for the City and its residents.

The expanded facility will provide additional employment for 10 highly skilled mechanics with income levels consistent with the household wage projections of $77,432 annually. It is anticipated a majority of these individuals

would reside within the city of Bonney Lake adding to the housing growth and sharing in the support of and partaking in the living environmental elements afforded by the established amenities and all the existing aspects of the city's commercial development. These employees would likely contribute to the expanded population base. They would likely reside in the expanded housing whether rental or through home ownership and become active citizens within the community.

By approving the land use change, the city is supporting an established business, helping maintain its vitality in a rapidly changing field and fulfills its mission in increasing the industrial base within the city with higher wage earners with their specialized skills and expands the city economics strength in a positive and meaningful way. It also helps prevent sprawl by consolidating the like uses together of the existing vehicle repair business with the expanded facilities sought. As noted in the policy statement of CD 2.7, much of the Midtown District is already developed with the existing collision center business being an integral part of this. Given the proximity of the available land parcels, adjacent to the existing site, with its need to expand to meet changing service need, the location allows potential to expanded business without compromising the remaining potential with the High Density Multifamily land use and further protects this use with the transition of 94th Street. The expansion of the established business in Midtown with the use of its existing facilities allows for a reasonable extension with the least interference to the existing city infrastructure and is less strenuous to the remaining land uses. The approved amendment change provides a great opportunity to expand the city's economic base with the bonus of ten new added family level wage positions, expands their opportunity to live near their place of employment, shop where they live and raise their families in the wholesome created atmosphere of Bonney Lake. In support, the following is offered:

Policy SCD 3.2 encourages parcel consolidation to provide infill opportunities for the expansion of the vitality of the area and therefore the City overall.

Policy CD 3.3 encourages best management practices which this amendment request will facilitate to a high degree. It does promote a development, which would and is using the existing city infrastructure thus by connecting to the current systems there will be saving in the use of these resource though a reduction recognized over a new connection at another location saving capacity for the city and costs for both the property owner and the city.

Policy CD-4 seeks to improve services with the support of redevelopment opportunities, which this request helps to implement in allowing the new expansion to connect to the existing adjacent site's sanitary sewer system maintaining the system as is.

3. A written explanation regarding the amendment advances the public health, safety, or welfare and is in the best interest of the residents of Bonney Lake.

The current land use designation and zoning of the two parcels subject to the amendment request, if developed as high density multifamily housing under the current R-3 zoning would expose the residents to the industrial impacts of the current vehicle restoration process on the adjacent lot. Even though there are requirements in place to manage impact and afford protections, the development would be subject to the "as is status quo" of the existing business. In addition, the two lots are in close proximity to State Route 410 East with its associated activities and noise impacts, which would not be an issue with the requested amendment change allowing the business to expand. The sought amendment on the other hand does provide a thoughtful segregation between the heavier commercial already subject to these conditions, promotes managing the commercial use and still provides a better opportunity for the remaining High Density Multifamily atmosphere that would still be in place, which would be separated, not only by the interruption of 94th Street East, not a highly traveled collector transportation corridor, but also by the two parcel's layout with a greater landscaped buffer included on the parcel's north and east property boundaries. This natural and the man-made separation would provide a visual barrier as well as a greater physical distance between the two allowed uses then they now have. This would be a positive step in the potential quality development that could then occur north of 94th Street East and would not be a direct conflict with the ongoing

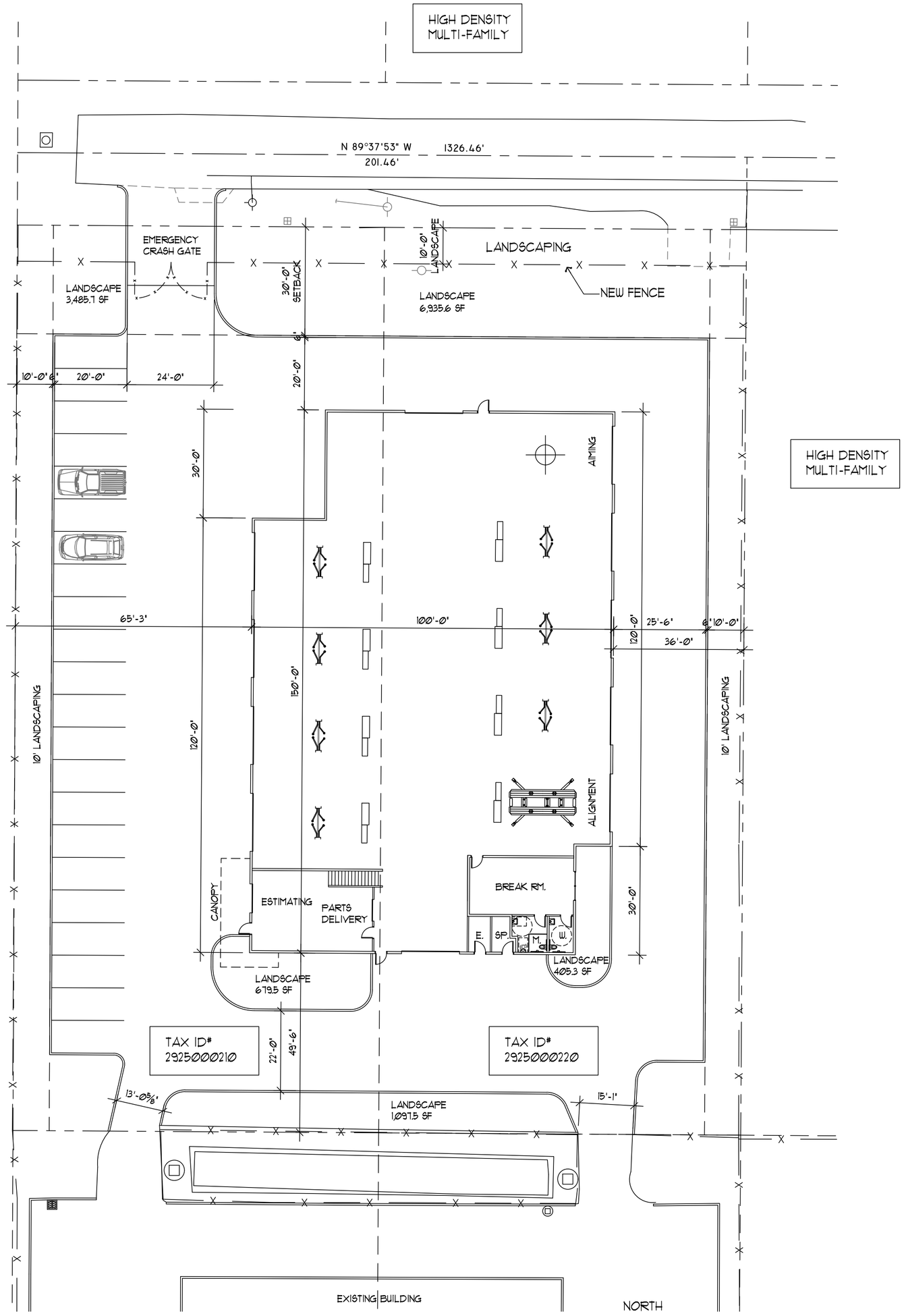
commercial activity they could now experience. The remaining lot to the east, which would remain High Density Multifamily under the R-3 zoning, is planned to be immediately developed, once the amendment is approved by the Collision 1 owners. It will become a family oriented complex designed in relation to the proximity and conditions of the existing surroundings and the planned commercial expansion. Their advanced knowledge of what is to occur is advantageous and can steer the housing developed on their lot in their own best interest, especially being the owners of all the contiguous affected properties noted. Offered as additional information is that the one existing manufactured house on tax lot 2925000220 is the current home of their daughter, connected to the business operation and would be replaced by new housing to the east on the adjoining R-3 zoned lot.

By allowing the change in Land Use the city consolidates the expansion of its industrial base with a known existing commodity, the thriving business, Bonney Lake Collision Center, the city gaining the additional tax revenues generated in greater capacity and land value, an increased skilled employment base with wages comparable to the City norm and a quality operated facility, all in the best interest of the residents of Bonney Lake.

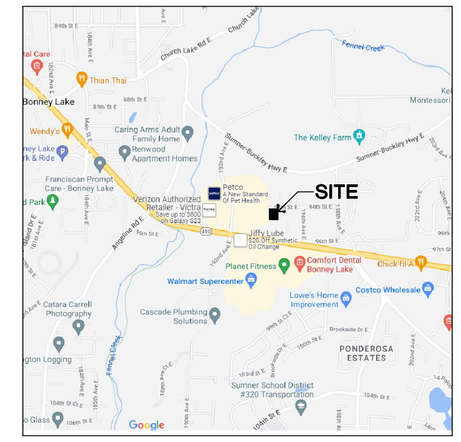
Expansion of the business is a must and consolidation is only possible and afforded by the amendment approval allowing their existing business the adjacent area necessary to expand at its current location. It must be pointed out that industry wide conditions necessitated by changes in the way vehicles are constructed is forcing the expansion. Building on the proposed sites allows the business to use the existing improvements with a new expansion instead of having to duplicate them at an alternative remote site using more city infrastructure and resources than are already available at the current location. This saves the city of Bonney Lake and the current operators resources, which becomes a win/win situation for the ultimate welfare of the community.

In all the years of operation the current business hasn't had any public service calls for fire or, fortunately any police required interventions due to crime. It is reasonable therefore to infer that the expanded facility would enjoy the same, quality laid, stewardship in its attention and operation. In other words, it should continue to require little of the public services offered by the city and would continue to be a model citizen in the use of the city resources. This should again be a welcome association in the best interest of Bonney Lake residents with respectful regard to the health, welfare and need for safety with the public services within the community.

Prepared by Alan C Keimig, Architect
The Keimig Associates



SITE PLAN
SCALE: 1" = 20'



N

VICINITY MAP
SCALE: N.T.S.

CONTACTS

OWNER:
Gary Stamps
233 West Main Street
Auburn, Washington 98001

ARCHITECT:
The Keimig Associates
307 D Street SE
Auburn, WA 98002
(253) 939-3232
FAX: (253) 735-1309

SITE DATA

SITE ADDRESSES:
19401 94TH ST East
Bonney Lake, WA

ASSESSOR PARCEL NUMBER:
2925000210 25,000 SF (0.574 ac.)

RTSQQ:
05-20-33-44

LEGAL DESCRIPTION:
Section 33 Township 20 Range 05 Quarter 44
CEDAR GROVE TO BONNEY LAKE: CEDAR
GROVE TO BONNEY LAKE L 21 T/E 1969 KIT KIT
SP2315A2315B 48X24 (P42130-12000) AFN
20030124003171 RF 01/03

SITE ADDRESSES:
19405 94TH ST East
Bonney Lake, WA

ASSESSOR PARCEL NUMBER:
2925000220 25,000 SF (0.574 ac.)

RTSQQ:
05-20-33-44

LEGAL DESCRIPTION:
Section 33 Township 20 Range 05 Quarter 44
CEDAR GROVE TO BONNEY LAKE: CEDAR
GROVE TO BONNEY LAKE L 22

TOTAL LOT SIZE:	50,303.75 S.F.
75% MAX. IMPERVIOUS AREA 50,303.75 S.F. x 75% =	37,727.81 S.F. MAXIMUM
25% MIN. PERVIOUS AREA 50,303.75 S.F. x 25% =	12,575.94 S.F. MINIMUM

PROPOSED LANDSCAPED AREAS
6,935.6 S.F.
3,485.7 S.F.
679.5 SF 679.5 SF
405.3 SF
1,097.5 S.F.
12,603.6 S.F. TOTAL

REVISIONS

Request for COMPREHENSIVE PLAN and a REZONE
AMENDMENT CHANGE for Gary Stamps on Tax
Parcel #2925000210 and #2925000220

REGISTERED ARCHITECT 2051 ALAN C. KEIMIG STATE OF WASHINGTON
4/25/2023

THE KEIMIG ASSOCIATES
307 D STREET SE
AUBURN, WASHINGTON
98002
PHONE: 253.939.3232
ARCHITECTS PLANNERS

JOB NUMBER:

DATE 4-25-23

SHT A-1.1

1 OF 1

Form

Owner Authorization

LETTER FROM PROPERTY OWNER GRANTING AUTHORIZATION TO ACT

A copy of this letter must be submitted for each property owner involved

I, **Gary W and Karen L Stamps** (PROPERTY OWNER), being duly sworn declare that I am the owner of the property involved in this application. I hereby grant **Alan C Keimig, Architect** (AGENT) of **DBA; The Keimig Associates** (CORPORATION) to act on my behalf. I further declare that all statements, answers, and information herein submitted are in all respects true and correct to the best of my knowledge and belief.

Gary W Stamps
SIGNATURE

4-4-23
DATE

Karen L Stamps

19402 State Route 410

Bonney Lake, WA 98391

ADDRESS

Subscribed and sworn to before me this 4th day of April 2023

Notary Public in and for the State of Washington,

Residing at Pierce County

ALLEN M HAN
Notary Public
State of Washington
Commission # 180025
My Comm. Expires Feb 8, 2024

Save Form

Public Services Department
9002 Main Street East, Suite 300, Bonney Lake, WA 98391
(253) 862-8602

Version 7/2018

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printing purposes.

Attachment D

Envision Bonney Lake

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printing purposes.

Envision BONNEY LAKE

Celebrating 100 Years

People | Planet | Prosperity

Ordinance No. 25-XXXX

Month Year

BONNEY Lake

ACKNOWLEDGEMENTS

MAYOR:	Terry Carter
CITY COUNCIL:	Dan Swatman (Deputy Mayor)
	Angela Baldwin
	Aaron Davis
	Gwendolyn Fullerton
	Kerri Hubler
	Kelly McClimans
	Brittany Rock
PLANNING COMMISSION:	Grant Sulham (Chair)
	Jessica Bennion (Vice Chair)
	Brad Doll
	Ernie Gilmer
	Sara Hallstead
	Debbie Strous-Boyd
	Jeff Wilkins
CITY ADMINISTRATOR:	John Vodopich, AICP
PUBLIC SERVICES DIRECTOR:	Jason Sullivan
CITY ENGINEER:	Ken Gill, PE
PRINCIPAL AUTHORS:	Lauren Balisky, AICP, MPA, Development Services Manager
	Mettie Brasel, Associate Planner
PLANNING COMMISSION CLERK:	Kennedy Spietz, Assistant Planner
GIS SUPPORT:	Adam Kwakenat, GIS Analyst
CONSULTANTS:	SCJ – Transportation Modeling and Analysis
	LDC – Land Capacity Analysis, Growth Alternatives

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3: Historic Preservation & Cultural Resources

4: Community Mobility

5: Capital Services & Fac

6: *Reserved*

7: Environmental Stewardship

8: Shoreline (Reformatted Only)

APPENDICES

A: Housing Equity Report

B: Land Capacity Analysis

C: Growth Alternatives Memo

D: 2023 Existing and 2049 Projected Traffic Volumes

E: 2023 Existing Intersection Level of Service (ILOS) Worksheets

F: Pedestrian Priority Index Scores

G: Transportation Evaluation of Land Use Alternatives

H: Traffic Analysis Allan Yorke Park

I: 2049 Projected Intersection Level of Service (ILOS) Worksheets Without Improvements

J: Intersection Control Evaluation Angeline Road at Veterans Memorial Drive

K: Intersection Control Evaluation Church Lake Road E at W Tapps Highway

L: 192nd Avenue Extension and 100th Street Extension Evaluation

M: 2049 Projected Intersection Level of Service (ILOS) Worksheets With Improvements

DRAFT

REFERENCE PLANS

The following City of Bonney Lake plans are incorporated by reference, with the adoption year shown, as existing or as amended:

- 6-Year Transportation Improvement Program (2025)
- ADA Transition Plan (2020)
- Biennial Budget (2024)
- Centers Plan (2017)
- Eastown Subarea Plan (2017, Reformatted Only)
- General Sewer System Plan (2019)
- Parks, Trails, Recreation & Open Space Plan (2024)
- Safety Action Plan (2025)
- Stormwater Management Action Plan (2023)
- Water System Plan (2020)
- Watershed Protection Plan (2018)

The following plans are incorporated by reference, with the adoption year shown, as existing or as amended. The incorporation by reference of other agencies' plans is not intended to control or direct the City of Bonney Lake's land use planning. The goals, policies, and implementing actions in this comprehensive plan shall prevail, subject to the extent of the City's statutory authority, if the plans of other agencies conflict.

City of Sumner	Comprehensive Sewer Plan (2020)
City of Sumner	Capital Facilities Plan (2025)
East Pierce Fire & Rescue	Capital Facilities Plan (2018)
East Pierce Fire & Rescue	Standard of Cover (2023)
Pierce County	Capital Facilities Plan (2024)
Pierce County Library System	Facilities Master Plan (2010)
Pierce County Library System	Strategic Plan (2024)
Pierce County	Solid and Hazardous Waste Management Plan (2021)
Puget Sound Energy	Integrated Resource Plan (2021)
Sound Transit	Transit Development Plan (2024)

Sound Transit	Service Standards and Performance Measures (2018)
Sumner-City of Bonney Lake School District	Capital Facilities Plan (2024)
Tacoma Public Utilities	Water System Plan (2018)
Valley Water District	Water Comprehensive Plan (2021)
White River School District	Capital Facilities Plan (2024)

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Introduction

Envision BONNEY LAKE
Celebrating 100 Years

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1. BACKGROUND

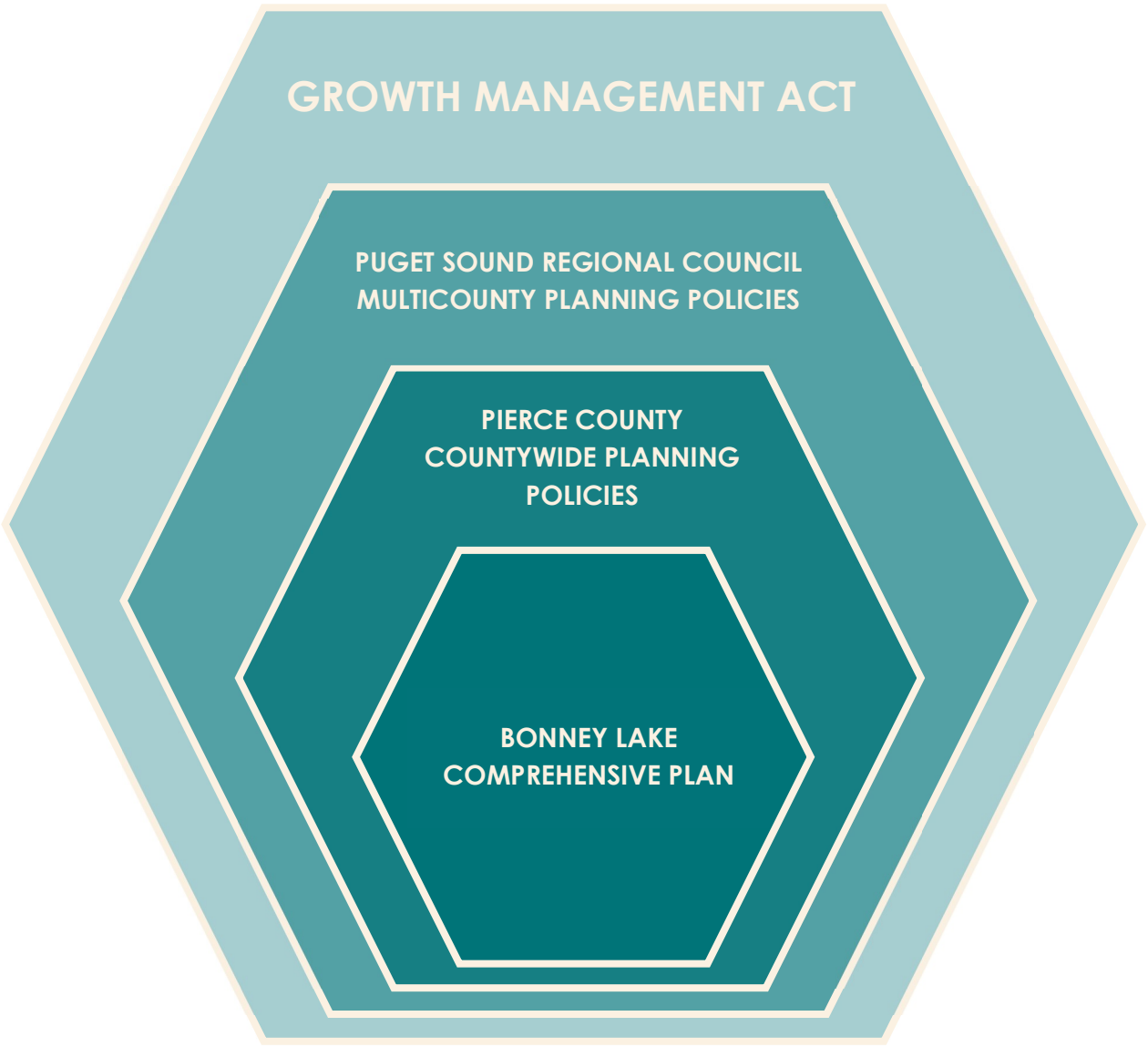
In 1990, the state of Washington passed legislation commonly referred to as the "Growth Management Act" (GMA) which was codified as Chapter 36.70A RCW. The legislature, in adopting the GMA, found that "uncoordinated and unplanned growth, together with a lack of common goals expressing the public's interest in the conservation and the wise use of our lands, pose a threat to the environment, sustainable economic development, and the health, safety, and high quality of life enjoyed by residents of this state."

The GMA establishes goals to guide the development and adoption of local land use plans and development regulations. These goals include:

- Encouraging urban growth
- Reducing sprawl
- Promoting efficient transportation
- Ensuring availability of housing affordable to all economic segments and promoting a variety of housing types and residential densities
- Encouraging economic development
- Protecting property rights
- Processing permits in a timely and predictable manner
- Maintaining natural resource industries
- Retaining open space and recreation opportunities
- Protecting the environment
- Ensuring public participation and coordination between adjacent jurisdictions
- Providing adequate public facilities and services
- Preserving sites of historical and archaeological significance
- Achieving the goals and polices of the Shoreline Management Act set forth in RCW 90.58.020.

In addition to the GMA, local comprehensive plans must be consistent with Puget Sound Regional Council's (PSRC) multi-county planning policies (MPPs) found in VISION 2050 and Pierce County's County-Wide Planning Policies (CWPPs). **Exhibit 1** below summarizes the hierarchical process inherent in the preparation of local comprehensive plans from the state level down to the regional, county, and city levels.

Exhibit 1: Comprehensive Planning Framework



This document serves as the comprehensive plan for the City of Bonney Lake and guides the community's expected growth in a manner that protects environmental resources; enhances the quality of life, health, and welfare of the City's residents; promotes vibrant commercial districts; and protects existing residential neighborhoods. The comprehensive plan is comprised of numerous individual elements addressing land use, housing, transportation, cultural resources, utilities, capital facilities, and the environment. The zoning ordinances, development standards, design guidelines, public capital improvements, and other City development actions and policies, must all be consistent with the comprehensive plan.

Exhibit 2: Growth Management Act Comprehensive Plan Elements

Growth Management Act Planning Goals (RCW 36.70A.020)	Mandatory Element (RCW 36.70A.070)	Optional Element (RCW 36.70A.080)	Envision Bonney Lake Element ➢ Plan Incorporated by Reference
Urban Growth	Land Use	Subarea Plans	Community Development ➢ Centers Plan ➢ Eastown Subarea Plan
Reduce Sprawl	Land Use	Not Listed	Community Development
Transportation	Transportation[1]	Not Listed	Community Mobility ➢ ADA Transition Plan ➢ Safety Action Plan
Housing	Housing	Not Listed	Community Development
Economic Development	Economic Development **Error! Bookmark not defined.**	Not Listed	Community Development
Property Rights	Not Listed	Not Listed	Community Development
Permits	Not Listed	Not Listed	Bonney Lake Municipal Code
Natural Resourcea	Rural	Not Listed	Environmental Stewardship
Open Space and Recreation	Parks and Recreation**Error! Bookmark not defined.**	Recreation	Capital Services & Facilities ➢ Parks, Recreation, Trails and Open Space Plan
Environment	Rural	Conservation	Environmental Stewardship
Citizen Participation and Coordination	Not Listed	Not Listed	Bonney Lake Municipal Code Public Participation Plan
Public Facilities and Services	Capital Facilities Utilities	Not Listed	Capital Services & Facilities ➢ General Sewer System Plan ➢ Parks, Recreation, Trails and Open Space Plan ➢ Water System Plan ➢ Watershed Protection Plan
Historic Preservation	Not Listed	Not Listed	Historic Preservation & Cultural Resources
Climate Change and Resiliency	Climate Change and Resiliency**Error! Bookmark not defined.**	Solar Energy	Due in 2029, pending the availability of state funds.
Shorelines of the State	Not Listed	Not Listed	Shoreline

[1] The requirement for this element or portions of this element are conditioned on the availability of state funds consistent with RCW 36.70A.070(10).

2. HOW TO USE THE PLAN

This comprehensive plan should be consulted regularly as decisions are made concerning development, redevelopment, capital improvements, economic incentives, and other matters affecting the community including, but not limited to:

- **Vision for the Future**: This comprehensive plan is an expression of what the community wants. Residents and businesses who desire more information about Bonney Lake as a community and its vision for the future will review this plan for how that vision is articulated in the strategic objectives, goals, and policies, implementation actions, and performance measures.

- **Work Plans and Budgets:** Individual departments and administrators should be cognizant of the recommendations of the comprehensive plan when preparing annual work programs and budgets. Several strategies can be implemented in this way.

- **Development Review:** Administrative and legislative approvals of development proposals, including rezoning and subdivisions, should be a central means of implementing the comprehensive plan. In fact, zoning codes can and should be updated in response to regulatory strategies presented in the plan.

- **Capital Improvement:** The six-year capital plan must be consistent with the comprehensive plan's land use policies and infrastructure recommendations. New improvements that are not reflected in this comprehensive plan and which would dramatically impact the Community Development or Community Mobility goals and policies should necessitate at least a minor update to this plan.

- **Development Incentives:** Development incentives should be reviewed in light of the recommendations of the comprehensive plan. These incentives should be integrated with other comprehensive plan policies to ensure consistency.

- **Guide for Decision Making:** The City Council and Planning Commission will use the document in their decision making regarding development, capital improvements, and funding priorities. City Staff will review each development project within the City for conformance with the appropriate goals and policies contained in the comprehensive plan.

- **Implementation:** A comprehenisve plan is not just a guide for how to respond to the initiatives of others. It is a statement of the actions the City intends to take in the next twenty years to achieve its goals.

3. STRATEGIC OUTCOMES

The goals, policies, and implementation actions in the comprehensive plan are to ensure that the City of Bonney Lake meets the needs of the current generation without jeopardizing the ability of future generations to do the same. The goals, policies, and implementation actions ensure that the City of Bonney Lake will implement the Puget Sound Regional Council's multicounty planning policies (MPPs), Pierce County's Countywide Planning Policies (CPPs) and the following strategic outcomes based on the triple bottom line of People, Planet, and Prosperity:

- **Mobility:** The City will have a high quality and efficient transportation systems that balances the needs of automobile drivers with those of public transit, bicyclists, and pedestrians by providing a circulation system that encompasses attractively designed complete streets, transit, trails, paths and sidewalks linking multiple destinations in support of active lifestyles.

- **Preservation of Neighborhoods:** The City will preserve existing residential neighborhoods to emphasize the value of Bonney Lake as a strong location for families and children. Many residents chose to live here because of the wide variety and supply of homes and neighborhoods. The preservation and enhancement of these areas is important to maintain the City's character as a desirable location for family life.

- **Community Life:** Bonney Lake will have a high quality of life with sufficient community facilities and services, both public and private, which meet and surpass the needs of the community's residents.

- **Inclusive Community:** Bonney Lake will cultivate an inclusive community by ensuring that housing is available for people across the economic spectrum, implementing programs that support both youth and older adults, and supporting events and public space that facilitate the development of residents' social capital.

- **A Well-Designed Urban Landscape:** The City's built environment will provide interesting and attractive architecture, and its road network will support good urban design through attractive furniture, lighting, and public art to enhance pedestrian experiences.

- **Public Health:** Residents will enjoy good health as the result of a variety of recreational opportunities, availability of fresh and healthy foods, and access to high quality health care. In support of this objective, the City has incorporated health related policies into each of the elements of this comprehensive plan.

- **Sustainability:** The City will reduce its environmental footprint by focusing future development near transit, reducing solid waste, encouraging energy and water conservation, protecting ground water, improving air quality, reducing greenhouse gas emissions, and preserving and restoring habitat.

- **Open Space:** In addition to the buildings, landscapes, and public spaces that shape Bonney Lake's character, its natural setting includes beautiful lakes, wooded hillsides, the Fennel Creek Corridor, and views of Mount Rainier. As Bonney Lake continues to grow, the City will balance new development with preservation of the natural resources that give the area much of its character.

- **Diversified and Successful Local Economy:** The City's economy will provide employment for local residents, meet the needs of the City's residents and the surrounding areas, generate tax revenues for public services, and include a healthy business sector with an array of successful businesses of all sizes and broad range of retail stores.

- **Vibrant Centers:** The City will focus resources on supporting the development of three centers that will contribute to the City's overall character and support the regional growth strategy. For many reasons—preservation of open space, reducing vehicle miles traveled and greenhouse gas emissions, supporting retail in the City's core districts—the City will focus its future growth within these centers.

Community Development Element

Envision BONNEY LAKE
Celebrating 100 Years

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1. INTRODUCTION

> *It is the intent of the Planning Commission and Town Council to develop a 'New Town' within the Greater Puget Sound Region. This town is to be well organized, have adequate play space for children, have school facilities within walking distance of small children, shopping centers at convenient places, separate pedestrian, and vehicular traffic, and provide those amenities of life which make life well worth living within the Town of Bonney Lake.*
>
> - *Plan for Bonney Lake, Washington (1964)*

The Community Development Element establishes the policy framework that will shape the physical development of the City of Bonney Lake and fulfills the requirements of Revised Code of Washington (RCW) Sections 36.70A.070(1) and 36.70A.070(2) that local comprehensive plans address land use and housing. The City has chosen to combine the required land use and housing elements with the optional economic development element into one element due to the significant interrelatedness of these issues, and the role these issues play in improving the health of the residents of Bonney Lake. Specific characteristics of the built environment that have the potential to enhance community's social capital and create a corresponding improvement in the health of the community related to land use and housing policies include encouraging mixed land uses, creating meeting destinations such as parks or other public spaces, providing neighborhood walkability, and ensuring the upkeep of the community[1].

The Community Development Element is also crucial to guiding the City toward being a sustainable suburb with a land use pattern that consumes less energy, is less dependent on automobiles, supports local businesses, promotes public health, and is inclusive of persons of all ages, income levels, and physical capabilities. The Element has been carefully integrated with the Community Mobility Element to promote a future development pattern that reflects the opportunities and constraints of the transportation system.

1.1 REGULATORY CONTEXT

This Community Development Element was developed in compliance with the Washington State Growth Management Act (GMA), a series of state statutes that require fast-growing cities and counties to adequately plan for and manage population growth.

[1] Eicher C. and Kawachi I. (2011) Social Capital and Community Design. *Making Healthy Places – Designing and Building for Health, Well-being, and Sustainability*. Island Press. Washington D.C. p. 117 – 127.

While all elements of the comprehensive plan have equal weight under the GMA (Chapter 36.70A RCW), nine (9) of the 15 goals of the GMA specifically pertain to land use, housing, and economic vitality in Bonney Lake:

- **Urban Growth:** Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
- **Reduce Sprawl:** Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.
- **Housing:** Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.
- **Economic Development:** Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.
- **Property Rights:** Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
- **Permits:** Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.
- **Open Space and Recreation:** Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks.
- **Citizen Participation and Coordination:** Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.
- **Public Facilities and Services:** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

Since the last major update to this plan, a number of laws have been enacted by the Washington State Legislature that impact the development and implementation of this Community Development Element (see **Exhibit 1**).

Exhibit 1: Summary of Relevant Washington State Laws Enacted Since 2015

	Bill No.	Summary
2019-20 Session	SHB 1377	Cities must allow an increased density bonus for affordable housing developments located on property owned or controlled by a religious organization.
	E2SHB 1923	Encourages cities to adopt at least two strategies (such as ADUs, middle housing, and increased density) to increase residential capacity.
	ESSB 6617	Prohibits parking requirements for ADUs within 0.25 miles of a major transit stop unless in an area with a lack of access to street parking capacity.
2021-22 Session	E2SHB 1220	Requires cities to plan for and accommodate affordable housing at specific income levels and permanent supportive housing and emergency shelters in certain zones.
	ESSB 5593	Allows counties to expand UGAs under certain circumstances.
	SSB 5818	Exempts from SEPA appeal the adoption regulations that increase housing capacity and affordability. Changes categorical exemptions for some residential uses.
2023-24 Session	ESHB 1042	Provides flexibility for conversion of nonresidential buildings to residential units – exempting them from bulk and development, design, and parking standards.
	ESHB 1293	Requires clear and objective design review standards for the exterior design of new development. Encourages expedited review for affordable housing.
	SHB 1326	Allows cities to waive utility connection fees for properties owned or developed by organizations that provide affordable or emergency/transitional housing.
	EHB 1337	Removes barriers to construction of ADUs such as design/aesthetics requirements, owner-occupancy restrictions, and size/height limits under a certain threshold.
	HB 1695	Defines affordable housing for purposes of using surplus public property.
	E2SSB 5258	Requires impact fees to be proportional and reflect unit size and number of bedrooms (or trips generated). Requires cities to have a unit lot subdivision process.
	SB 5290	Provides local governments with new default permit processing time frames and requires permitting fee refunds if the time frames are missed.

Source: Washington State Department of Commerce, Growth Management Act Amendments 1995-2023. Available online at: https://deptofcommerce.box.com/s/41vk2hbhsder8movy8kmlylbwac6v7ik

In addition to the GMA requirements, this Element must also be consistent with adopted Multi-County Planning Policies (MPPs) and County-Wide Planning Policies (CPPs).

The Puget Sound Regional Council (PSRC) adopted MPPs in VISION 2050[2]. These policies encourage local jurisdictions to adopt coordinated strategies, policies, and actions to ensure the region's needs are met. Applicable MPPs are provided in the **Housing**, **Economic Vitality**, and **Land Use** sections of this Element.

[2] Available online at: https://www.psrc.org/planning-2050/vision-2050

Pierce County adopted updated CPPs in 2022[3] that further refine how municipal comprehensive plans are drafted and adopted. Applicable CPPs are provided in the **Housing**, **Economic Vitality**, and **Land Use** sections of this Element.

1.2 ORGANIZATION

This Element is divided into the following sections:

- **Section 2: Population Profile** provides an overview of existing demographic conditions at a citywide level.
- **Section 3: Housing** evaluates existing housing and identifies future housing needs based on demographic trends, with special attention paid to providing housing that is affordable to all income levels.
- **Section 4: Economic Vitality** focuses on economic vitality within Bonney Lake and discusses the balance bewteen manaing new growth within Bonney Lake while maintianing the city's existing businesses, and sets the standard for long-term economic sustainability.
- **Section 5: Property Rights** addresses the protection of property rights, which is one of the goals of the Growth Management Act.
- **Section 6: Land Use** examines existing development patterns, identifies the city's official potential annexation areas within the current Pierce County Urban Growth Area (UGA), and presents the Future Land Use Map and land use designations to show the land use intent over the planning horizon of this Comprehensive Plan.

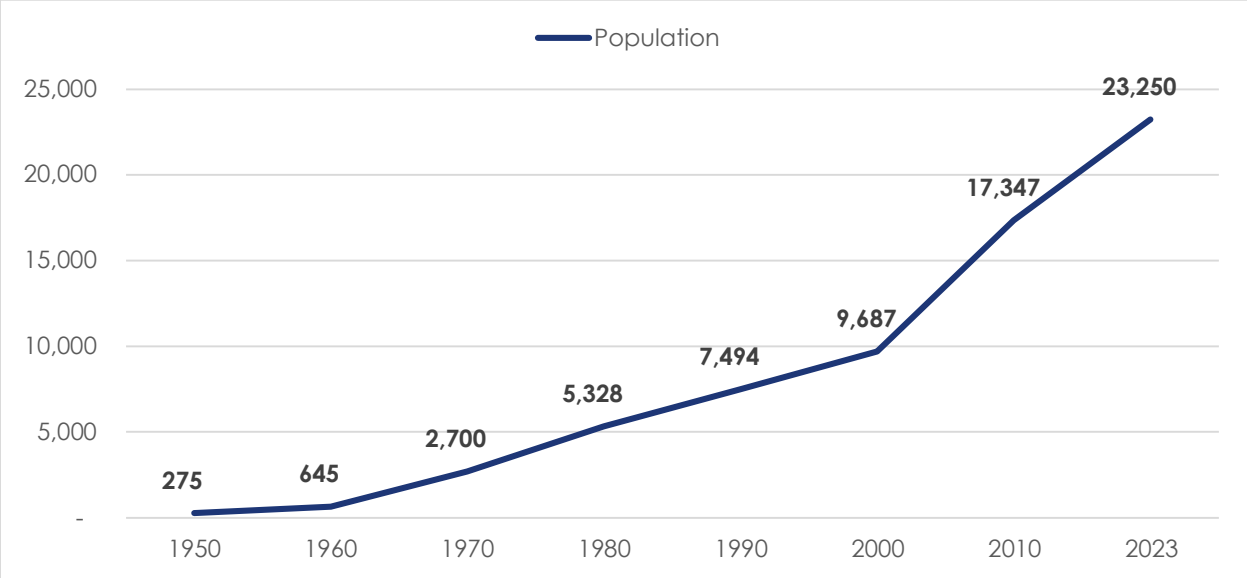
[3] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29

2. POPULATION PROFILE

2.1 POPULATION GROWTH

The total population within the incorporated boundaries of Bonney Lake as of June 1, 2023, was 23,250 according to the Washington State Office of Financial Management (OFM), making Bonney Lake the fifth-most populous city in Pierce County. The City has experienced rapid population growth over the last 75 years due to extensive residential development and annexations (see **Exhibit 2**).

Exhibit 2: Population Growth, Bonney Lake, 1950 – 2023



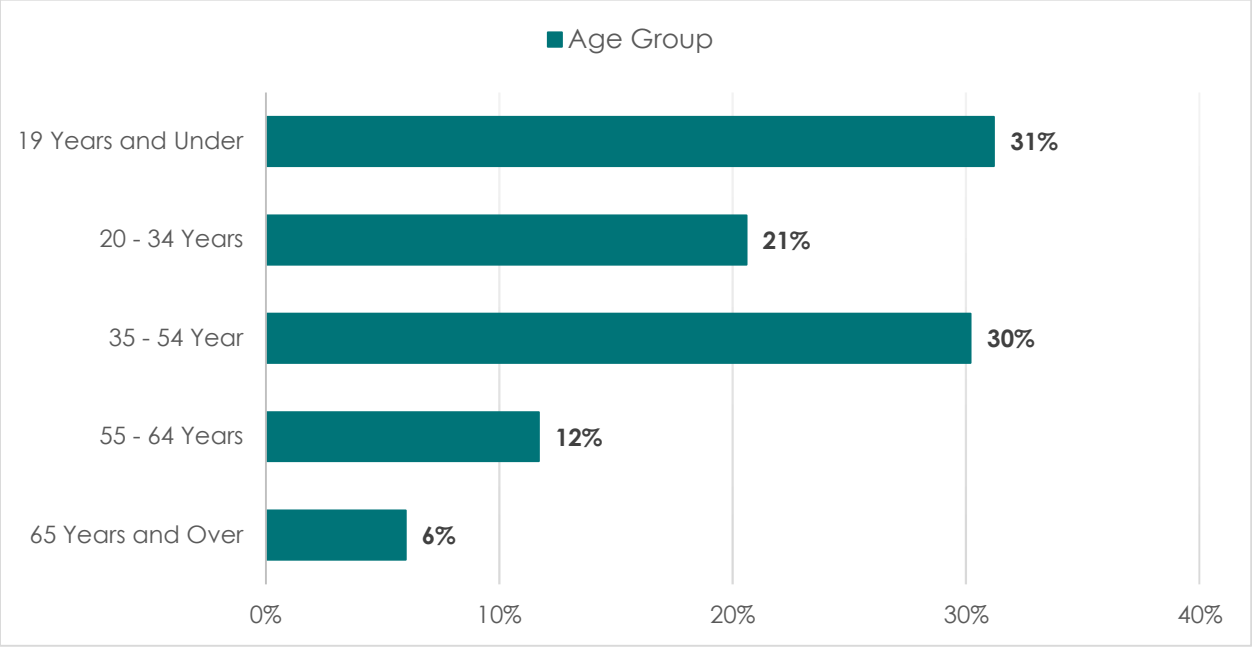
Source: Washington State Office of Financial Management (OFM)

Bonney Lake has had an annual average growth rate of 2.56% over the 20-year period from 2000 to 2020, excluding growth due to annexations. From 2000 to 2010, the average annual growth rate was 3.63% and from 2010 to 2020, the average annual growth rate slowed to 1.92%. The adopted vision 2050 growth alternative is to "bend the trend" and slow the growth rate. Growth has been slowing and this trend is expected to continue.

2.2 AGE

The population of Bonney Lake is predominately younger with over three quarters of the City's population under the age of 55. The largest segment of Bonney Lake's population is 19 years old or younger, a group that represents 31% of the City's population.

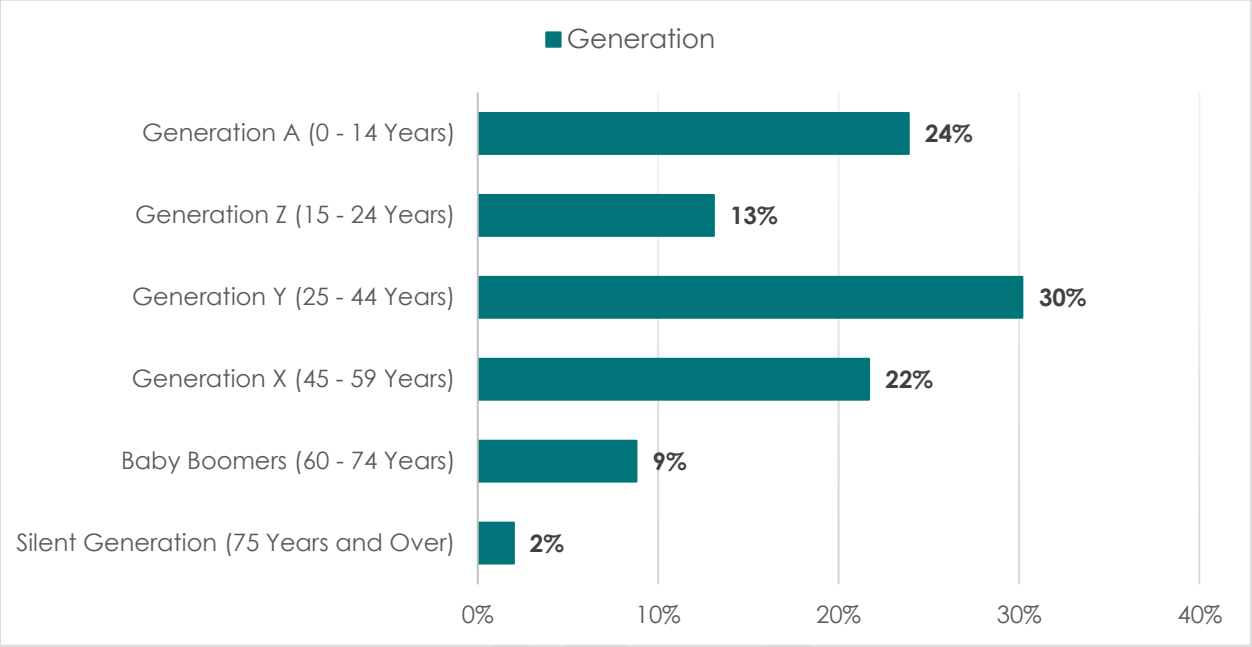
Exhibit 3: Age of Population, Bonney Lake, 2021



Source: American Community Survey (ACS) Table DP05, 2021

While understanding the ages of the population within a community is important, the typical age groupings can span multiple generational cohorts. For example, the age grouping of 35 to 54 spans two generational cohorts: Generation X and Generation Y (also known as the Millennial Generation). Understanding the generational spilt of a community is crucial, as each cohort approaches housing and other land use issues with different attitudes and expectations. Three generational cohorts represent over 75% of the population in Bonney Lake: Generation X, the Millennial Generation, and Generation A (see **Exhibit 4**).

Exhibit 4: Generational Makeup, Bonney Lake, 2021



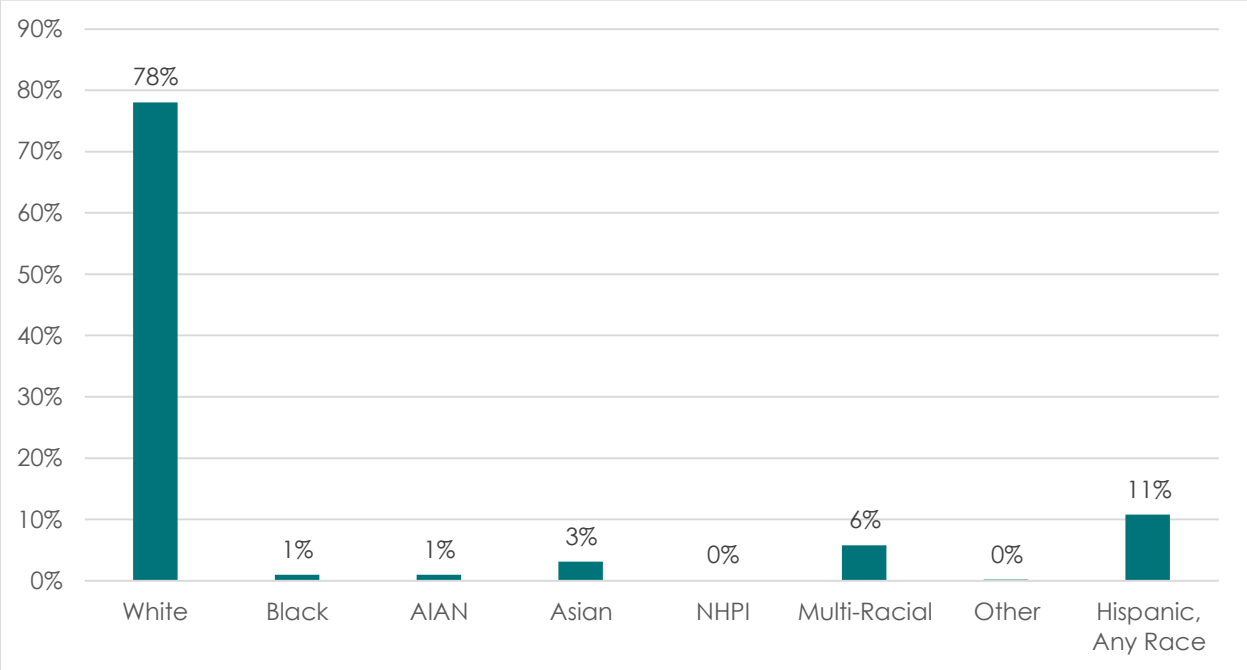
Source: ACS Table DP05, 2021

2.3 RACE AND ETHNICITY

The City of Bonney Lake is becoming increasingly diverse, with greater shares of residents who identify as Black, Hispanic, and Amercian Indian or Alaska Native since 2011 (see **Exhibit 5**). For additional information on race and ethnicity in Bonney Lake, see the Housing Equity Report (HER), prepared in compliance with Engrossed Second Substitute House Bill (E2SHB) 1220[9] and Revised Code of Washington (RCW) 36.70A.020(2) The HER is adopted by reference in **Appendix A**.

[9] Available online at: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session%20Laws/House/1220-S2.SL.pdf?q=20240516102013

Exhibit 5: Race and Ethnicity of Residents, Bonney Lake, 2021

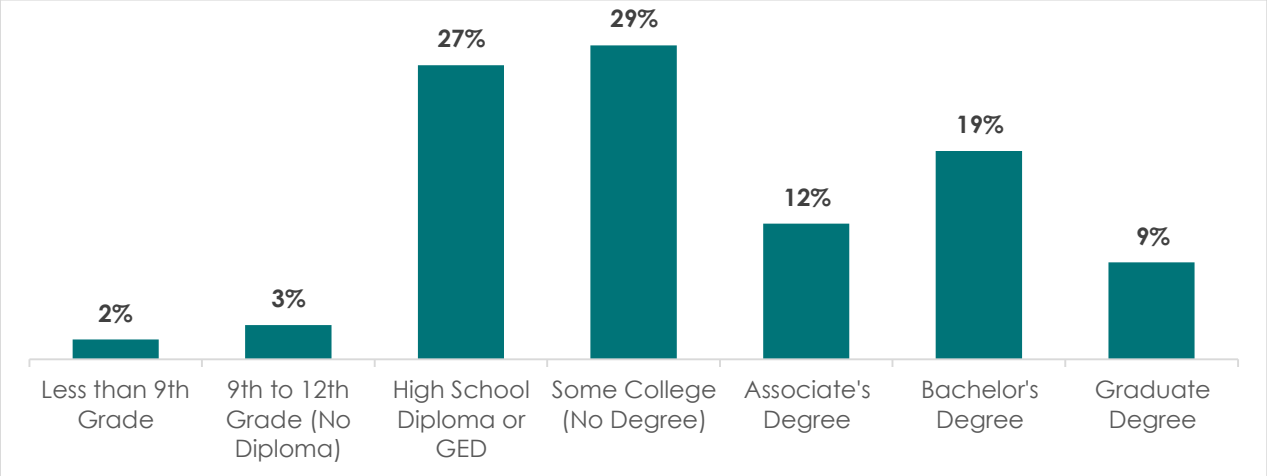


Source: ACS Table DP05, 2021
AIAN: American Indian and Alaskan Native
NHPI: Native Hawaiian and Pacific Islander

2.4 EDUCATIONAL ATTAINMENT

In Bonney Lake, almost all residents (95%) have a high school diploma or equivalent, and 40% have obtained a college degree (see **Exhibit 6**).

Exhibit 6: Educational Attainment, Bonney Lake, 2021

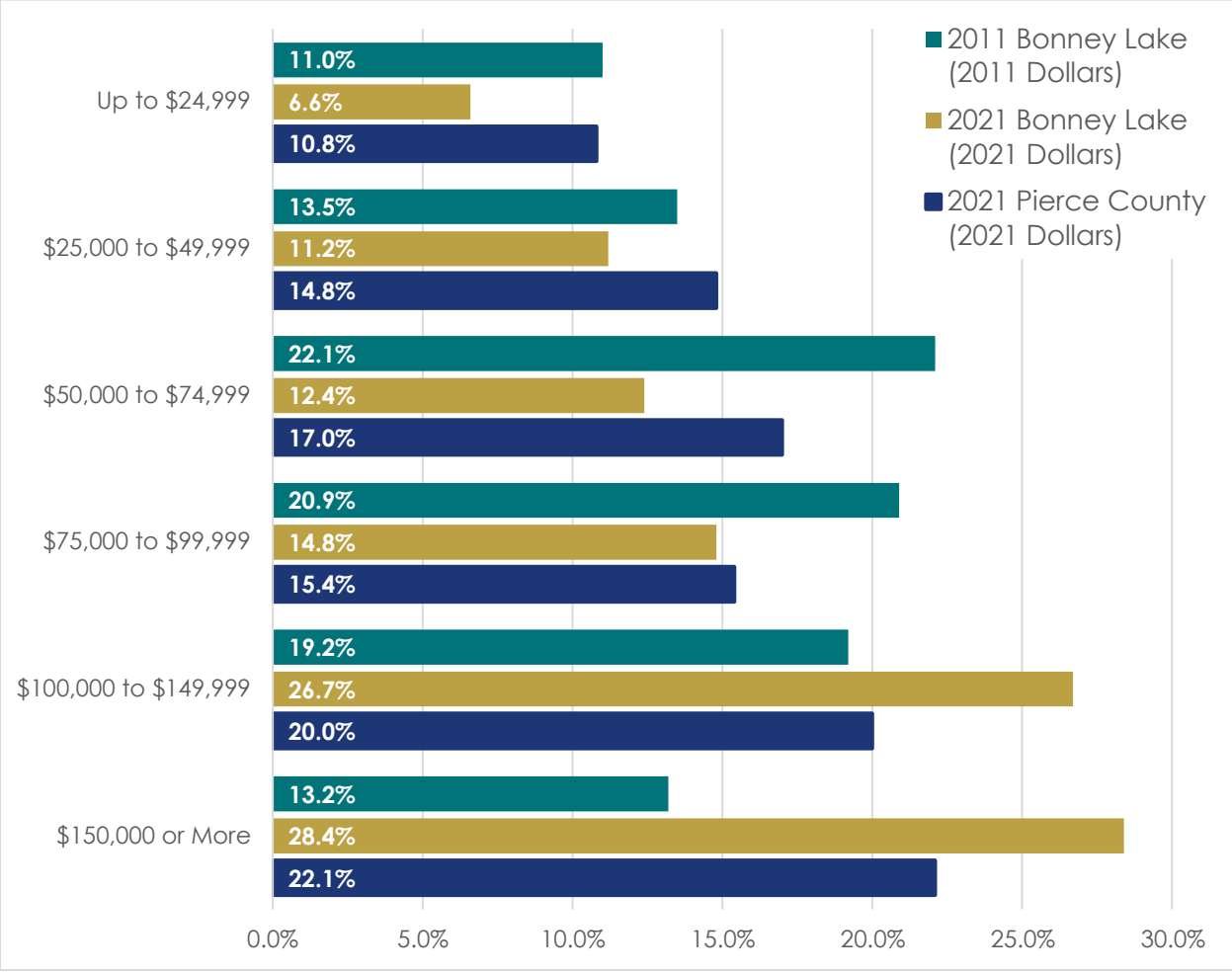


Source: ACS Table DP02, 2021

2.5 INCOME

In 2021, Bonney Lake had a household median income of $108,705, which is higher than the median household income for Pierce County of $85,866[11]. Over 82% of the households in Bonney Lake making more than $50,000 (see **Exhibit 7**). Between 2011 and 2021, there was an overall increase in the use of public cash assistance[12] and an average of 4.5% of Bonney Lake residents used some form of this assistance each year. Use of Social Security Income and Supplemental Security Income also increased since 2011 (see **Exhibit 8**).

Exhibit 7: Annual Median Household Income, Bonney Lake, 2011 and 2021, and Pierce County, 2021



Source: ACS Table S1901, Bonney Lake and Pierce County, 2011, 2021

[11] Source: ACS Table S1901, Bonney Lake and Pierce County, 2021
[12] Public cash assistance includes food stamps, Supplemental Nutrition Assistance Program (SNAP), etc.

Exhibit 8: Supplemental Income for Select Years, Bonney Lake, 2011 – 2021

Income Type	2011	2014	2017	2021	2011-21 Average
Social Security Income	19.5%	19.7%	21.5%	25.1%	23.1%
Supplemental Security Income	1.8%	1.9%	5.1%	3.4%	3.7%
Public Cash Assistance or Food Stamps / SNAP	2.2%	1.9%	8.3%	5.6%	4.5%

Source: ACS Table S1902, 2011- 2021

Approximately 5.1% of Bonney Lake households live below 100% of the federal poverty level as compared to the Pierce County average of 8.0%[13]. The federal poverty level is a sliding scale, based on the total annual income of the household and the number of individuals living in the household (see **Exhibit 9**).

Exhibit 9: Federal Poverty Guidelines for the 48 Contiguous States and the District of Columbia, 2021

Persons in Family / Household	1	2	3	4	5	6	7	8
Poverty Guideline	$12,880	$17,420	$21,960	$26,500	$31,040	$35,580	$40,120	$44,660

Source: Office of the Assistant Secretary for Planning and Evaluation
Note: For families/households with more than 8 persons, add $4,540 for each additional person.
Available online at: https://aspe.hhs.gov/2021-poverty-guidelines

2.6 COMMUNITY HEALTH

Tacoma-Pierce County Health Department (TPCHD) is responsible for tracking community health indicators, including behavioral health, life expectancy, chronic disease, and violence prevention. Planning for health and human safety means identifying the specific needs and factors that influence the health of a community.

In 2019, TPCHD released the Community Health Assessment (CHA), which evaluated Pierce County against Washington as a whole to inform future strategic priorities of TPCHD. The report also contains data broken down by demographic data such as age and race. Indicators where Pierce County performed worse than Washington State overall are shown in **Exhibit 10**. Cities can play a role in improving these indicators through programs, policies, and local development regulations.

[13] Source: ACS Table C17002, Bonney Lake and Pierce County, 2021

Exhibit 10: Select Health Indicators, Pierce County and Washington State Overall, 2019

Indicator	Pierce County Rate	Washington State Rate
Cancer – Breast	178.0 per 100,000	170.4 per 100,000
Cancer – Lung	71.3 per 100,000	57.5 per 100,000
Cigarette Use	18.60%	15.40%
Depression – Adults	23.90%	22.00%
Did Not Visit Doctor Due to Cost	15.10%	13.30%
Injury Hospitalizations – Intentional	97.8 per 100,000	71.8 per 100,000
Injury Hospitalizations – Unintentional	668.5 per 100,000	556.3 per 100,000
Obesity – Adults	29.80%	27.30%
Serious Mental Illness	5.00%	3.80%
Suicide Prevention Education Rate	43.30%	54.30%
Suicide Rate	17.7 per 100,000	14.9 per 100,000

Source: Adapted from Community Health Assessment, 2019. Indicators listed items where the overall Pierce County population is noted as a value significantly different than Washington overall. Available online at: https://tpchd.org/wp-content/uploads/2023/12/CHA-2019.pdf

TPCHD then developed the 2020 Community Health Improvement Plan (CHIP)[17] based on the results of the CHA. Findings of the CHA and goals identified in the CHIP that can be supported by Bonney Lake include:

- Access to affordable, healthy food that is available close to work and home;
- Safe, reliable, available and affordable housing;
- Availability of multi-modal transportation options to ensure residents can access places where they live, learn, work, and shop;
- Access to health care, especially mental health and substance abuse services;
- Provide equitable access to community spaces, such as parks, community centers, and safe spaces for teens; and
- Offer opportunities to celebrate local diversity by sharing community traditions and cultural knowledge.

[17] Available online at: https://tpchd.org/healthy-places/public-health-data/community-health-improvement-plan/

3. HOUSING

The purpose of a Housing Sub-Element is to provide goals and policies that guide the range of housing choices available to existing and future residents of Bonney Lake. The mix of housing goals and policies in this section are intended to promote options available to all economic segments and life stages of the community, as required by RCW 36.70A.070(2). These goals and policies are based on of the types of existing housing in the City and identify current and future housing needs.

This Housing Sub-Element is related to other elements of the Comprehensive Plan. Later portions of this Community Development Element identify land use densities, land use compatibilities, and growth estimates that indicate where and how much land is needed to accommodate the allocated housing needs. The Mobility Element and the Community Facilities and Services Element indicate where and how public facilities and utilities will be provided to support housing throughout the City.

3.1 PLANNING FOR HOUSING

Growth Management Act

In 2021, the Washington State Legislature passed the first major update to the housing goal (RCW 36.70A.020(4)) and mandatory housing element requirements (RCW 36.70A.070(2) since 1990[18], which expanded and clarified the minimum requirements associated with this mandatory element of the comprehensive plan. At a minimum, this Sub-Element must contain:

- An inventory and analysis of existing and projected housing needs, including:
  - Units for moderate, low, very low, and extremely low-income households; and
  - Adequate emergency housing, emergency shelters, and permanent supportive housing.
- A statement of goals, policies, and objectives for the preservation, improvement, and development of housing, including low- and moderate-density housing options.
- Identification of sufficient land capacity for housing.
- Adequate provisions for existing and projected needs of all economic segments of the community, including consideration of housing in relation to the location of

[18] Engrossed Second Substitute House Bill (E2SHB) 1220). Available online at: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session%20Laws/House/1220-S2.SL.pdf

employment, the role of accessory dwelling units, and documenting programs and actions needed to achieve housing availability.
- Documentation of any local policies, plans, and actions that result in racially disparate impacts, displacement, or exclusion in housing, such as zoning, disinvestment, or infrastructure availability. The results must be paired with policies and regulations to address and begin to undo such impacts.
- Policies to prevent displacement and to preserve historical and cultural communities as well as low, very low, extremely low, and moderate-income housing.

As described in **Section 1.1: Regulatory Context**, this Sub-Element must also be consistent with adopted multi-county planning policies (MPPs) and county-wide planning policies (CPPs).

Multi-County Planning Policies (MPPs)

PSRC adopted MPPs in VISION 2050 that encourage local jurisdictions to coordinate strategies, policies, and actions to ensure the region's housing needs are met. This Housing Sub-Element must be consistent with VISION 2050 in the following areas:

- **Affordability**: Ensuring a range of housing choices and supply for all income levels that mirrors local community need.
- **Focusing Housing Near Transit Options**: Promoting affordable housing within walking distance from transit stations and in growth centers to ensure all residents the opportunity to live in accessible and connected communities.
- **Displacement and Community Stability**: Minimizing forced physical or economic relocation to improve the cohesion and stability of a community and the well-being of residents and businesses.
- **Jobs-Housing Balance**: Providing housing options with nearby jobs, to reduce the length of commute travel and number of vehicle trips.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated CPPs in 2022. This Housing Sub-Element is required to be coordinated and consistent with the CPPs in the following areas:

- **Affordability**: Ensuring housing affordable for all economic segments of the population, with special attention paid to the historically underserved.
- **Countywide Housing Affordability Program**: Coordination amongst jurisdictions through the South Sound Housing Affordability Partners (SSHA^{3}P) to coordinate the development of affordable housing.

- **Monitoring**: Each jurisdiction must assess its success in meeting the housing needs for its population allocation.
- **Encourage Homeownership**: Support opportunities for low-income, moderate-income, and middle-income families and individuals in access to homeownership opportunities.
- **Displacement**: Use a range of strategies to prevent and minimize, the cultural and physical displacement and mitigate its impacts to the extent feasible.

3.2 HOUSING PROFILE

As of 2021, there were an estimated 7,920 households living in Bonney Lake[19, 20] and 8,164 available housing units. Analyzing the composition of households provides insight on the housing needs of the community. Housing comes in many forms, such as detached houses, apartments, townhouses, accessory dwelling units (ADUs), and mobile and manufactured homes. The existing housing inventory reflects historical housing patterns and the evolving needs of Bonney Lake.

Housing Units

Exhibit 11: Net Change in Housing by Type, Bonney Lake, 2011 – 2021

Housing Type	2011	2021	Change in Housing Units	Annual Avg. Growth Rate	% of Total Units
Single-Family Detached	5,182	6,525	+1,343	2.33%	79.9%
Townhouses / Multi-Family (2-4 Units)	420	666	+246	4.72%	8.2%
Multi-Family (5+ Units)	221	448	+227	7.32%	5.5%
Mobile Homes / Other	415	525	+110	2.38%	6.4%
Total	***6,238***	***8,164***	***+1,926***	***2.73%***	***100.0%***

Source: ACS Table B25024, 2011, 2021

Exhibit 11 shows that the City's existing housing is primarily detached housing units, which make up approximately 80% of the City's total housing units. Between 2011 and 2021, over 1,900 new housing units were added to the City, either via new construction or annexation of properties with existing housing units. This inventory includes 21 adult family homes, a senior living facility with 123 units, and 34 accessory dwelling units (ADUs).

[19] Source: American Community Survey (ACS) Table DP04, 2021
[20] A **household** is a group of people who live in one (1) dwelling unit. Households can have one (1) or more members and can be families or unrelated people living together.

Almost 50% of Bonney Lake's existing housing has been constructed since 2000, and approximately 77% of the available housing is less than 50 years old (see **Exhibit 12**). The age of the existing housing inventory correlates with the growth in population for the City, with majority of housing being built between 2000-2009, when the City saw its largest population increase to date. Of the 8,164 housing units, approximately 3.0% were vacant in 2021, well above the home vacancy rate in Washington of 0.7%[21] that same year.

Exhibit 12: Age of Housing Stock in Bonney Lake, 2021

Year Built	Number of Units	% of Housing	Approximate Age of Housing
Built 2020 to 2021	79	1%	4 Years
Built 2000 to 2019	3,716	47%	5 – 24 Years
Built 1999 to 1980	2,300	29%	25 – 44 Years
Built 1979 to 1960	1,559	20%	45 – 64 Years
Built 1959 to 1940	122	2%	65 – 84 Years
Built 1939 or Earlier	144	2%	85 Years or More

Source: ACS Table B25127, 2021

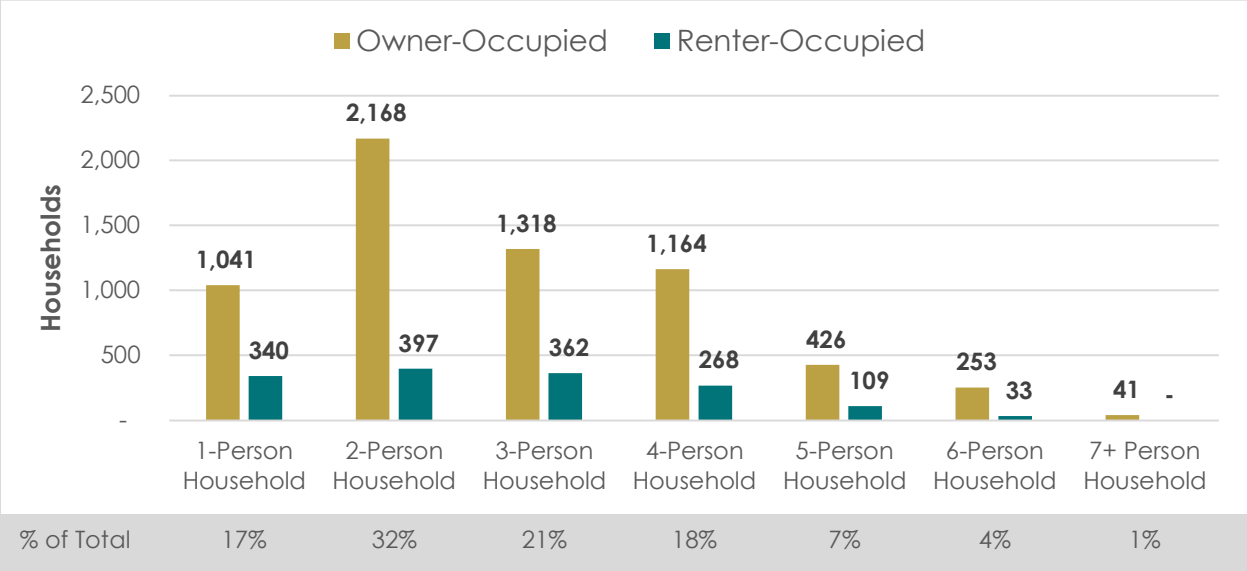
Households

In 2021, 81% of housing was owner-occupied and 19% was renter-occupied, which is a significantly higher owner-occupancy rate than Pierce County overall (65%)[22]. A housing unit is considered owner-occupied when an owner or co-owner lives in the unit, even if individuals renting or leasing also live in the unit. All other units are referred to as renter-occupied[23].

The City's average household size in 2021 was 2.80, higher than the Pierce County average of 2.61 and the Washington average of 2.51[24]. This is slightly lower than the average household size in 2011 of 2.86, meaning households appear to be getting smaller. As of 2021, just under 50% of the City's residents lived alone or in two (2) person households (see **Exhibit 13**).

[21] A natural vacancy rate is the rate that prevails when markets are in balance, meaning that prices are not rising nor falling faster than income or construction costs.
[22] Source: ACS Table S2502, Bonney Lake, 2021
[23] U.S. Census Bureau Glossary, available online at: https://www.census.gov/glossary/
[24] Source: ACS Table DP04, Bonney Lake, Pierce County and Washington, 2021

Exhibit 13: Household Size by Owner- and Renter-Occupancy, Bonney Lake, 2021



Source: ACS Table B25009, 2021

In 2021, almost one-third (32%) of households in Bonney Lake were non-family households, and over half of these (55%) were single individuals (see **Exhibit 14**).

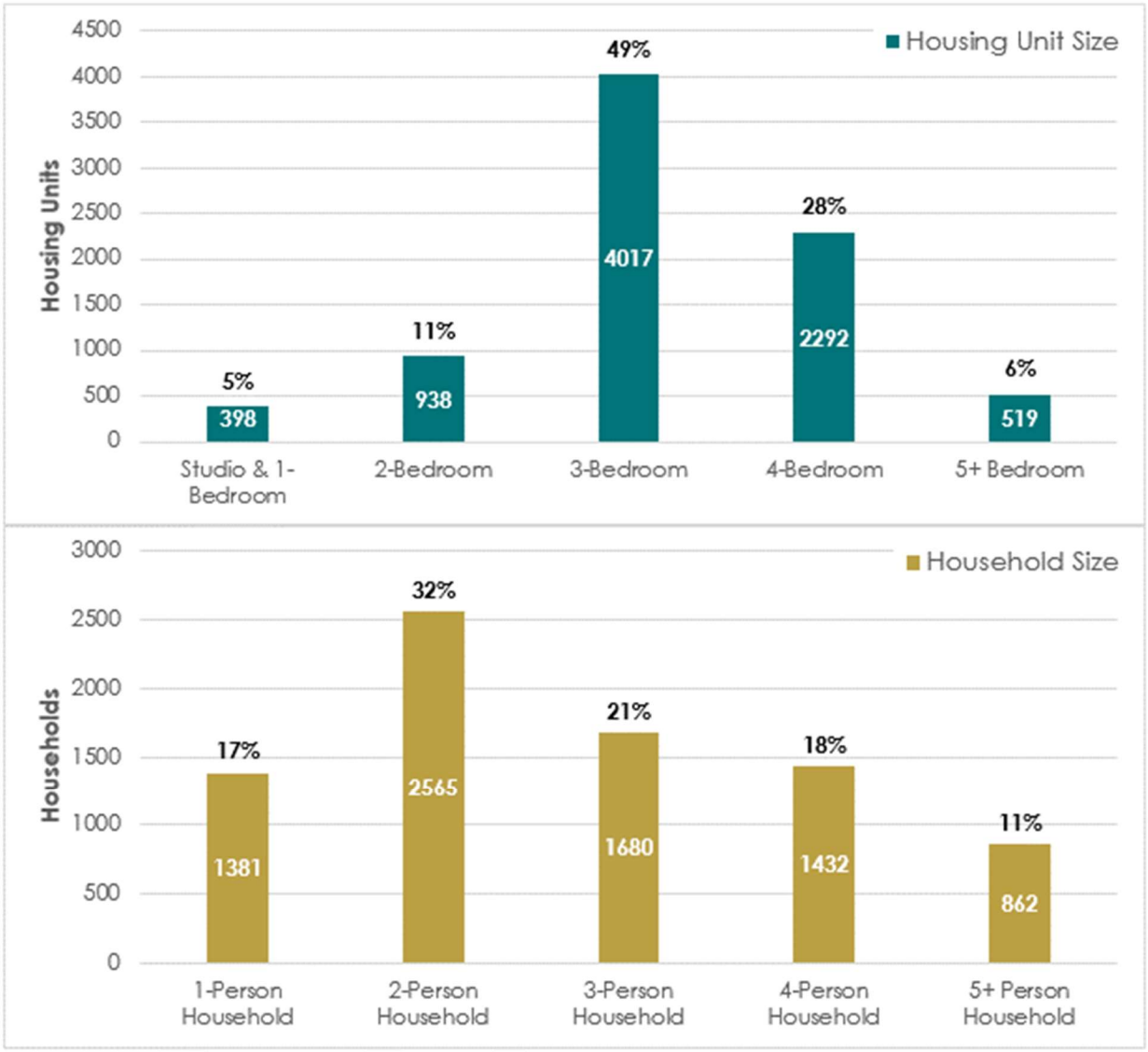
Exhibit 14: Household Composition, Bonney Lake, 2021

Household Type	Count	% of Total
Family	**5,399**	**68%**
Married	4,855	62%
Not Married, with Related Children Under 18	514	6%
Non-Family	**2,521**	**32%**
Co-Habitating	737	9%
Other Unrelated Persons	403	5%
Alone	1,381	17%

Source: ACS Tables DP-02, 2021

Exhibit 15 shows housing units by the number of bedrooms in a housing unit and the number of households by household size. There is a misalignment between the size of housing units available in Bonney Lake and the size of existing households. About half of households consist of one (1) or two (2) people, yet 83% of housing units have three (3) or more bedrooms.

Exhibit 15: Housing Unit Size vs. Household Size, Bonney Lake, 2021



Source: ACS Tables DP-4 and B25009, 2021

Exhibit 16 shows the range of housing types constructed between 2011 and 2021, including a proportional increase in the construction of studio, 1- and 5-bedroom units.

Exhibit 16: Change in Housing Units by Size, Bonney Lake, 2011 – 2021

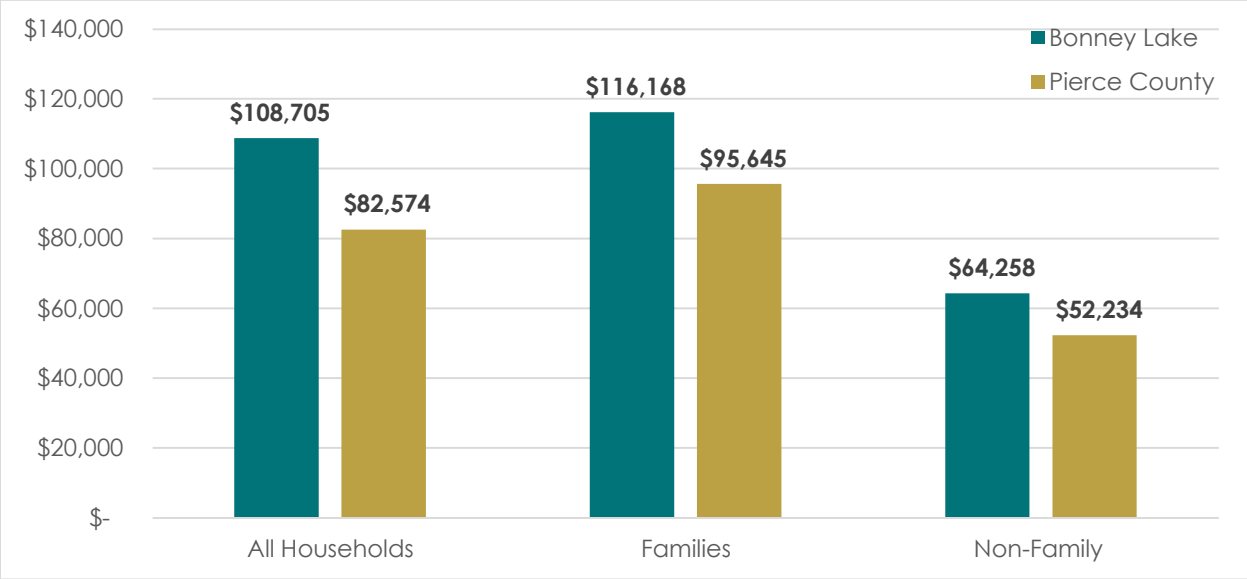
Housing Unit Size	Housing Units, 2011		Housing Units, 2021		Change %
	Count	%	Count	%	
Studio & 1-Bedroom	196	3%	398	5%	**103%**
2-Bedroom	630	10%	938	11%	**49%**
3-Bedroom	3,574	57%	4,017	49%	**12%**
4-Bedroom	1,533	25%	2,292	28%	**50%**
5+ Bedroom	305	5%	519	6%	**70%**

Source: ACS Tables DP-04, 2011 and 2021

Household Income

A household's income often drives its housing decisions and opportunities. The relationship of household income and housing prices is important to understand as Bonney Lake plans for its housing needs. **Exhibit 17** shows the median income in Bonney Lake and Pierce County for all households, families (households with two (2) or more related persons) and non-families. Family incomes are typically higher than non-family incomes due to the higher income from potential dual-income households.

Exhibit 17: Median Household Income by Household Type, Bonney Lake and Pierce County, 2021



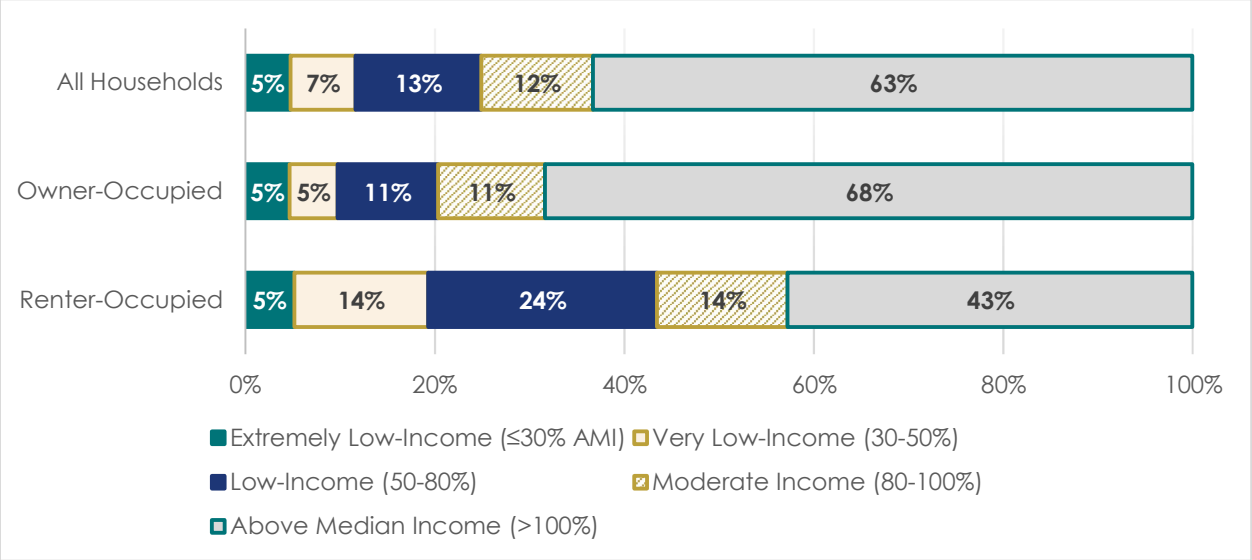
Source: ACS Table S1903, Bonney Lake and Pierce County, 2021

Exhibit 18 summarizes owner- and renter-occupied households in Bonney Lake by income level, relative to Area Median Income (AMI). When summarizing housing affordability by income level, households are typically grouped relative to the HUD-published AMI. Income limits to qualify for income-restricted housing are also often set relative to HUD AMI. The 2020 HUD AMI for Pierce County was $87,300[25]. Income groups are typically defined as follows:

- Extremely Low-Income: 30% AMI or less
- Very Low-Income: Above 30% and not exceeding 50% AMI
- Low-Income: Above 50% and not exceeding 80% AMI
- Moderate-Income: Above 80% and not exceeding 100% AMI
- Above Median Income: Greater than100% AMI

There is a significant difference between owner- and renter-occupied households in Bonney Lake, with owner-occupied households more likely to have incomes above 100% AMI. A majority (68%) of owner-occupied households have incomes at or above AMI, compared to 43% of renter-occupied households. While the proportion of extremely low-income households are the same between both groups, 38% renter-occupied households are very low-income or low-income households, compared to 16% of owner-occupied households.

Exhibit 18: Household by Income Level, Bonney Lake, 2020



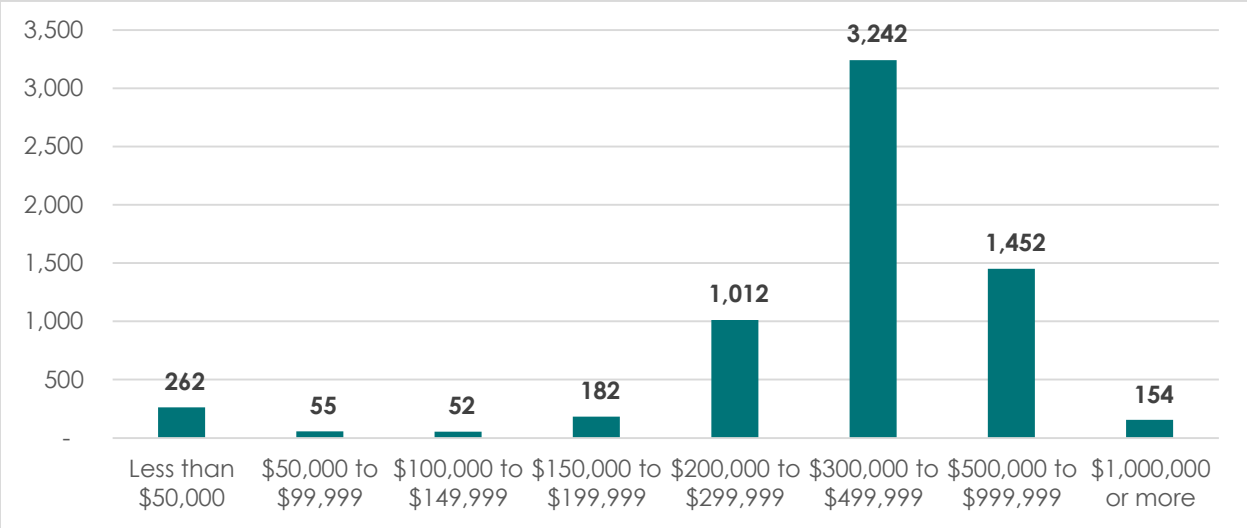
Source: United States Department of Housing and Urban Development (HUD) Comprehensive Housing Affordability Strategy (CHAS) Table 7, 2016-2020

[25] 2020 HUD Income Limits are available online at: https://www.huduser.gov/portal/datasets/il.html#2020

Housing Costs

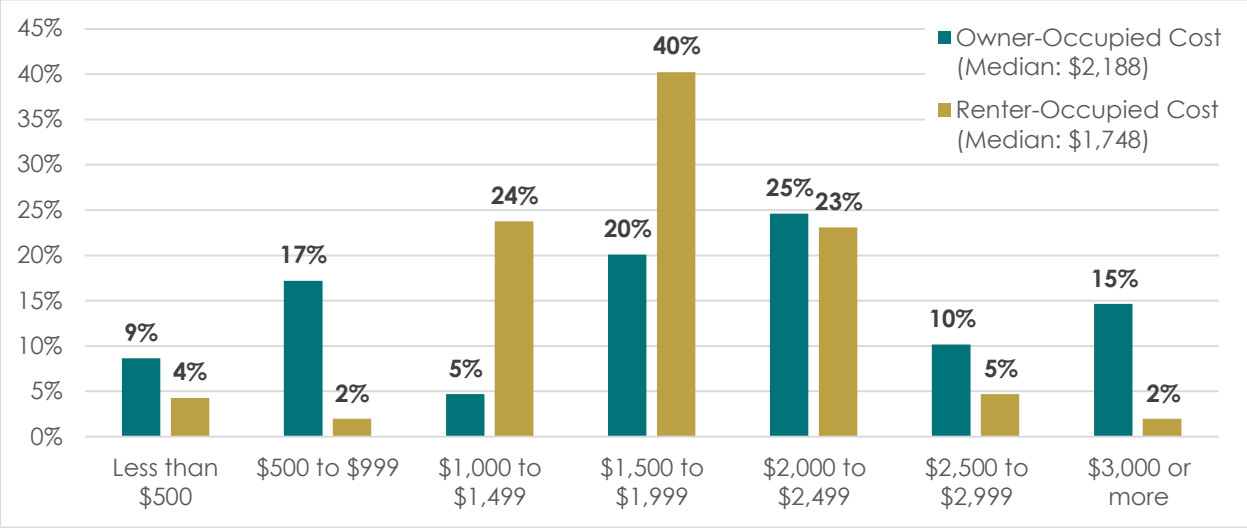
In 2021, the median owner-occupied home value was $396,700. Just over 50% of the owner-occupied housing units at that time were within $100,000 of the median home value (see **Exhibit 19**). The median monthly housing cost was $440 higher for owner-occupied units than renter-occupied units (see **Exhibit 20**).

Exhibit 19: Median Value of Owner-Occupied Housing Units, Bonney Lake, 2021



Source: ACS Table DP04, Bonney Lake, 2021

Exhibit 20: Estimated Monthly Housing Costs for Owner- and Renter-Occupied Units, Bonney Lake, 2021



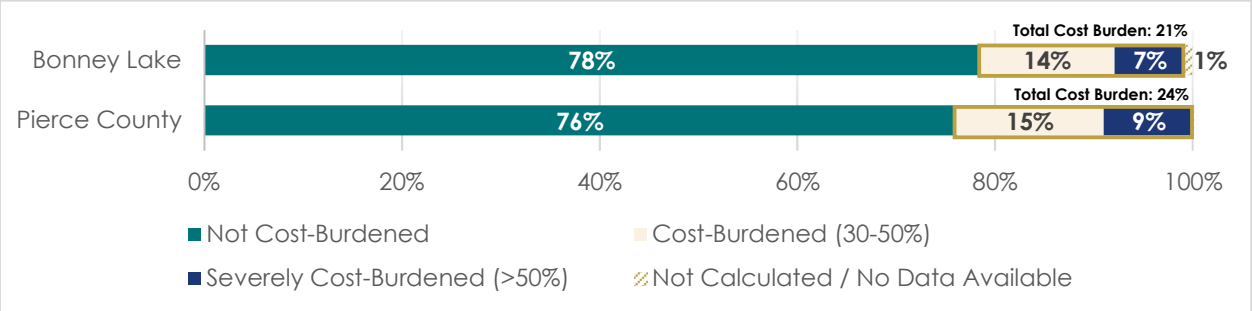
Source: ACS Table DP04, Bonney Lake, 2021

Cost-Burdened Households

One of the biggest determinants of housing need is the number of households that are spending a high proportion of their income on housing. After paying for housing, these households have limited resources left to pay for food, clothing, medical care, transportation, education, and other life necessities. They also have a higher risk of displacement when housing costs rise or when life circumstances change.

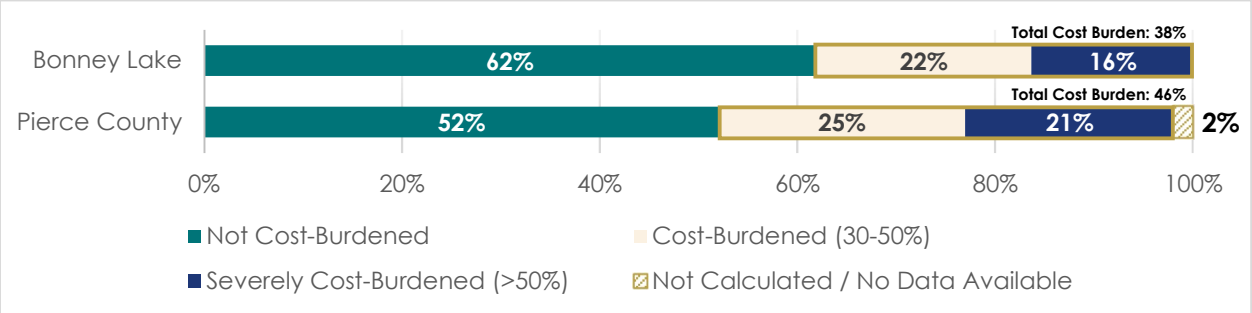
HUD considers households to be cost-burdened if housing costs more than 30% of a household's income, including utilities. Households who spend more than 50% of their income on housing are severely cost-burdened. **Exhibit 21** and **Exhibit 22** present the rate of cost burden for owner- and renter-occupied households in Bonney Lake and Pierce County. While households in Bonney Lake are doing better than the County, 1,124 households of all households (15%) are cost-burdened, and 650 of all households (9%) are severely cost-burdened in Bonney Lake.

Exhibit 21: Rates of Cost Burden for Owner-Occupied Units, Bonney Lake and Pierce County, 2020



Source: HUD CHAS Table 9, 2016-2020

Exhibit 22: Rates of Cost Burden for Renter-Occupied Units, Bonney Lake and Pierce County, 2020



Source: HUD CHAS Table 9, 2016-2020

Housing Affordable to Low-, Very Low-, and Extremely Low-Income Households

Using the HUD income brackets together with the 2020 Bonney Lake median household income of $100,951, **Exhibit 23** presents a snapshot of the amount that Bonney Lake households earning the median income or less can afford to pay for housing. In 2020, most low-income residents could afford the median rent and moderate-income households could afford the median home price.

Exhibit 23: Housing Affordability Based on Income Bracket, Bonney Lake, 2020

Income Group	Income Used %	2021 Annual Household Income	Maximum Affordable Monthly Rent[26]	Maximum Affordable Home Price[27]
Extremely Low-Income (≤30% AMI)	30%	$30,285	$757	$115,000
Very Low-Income (30-50%)	45%	$45,428	$1,136	$192,500
Low-Income (50-80%)	65%	$65,618	$1,640	$296,000
Moderate Income (80-100%)	90%	$90,856	$2,271	$425,000
		Median Income	**Median Rent**	**Median Home Price**
Bonney Lake Median		**$100,951**	**$1,658**	**$375,500**

Source: ACS Tables S1901, S2503 and S2506, 2020; Pierce County Tax Rates for 2020; Federal Reserve Bank of St. Louis 30-Year Fixed Rate Mortgage Average in the United States, 2010-2020; NerdWallet Average Home Insurance Cost, 2020; Federal Housing Administration Mortgage Calculator (http://usmortgagecalculator.org); Zillow Rent Affordability Calculator (https://www.zillow.com)

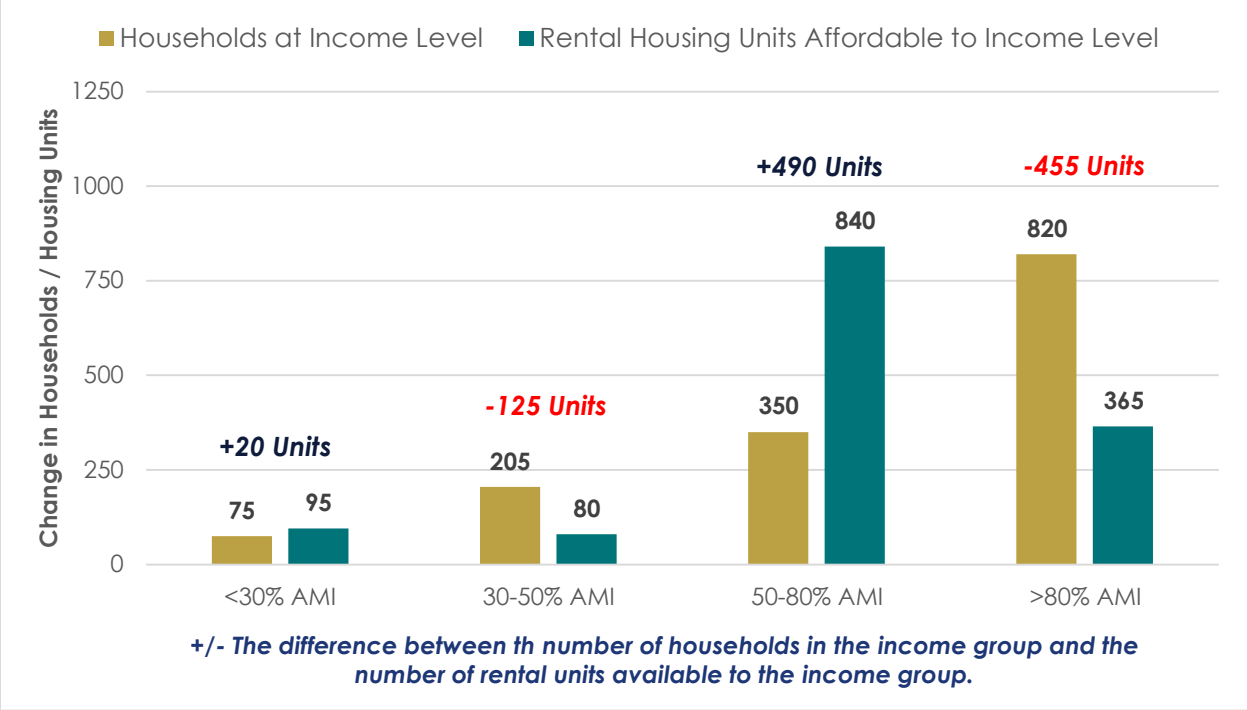
Exhibit 24 compares the estimate of rental households and rental housing units (both occupied and vacant) at each income or affordability level. The comparison helps identify gaps in the available rental housing for the renter households in the jurisdiction. Shortfalls and surpluses suggest a mismatch between the rental housing need and availability. A surplus indicates that either a lower-income household is experiencing housing cost burden, or that a higher-income household is "down renting" by paying less than they can afford in rental housing. High rates of down renting by

[26] Assumes maximum rent is 30% of monthly income.

[27] Assumes 1) a 20% down payment; 2) a 30-year fixed rate mortgage of 3.15% (the average of weekly interest rates between June 2010 – June 2020); 3) a property tax rate of 13.406% per $1,000 (based on Pierce County Assessor 2020 Average Levy Rate for Bonney Lake); 4) annual homeowner insurance costs of $1,000 (based on the average cost of homeowner insurance in Washington in 2020); 5) homeowner's association dues of $100 per month; and 6) a maximum monthly payment of 28% and a maximum debt-to-income ratio of 36%, consistent with mortgage lender guidelines. No debt was assumed as part of the calculation.

moderate-income households are associated with an undersupply of entry-level homeownership options. In 2020, there was an undersupply of housing units for very low-income households and an undersupply of market-rate housing units for households making 80% or more of Bonney Lake's annual median household income. Since 2021, construction was completed on The View by Vintage, a community with 408 income-restricted housing units serving those making 60% of less of Pierce County AMI.

Exhibit 24: Renter Households by Income and Rental Units by Affordability, Bonney Lake, 2020



Source: HUD CHAS Tables 14B and 15C, 2010-2014 and 2016-2020

Jobs-to-Housing and Jobs-to-Labor Force Ratios

The jobs-to housing ratio is a tool to help jurisdictions evaluate whether the available jobs and housing are roughly equal. Ideally, jobs match the available labor force, and housing is available at prices, forms, and locations suited to workers who wish to live in the area.

Typically, this balance is expressed by a jobs-to-housing ratio, which is determined by dividing the total amount of jobs by the total number of housing units in an area. In Washington, employment data is typically derived from the Washington State Employment Security Department which identifies the number of jobs covered by unemployment insurance within a given area. This measurement of employment does not include the armed forces, jobs with the federal government, self-employed workers,

and sole proprietors as these jobs are not "covered" by unemployment insurance. Therefore, the actual total amount of employment is higher than the number of "covered" jobs utilized to calculate the ratio.

A number close to 1.0 indicates a "balance" of jobs and housing. A high imbalance between the number of individuals living and working in the same community contributes to increases in commuting times, energy consumption, and the emission of vehicle pollutants, while decreasing opportunities for non-motorized commuting options (walking and bicycling).

Due to the number of dual wage-earning households, a reasonable ceiling signifying balance is a job to housing ratio of 1.5. In 2021, Bonney Lake's jobs-to-housing ratio was 1.35, an increase from a ratio of 0.70 in 2014, and greater than the Pierce County ratio of 1.16.

The downside of the jobs to housing ratio is that it does not provide the actual number of individuals that live and work in the same community. Another drawback to the methodology is that it treats all housing units as equal, even though housing units can contain different numbers of workers, consist of retirees, or could be vacant.

Another approach is to evaluate the total number of jobs compared to the size of the civilian labor force living in a community. As this measurement compares the total number of individuals in the labor force to the number of jobs, balance is a ratio of 1.0. Bonney Lake has jobs-to-labor force ratio of 0.64, less than the Pierce County ratio of 0.90.

While both ratios can provide some insights, neither measure can identify the actual number of people who live and work in the same community, due to variables such as the nature of jobs within the area, the skills and education of the residents, and the price of housing. Based on the U.S Census Bureau's Longitudinal Employer – Household Dynamics (LEHD) data, approximately 9% of the labor force in Bonney Lake worked and lived within the City in 2021.

Barriers to Housing Construction

In order to ensure there are adequate provisions for existing and projected housing needs for all economic segments of the community, the City evaluated barriers to housing needs, including barriers to emergency housing and permanent supportive housing. **Exhibit 25** includes the identified barriers and actions needed to remove these barriers.

Exhibit 25: Summary of Potential Housing Barriers

Barrier	Actions to Consider to Address Barrier
Development Regulations	
Development Regulations Clarity	Update development regulations to add missing definitions and remove inconsistencies, such as conflicting density requirements. Update ADU regulations to comply with state law and HB 1337. Evaluate requirement for safety inspections and separation of use for supportive, transitional, and emergency housing.
Impervious Coverage Limits	May be restrictive for some housing types; review whether it is possible to adjust this in conjunction with stormwater regulations and National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit requirements.
Large Setback Requirements	Review reduction of setbacks to provide more flexibility in placement of housing units.
Moderate Density Housing Types	Update land use matrix to show additional allowed housing types. Consider role of live-work units.
Number of Occupants	Ensure the municipal code are consistent with state law and construction codes.
Tree Retention Standards	Clarify tree retention standards to streamline processing and ensure clear expectations for retaining trees of significance.
Process Obstacles	
Access to Information	Update website, brochures, and applications materials to ensure information on process, application status, and fees is accesible.
Design Review	Review the Downtown Bonney Lake Design standards to remove barriers to housing.
Impact Fees	Evaluate and update impact fees consistent with state law.
Processing Time and Staffing	Update permit procedures consistent with SB 5290 and ensure staffing levels are maintained.

DRAFT

Barrier	Actions to Consider to Address Barrier
Limited Land Availability and Environmental Constraints	
Environmental Constraints	Many of the remaining undeveloped parcels have an environmental constraint. Review the environmental regulations to see if appropraite updates or flexibility could assist with housing production.
Funding Gaps	
Application Fee Waivers (RCW 36.70A.540)	Consider fee reductions or waivers for development of affordble housing.
Impact Fee Waivers (RCW 82.02.060)	Consider impact fee reductions or waivers for development of affordable housing.
Multifamily Tax Exemption (MFTE) (Chapter 84.14 RCW)	Evaluate implementation of an MFTE program in Bonney Lake.

Source: Adapted from Washington State Department of Commerce Periodic Update Checklist for Fully-Planning Cities and Counties with Additional Checklist Items for Housing Element Review (May 2024)

Housing Action Plan

In 2021, the City completed a joint Housing Action Plan (HAP) with the City of Sumner to better understand existing and future housing needs through the development of a Housing Needs Assessment (HNA) and strategies to ensure those needs are met[28]. The HAP was adopted under Ordinance No. 1654 (see HAP for full details). The HAP recommended the following strategies for Bonney Lake:

- Strategy 1: Preserve Rental Housing
- Strategy 2: Incentivize New Rental Housing
- Strategy 3: Bring Down the Cost of Development
- Strategy 4: Provide a Wider Variety of Housing Types
- Strategy 5: Prevent and Mitigate Displacement
- Strategy 6: Improve the Permit Process

Recommended Actions to support those strategies and the status of those actions are shown in **Exhibit 26**:

[28] The HAP and HNA were paid for by a $150,000 grant administered by the Washington State Department of Commerce, authorized under Resolution No. 2826.

Exhibit 26: Housing Action Plan Recommended Actions and Status

Action Topic	Strategy						Status
	Rental Housing		Costs	Variety	Prevent / Mitigate	Permit Process	
	1	2	3	4	5	6	
ADU Construction			X	X			●
Affordable Housing Preservation	X				X		○
Affordable Housing Sales Tax	X				X		○
Inclusionary Zoning Incentives		X			X		○
Income-Restricted Housing			X	X			○
Missing Middle Housing Construction			X	X			◖
Multi-Family Tax Exemption (MFTE)		X	X	X	X		○
Open Space / Recreation Requirements			X				●
Parking Calculation Based on Bedrooms			X				●
Reduce Infrastructure Costs			X				◖
State Environmental Policy Act (SEPA) Implementation			X			X	●
Streamline Design Review			X				◖
Streamline Permit Process						X	◖
Tiny Home Regulations				X			○
Townhomes Allowed in More Zones				X			◖

Complete = ● In Progress = ◖ Not Started = ○

Source: Adapted from Bonney Lake – Sumner Housing Action Plan

Housing Equity

As of 2021, the GMA requires local jurisdictions to identify policies and regulations that could or may have resulted in racially disparate impacts, displacement, and exclusion in housing. The City of Bonney Lake completed a Housing Equity Report (HER), adopted by reference in **Appendix A** (see HER for full details). Key findings of the HER include:

Intentional Discrimination in Housing

- No evidence of racially restrictive covenants was found.
- No evidence of redlining was found.

Racially Disparate Impacts in Housing

- Bonney Lake has significantly higher rates of homeownership than Pierce County amongst all but one racial and ethnic group.
- Housing cost burden is higher among American Indian, Other, and Hispanic households in owner-occupied housing and White and Other households in renter-occupied housing.
- As of 2021, Bonney Lake does not have a shortage of homes affordable to low income and very low-income households. The number of housing units affordable in each income category has increased since 2011.
- American Indian households face a significant gap ($240,500) between the home price the household can afford and the cost of a median-priced home in Bonney Lake. Multi-racial households face a smaller gap of $77,000.
- The Hispanic median household income is higher than the citywide median; however, the homeownership rate lags 18% behind the citywide rate.

Displacement Risk

- There are no areas of higher displacement risk in Bonney Lake; however, American Indian and Alaska Native residents are at the highest risk of displacement.
- The rate of foreclosures and evictions are lower in Bonney Lake than elsewhere.
- Overall housing quality is high, though there are a small number of units which have inadequate plumbing and heating sources.

Exhibit 27: Summary of Observed Disparities

	White	Black	American Indian or Alaska Native	Asian	Native Hawaiian or Pacific Islander	Multi-Racial	Other	Hispanic, Any Race
Racially Disparate Impacts	○	○	○	○	Limited Data	○	●	◖ (gap is closing)
Exclusionary Housing	○	○	○	●	○	◖	◖	●
Displacement Risk	○							

Yes = ● Partial = ◖ No = ○

3.3 IDENTIFIED HOUSING NEEDS

The GMA requires Pierce County and its cities to evaluate development (land consumption) over time to determine whether the adopted urban growth areas and zoning density provide land capacity sufficient to accommodate the adopted population and housing projections.

In 2017, the Washington State Legislature passed E2SHB 5254[29], which required the County to complete a more rigorous analysis as part of the Buildable Lands Report. This analysis allowed the County to identify where there was a gap between actual development patterns and planned targets, for jurisdictions with a significant gap to take reasonable measures to reduce that gap. Reasonable measures may include updating and/or clarifying development regulations, rezoning property, increasing density, and other actions aimed at assuring growth can be accommodated (RCW 36.70A.215).

The 2022 Buildable Lands Report[30] found that while there was a slight difference between targets and zoned capacity in Bonney Lake, it was not significant enough to warrant requiring Bonney Lake to enact reasonable measures related to housing.

Population Growth Allocation

Pierce County adopted population growth targets for 2044 under Pierce County Ordinance No. 2022-46s[31, 32] (see **Exhibit 28**).

Exhibit 28: Population Allocation, Bonney Lake, 2020 – 2049

	2020	2044		2049[33]	
	Census Population	Growth Allocation	Total	Planning Horizon	Total
Pierce County Adopted Target	22,487	3,591	26,078	748	26,826
Land Capacity Analysis Assumption		3,880	26,367	1,162	27,529

Source: Adapted from Pierce County Ordinance No. 2022-46s and the Bonney Lake Land Capacity Analysis

[29] Available online at: https://lawfilesext.leg.wa.gov/biennium/2017-18/Pdf/Bills/Session%20Laws/Senate/5254-S2.SL.pdf
[30] Available online at: https://www.piercecountywa.gov/923/Buildable-Lands
[31] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-46s
[32] Exhibit C of Pierce County Ordinance No. 2023-22s states that the population or employment targets adopted under Ordinance No. 2022-46s were not amended – see Finding 20.
[33] The average annual growth rate was extended at a constant rate to establish an estimated total target for the 2049 planning horizon. This is an assumption to assist in making growth related decision for various City utilities and services and to coincide with the centennial of the City.

Housing Growth Allocation

Consistent with E2SHB 1220 (see **Section 3.1**), Pierce County adopted revised housing growth targets for 2044 under Pierce County Ordinance No. 2023-22s[34] (see **Exhibit 29**). Developed in coordination with cities and towns, the growth allocation ensures each jurisdiction accommodates its proportionate share of housing affordable to all income segments, as well as plans and accommodates for an adequate supply of emergency housing, emergency shelters, and permanent supportive housing (PSH).

Exhibit 29: Housing Allocation by Income, Bonney Lake, 2020 – 2049

	2020	2044[35]		2049[33]	
	Existing Supply	Growth Allocation	Total	Planning Horizon	Total
Total	7,605	1,451	9,056	526	9,582
Extremely Low-Income (≤30% AMI)					
Non-Permanent Supportive Housing	67	187	254		
Permanent Supportive Housing[36]	0	253	253		
Very Low-Income (>30-50%)	542	269	811		
Low-Income (>50-80%)	1,124	213	1,337		
Moderate Income (>80-100%)	1,709	92	1,801		
Median Income (>100% – 120%)	1,217	83	1,300		
High Income (≥120%)	2,936	354	3,290		
Emergency Housing Needs (Beds)[37,38]	0	89			

Source: Pierce County Ordinance No. 2023-22s.

[34] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2023-22s

[35] The City is required to demonstrate that there is sufficient development capacity to accommodate future identified housing needs consistent with the GMA and the MPPs.

[36] Permanent supportive housing is subsidized housing for people who need comprehensive support services. For the full definition, see RCW 36.70A.030(31).

[37] Emergency housing is temporary housing for those homeless or at imminent risk of becoming homeless that is intended to address basic, short-term health, food, clothing, and personal hygiene needs. For the full definition, see RCW 36.70A.030(14).

[38] Emergency shelter is a facility that provides temporary shelter for those who are currently homeless. Emergency shelter facilities may include overnight day and warming centers. For the full definition, see RCW 36.70A.030(15).

Land Capacity Analysis

The Land Capacity Analysis (LCA, see **Appendix B**) evaluated existing zoning designations and whether there was adequate capacity to support future growth. Based on that analysis, the City completed a Growth Alternatives Memo (see **Appendix C**) to evaluate potential zoning scenarios that would accommodate the adopted population and housing targets due to an existing housing capacity deficit very low- and extremely low-income households.

On April 23, 2024, City Council identified **Alternative 2: Bend the Trend**, as the Council's preferred growth alternative (Motion No. M24-33). This alternative anticipates a surplus of housing capacity for all income levels through 2044 (see **Exhibit 30**) and is the basis for the capacities shown in this subsection.

Exhibit 30: Housing Capacity Summary, Bonney Lake, 2020 – 2044

	2044		Permitted Units 2020-2023	Total Pipeline Capacity	Total Zoned Capacity[39]	Capacity Surplus or Deficit
	Growth Allocation	Aggregate Need				
Total	**1,451**		**682**	**156**	**1,498**	**+885**
Extremely Low-Income (≤30% AMI), Non-Permanent Supportive Housing	187	709	0	0	886	+177
Extremely Low-Income (≤30% AMI), Permanent Supportive Housing	253					
Very Low-Income (>30-50%)	269					
Low-Income (>50-80%)	213	213	408	0	0	+195
Moderate Income (>80-100%)	92	175	104	72	106	+107
Median Income (>100% – 120%)	83					
High Income (≥120%)	354	354	170	84	506	+406

Source: Adapted from Bonney Lake Growth Alternatives Memo

HB 1220 further requires cities to identify sufficient capacity for emergency housing, emergency shelters, and permanent supportive housing (PSH) and requires cities to allow the land use in all residentially zoned areas and zones where hotels are permitted. Even

[39] **Total zoned capacity** is the capacity for additional housing units from vacant and developable land or from pipeline development projects.

though the City currently does not have any zones where hotels are a permitted use, the City allows for PSH and transitional housing in all zones that allow residential type uses.

Pierce County's Ordinance No. 2023-22s also set Emergency Housing targets for the 2020-2044 planning period. The City is required to demonstrate there is sufficient capacity to support 89 beds. The LCA identified vacant land in the Eastown and Public Facilities zoning districts to accommodate the required Emergency Housing, because it is most likely to support the development of this type of housing (see **Exhibit 31**).

Exhibit 31: Emergency Housing Capacity, Bonney Lake, 2020 – 2044

Site Grouping	Maximum Density	Capacity (Beds or Units)	Total Capacity	Total Need	Capacity Surplus or Deficit
Tiny Shelter Villages	30 units / acre	120	360	89	+271
Emergency Congregate Shelter	60 units / acre	240			

Source: Adapted from Bonney Lake Land Capacity Analysis

HB 1220 requires cities to consider the role of accessory dwelling units (ADUs) in meeting housing needs[40]. Engrossed Housing Bill (EHB) 1337 was passed by the Washington State Legislature during the 2023 legislative session. EHB 1337 further requires cities to allow up to two Accessory Dwelling Units (ADUs) on all lots zoned to allow single-unit housing[41]. As part of the LCA, the City evaluated capacity for additional ADU construction in the upcoming 20-year planning period (see **Exhibit 32**).

Exhibit 32: Accessory Dwelling Unit Capacity, Bonney Lake, 2020 – 2044

Total Available Lots	Assumed Participation Rate	Potential ADU Lots	Estimated ADUs per Lot	Estimated Additional ADUs in 2044
4,261	2.00%	85	1.25	107

Source: Adapted from Bonney Lake Land Capacity Analysis

[40] See RCW 36.70A.070.2.d.iv: https://app.leg.wa.gov/RCW/default.aspx?cite=36.70A.070 [41] Lots must meet or exceed the minimum lot size for the zone if one is established. Lots with critical areas or their buffers are exempt from the requirements of HB 1337.

[41] Lots must meet or exceed the minimum lot size for the zone if one is established. Lots with critical areas or their buffers are exempt from the requirements of HB 1337.

3.4 HOUSING GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CD-H-1:	**Provide a variety of housing options that will meet the needs of all Bonney Lake's current and future residents and are affordable to all economic segments of Bonney Lake.**	
Policies:	**CD-H-1.1**	Ensure that sufficient acreage and densities are designated on the Future Land Use Map and Zoning Map to enable reaching the City's allocated 20-year housing growth targets.
	CD-H-1.2	Update the City's development regulations to permit a range of housing types that is consistent with the City's growth strategy. This may include attached and detached single-unit dwellings, cottages, townhomes, accessory dwelling units, apartments, mixed-use, permanent supportive housing, income-restricted housing, and emergency shelters.
Goal CD-H-2:	**Encourage preservation and rehabilitation of the existing housing stock.**	
Policies:	**CD-H-2.1**	Encourage the maintenance, repair, and rehabilitation of the City's existing housing stock by encouraging homeowners to take advantage of existing maintenance, repair, weatherization, and preservation programs, services, and resources.
	CD-H-2.2	Promote private and public efforts to preserve the existing quality housing stock by maintaining sound units, rehabilitating substandard units, and replacing severely deteriorated units.
	CD-H-2.3	Encourage health-related improvements to older homes, including the removal of lead-based paint, asbestos, and other potentially harmful materials.
	CD-H-2.4	Encourage the rehabilitation and reuse, rather than demolition, of existing housing.
Goal CD-H-3:	**Recognize that existing mobile and manufactured home parks provide an affordable housing option for Bonney Lake residents.**	
Policies:	**CD-H-3.1**	Preserve and maintain existing mobile and manufactured home parks that are in proximity to essential services and multi-modal transportation options.

DRAFT

	CD-H-3.2	Allow the use of recreational vehicles (RVs) as a primary residence within mobile and manufactured home parks when all applicable regulations can be satisfied.
Goal CD-H-4:	**Take reasonable steps to prevent displacement of existing residents.**	
Policies:	**CD-H-4.1**	Support ways for older adults and people with disabilities to remain in the community as their housing needs change by encouraging universal design or retrofitting homes for lifetime use.
	CD-H-4.2	Adopt regulations to require relocation assistance to households that are displaced by new development or capital improvements.
	CD-H-4.3	Adopt regulations to require owners of apartments or mobile and manufactured home parks to notify tenants and the City in advance of a sale.
	CD-H-4.4	Adopt regulations that provide residents and other eligible organizations an opportunity to purchase or lease a mobile and manufactured home parks prior to any sale, lease, or transfer.
	CD-H-4.5	Provide information on Pierce County's tax assistance program to connect seniors and other special needs populations with available County resources.
	CD-H-4.6	Explore the use of existing affordable housing revenue from the State to support a local rental assistance program.
Goal CD-H-5:	**Establish minimum property maintenance standards to ensure the general health, safety, and welfare of residents.**	
Policies:	**CD-H-5.1**	Support healthy and safe housing by developing and implementing programs to address unfit dwellings, nuisances, and environmental hazards (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.).
Goal CD-H-6:	**Encourage the development of a wide variety of high-quality housing types to accommodate the diverse needs of Bonney Lake's community members through changes in age, household size, income, mobility, and housing preferences.**	
Policies:	**CD-H-6.1**	Allow a variety of residential densities and housing types to enable the development of housing to meet the needs of people of all incomes throughout their lifetime.

	CD-H-6.2	Allow additional housing types, such as cottages, attached single-unit dwellings, townhouses, and accessory dwelling units (ADUs), in low-density residential zones.
	CD-H-6.3	Allow ADUs within new and existing low-density developments and explore opportunities to promote ADU construction in existing homes.
	CD-H-6.4	Allow manufactured homes in all residential zones that allow attached or detached single-unit housing.
	CD-H-6.5	Encourage the fair distribution of housing throughout the City, recognizing that some clustering may be appropriate if in proximity to services and multi-modal housing options.
	CD-H-6.6	Support the development of housing affordable to households earning 30%, 50%, and 80% of median income, as required by State law, and promote mixed-use developments through financial tools, such as the adoption and implementation of a Multi-Family Tax Exemption (MFTE) program.
Goal CD-H-7:	**Support a range of housing choices for workers at all income levels throughout the City in a manner that promotes accessibility to jobs and provides opportunities to live in proximity to work.**	
Policies:	**CD-H-7.1**	Allow housing in the Centers for a variety of incomes, age groups, and household types
	CD-H-7.2	Focus efforts to increase housing in Centers and other areas where jobs, supporting services, and multi-modal transportation choices can be provided.
	CD-H-7.3	Encourage adapting non-residential buildings for housing, consistent with State law.
Goal CD-H-8:	**Support access to homeownership for first-time home buyers.**	
Policies:	**CD-H-8.1**	Provide information to residents, including underserved populations, on first-time homeownership programs.
	CD-H-8.2	Encourage existing housing providers and private lenders to provide home buyer education seminars for potential first-time homebuyers; include outreach to current renters.
Goal CD-H-9:	**Enable the provision of special needs and emergency housing.**	

Policies:	**CD-H-9.1**	Support actions by agencies, private developers and non-profit organizations to secure grants and loans tied to the provision of special needs housing.
	CD-H-9.2	Support programs that allow people with special needs to independently remain in their own homes for as long as they desire (e.g., home maintenance and repair; home health care; meal programs).
	CD-H-9.3	Allow inter-generational housing for individuals or families who desire to care for members of their household with special needs.
	CD-H-9.4	Encourage a range of housing types for special needs households at a variety of incomes, such as independent living, various degrees of assisted living and skilled nursing care facilities.
	CD-H-9.5	Permit group homes as required by state and federal law, including where residents receive supportive services such as counseling, foster care, or medical supervision, within any type of dwelling unit.
	CD-H-9.6	Develop regulations for use of alternative housing forms, such as tiny houses, to help meet allocated emergency housing needs in selected areas of the City, as required by State law.
	CD-H-9.7	Permit the development of emergency, transitional and permanent housing with appropriate on-site services for persons with special needs, including but not limited to seniors, persons with disabilities, veterans, at-risk youth, and victims of domestic violence.

Goal CD-H-10:	**Take reasonable action to reduce barriers to meeting housing growth targets in development regulations and permit procedures.**

Policies:	**CD-H-10.1**	Craft regulations and procedures to provide a high degree of certainty and predictability and minimize unnecessary time delays in the review of permit applications, while still maintaining the integrity of the permitting process and adequate opportunities for public involvement and review.
	CD-H-10.2	Update development regulations as needed to keep the unit cost of new housing down while providing for a quality living environment for residents.
	CD-H-10.3	Analyze how amendments to development regulations and procedures may impact the cost to permit, construct, repair, and rehabilitate housing.

CD-H-10.4 Make reasonable accommodations in rules, policies, practices, and services when such accommodations may be necessary to afford persons with disabilities equal opportunity to complete the permit process and use a dwelling.

CD-H-10.5 Support the development of ADUs through streamlined permitting, education and resources, and regular monitoring of the ADU regulations, as required by State law.

Goal CD-H-11:	**Ensure high-quality housing through clear, objective design and construction standards.**

Policies:

CD-H-11.1 Ensure that adequate buffer and building design standards minimize the impacts of more intensive development on adjacent residential uses, by incorporating design guidelines in the development code and enforcing building code requirements. Design guidelines should be clear and objective and should address visual consistency, height transitions, and buffers.

CD-H-11.2 Provide effective transitions between different uses and intensities, including between new housing and existing housing, through development regulations that address design and scale.

CD-H-11.3 Allow "clustering" of housing to preserve and protect environmentally sensitive areas.

Goal CD-H-12:	**Ensure that adequate services and infrastructure are planned to support the allocated housing target.**

Policies:

CD-H-12.1 Provide physical infrastructure, park, recreational and cultural amenities, and coordinate the provision of educational facilities throughout the City to support the creation of attractive neighborhoods for residents of all ages, incomes, and household types.

CD-H-12.2 Communicate early with residents served by on-site septic systems or wells when planned utility extensions or rezoning may impact them.

Goal CD-H-13:	**Strive to reduce disparate housing impacts, exclusion, and displacement risk in Bonney Lake, by acting within the City's power to update plans, policies, and development regulations.**

Policies:

CD-H-13.1 Monitor and report trends related to disparate housing impacts, exclusion, and displacement risk at times when implementation

reports and periodic updates are done for the Comprehensive Plan.

CD-H-13.2 If trends monitored under Policy CD-H-13.1 are worsening, review City plans, policies and development regulations and update as needed to improve outcomes. Ask for input from the people experiencing the impacts to inform City actions.

CD-H-13.3 Prevent discrimination and encourage fair and equitable access to housing for all persons in accordance with state and federal law.

Goal CD-H-14:	**Ensure coordination with regional agencies to address regional and City housing needs.**

Policies:

CD-H-14.1 Identify local housing needs and priorities, and coordinate with community partners to address those needs, including housing rehabilitation.

CD-H-14.2 Actively work with Pierce County and other local governments to investigate and implement regional funding options to support the development and/or maintenance of affordable housing such as a regional housing trust fund, regional housing tax levy, real estate excise tax or other mechanisms.

CD-H-14.3 Support the work of for-profit and non-profit housing developers to facilitate construction or acquisition of housing units for households earning 30%, 50%, and 80% of median income.

CD-H-14.4 Work with Pierce County and health and social service organizations to develop a coordinated, regional approach to homelessness.

CD-H-14.5 Support housing legislation at the local, regional, state, and federal levels to promote the goals and policies of this Comprehensive Plan.

4. ECONOMIC VITALITY

Economic vitality is essential to ensure the continuous growth and development of Bonney Lake. Economic growth provides jobs and assures a stable tax base for a local community. In order to attract new commercial and industrial developments, Bonney Lake must develop a strategy for economic growth.

- *Bonney Lake Comprehensive Plan (1985)*

4.1 PLANNING FOR ECONOMIC VITALITY

Growth Management Act

A healthy economy is vital to creating and maintaining a high standard of living and quality of life for residents in the Central Puget Sound Region. The Growth Management Act (GMA) emphasizes regional coordination of economic development planning as one of the elements of a comprehensive plan (RCW 36.70A.070(7)). The requirement for an economic development element is conditioned on the availability of state funds, which have not been provided to date (RCW 36.70A.070(10)).

The City chose to develop this sub-element consistent with RCW 36.70A.070(7), which encourages "… establishing local goals, policies, objectives, and provisions for economic growth and vitality and a high quality of life….". This sub-element focuses on "economic vitality" rather than simply "economic development". Economic vitality is a process to improve the economic well-being of the community that protects the physical environment, provides a healthy economy, encourages employment opportunities, improves the socio-economic opportunities for citizens, expands the local tax base, facilitates economic opportunity and encourages the efficient use of land. It recognizes growth cannot outpace a local jurisdiction's availability to provide public services and facilities.

This sub-element was also prepared to be generally consistent with adopted multi-county planning policies (MPPs) and county-wide planning policies (CPPs).

Multi-County Planning Policies (MPPs)

The Puget Sound Regional Council (PSRC) has adopted goals and associated MPPs in VISION 2050[42] that encourage coordination between the public sector, private sector,

[42] Available online at: https://www.psrc.org/planning-2050/vision-2050

and the education and workforce development systems to develop, support, and sustain the regional economy. These goals and MPPs focus on:

- **Expanding Economic Opportunity**: Striving for balanced job creation across the region to broaden opportunities and create a better jobs-housing balance, particularly through equity, childcare job distribution and broadband access.
- **Global Competitiveness**: Maintaining the region's competitive advantages in the global economy through trade development, supporting key industrial sites, business recovery and resilience.
- **Quality of Life**: Addressing the foundation of a sustainable economy and its workers through access to affordable housing near jobs, investment in transportation systems, and addressing chronic homelessness.

PSRC has adopted a strategic plan, known as the Regional Economic Strategy[43], which identifies specific near-term actions the organization uses to implement the goals and MPPs, and to support local economic development planning. Cities are encouraged to adopt an economic development element in the MPPs.

County-Wide Planning Policies (CPPs)

Similar to the MPPs, Pierce County's adopted CPPs[44] focus on regional coordination, economic diversity, and balance. The CPPs address:

- **Quality of Life**: Balance business and job creation, environmental quality, creation of central places, and sustaining diverse communities to support a high quality of life.
- **Expanding Economic Opportunity**: Promote economic opportunities for all, especially the unemployed, disadvantaged persons, minorities, and small businesses.
- **Plan for Growth**: Balance the costs of growth and development with the benefits of diverse land uses.
- **Support Existing Businesses**: Maintain infrastructure, support services, and ensure information is readily accessible to help existing businesses thrive and grow.
- **Regional Coordination**: Work with other jurisdictions to share information and coordinate attracting new industries.

[43] Available online at: https://www.psrc.org/our-work/economy
[44] Pierce County Ordinance No. 2022-29 is available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29

4.2 ECONOMIC PROFILE

Job Base and Wages

According to the US Census Data's Longitudinal Employment-Housing Data, Bonney Lake's largest employment base is in the Retail and Food Service sectors, which account for 56% of the jobs within Bonney Lake. Health care, social assistance, public administration and construction make up the next largest employment sectors in the city (see **Exhibit 33**).

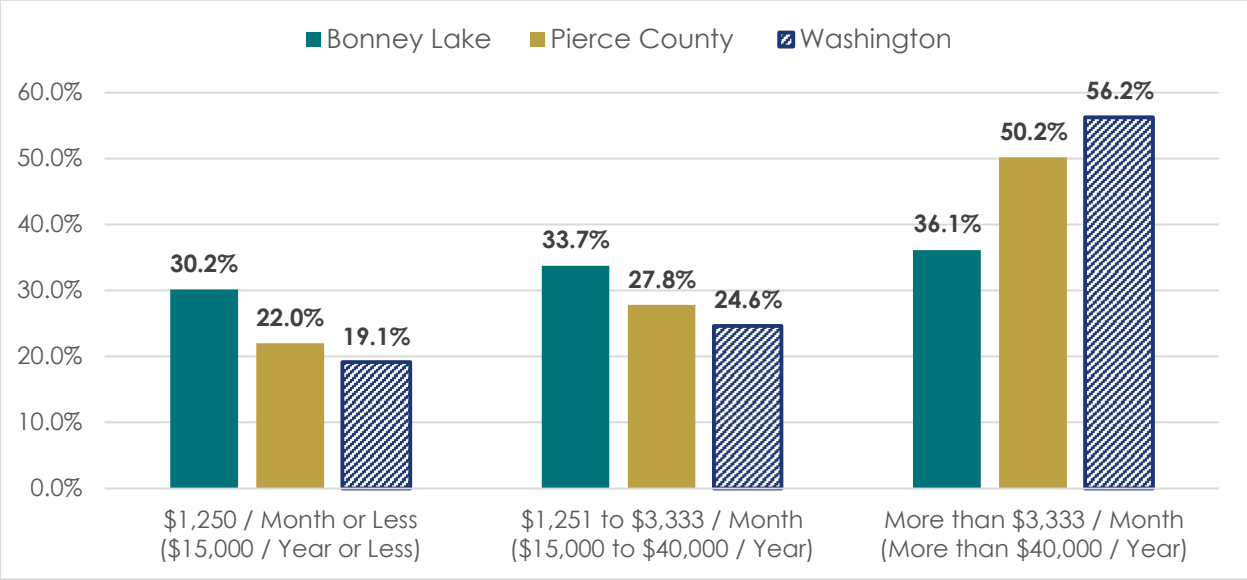
Exhibit 33: Worker Occupation by NAICS Industry Class and Sector, Bonney Lake, 2020

NAICS Code	NAICS Description	Worker Occupation
Goods Producing		
23	Construction	6.5%
11	Agriculture, Forestry, Fishing and Hunting	0.3%
31 – 33	Manufacturing	0.3%
21	Mining, Quarrying, and Oil and Gas Extraction	0.1%
Trade, Transportation and Utilities		
44 – 45	Retail Trade	36.2%
42	Wholesale Trade	3.2%
48 – 49	Transportation and Warehousing	1.2%
22	Utilities	0.0%
All Other Services		
72	Accommodation and Food Services	19.6%
62	Health Care and Social Assistance	10.0%
92	Public Administration	6.9%
81	Other Services (excluding Public Administration)	4.9%
54	Professional, Scientific, and Technical Services	2.7%
56	Administration & Support, Waste Management and Remediation	2.6%
52	Finance and Insurance	2.2%
61	Educational Services	1.5%
71	Arts, Entertainment, and Recreation	0.6%
53	Real Estate and Rental and Leasing	0.6%
51	Information	0.5%
55	Management of Companies and Enterprises	0.0%

Source: LEHD OnTheMap, Bonney Lake, 2020

Due to the City's high concentration of retail and service employment, which are typically minimum wage jobs, the monthly wages of workers employed in Bonney Lake are lower than for Pierce County or Washington State (see **Exhibit 34**).

Exhibit 34: Monthly Wages in Bonney Lake, Pierce County, and Washington State, 2020



Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, Bonney Lake, Pierce County, and Washington State, 2020

The lower average wages means that some individuals employed in Bonney Lake do not meet the Self-Sufficiency Standard. The Self-Sufficiency Standard is the amount of annual income required to meet basic needs differentiated by family type and location without the help from public subsidies (e.g. public housing/housing assistances, Medicaid, SNAP/WIC, childcare assistance) or private/informal assistance (e.g. unpaid babysitting by a relative or friend, food from food banks, or shared housing). In 2020, the minimum hourly wage needed to meet the Self-Sufficiency Standard for cities in west Pierce County was $21.54 - $24.07[45], depending on family type, well over the State's minimum wage of $13.50 per hour that same year (see **Exhibit 35**).

Exhibit 35: Self-Sufficiency Standard for West Pierce County Cities by Family Type, 2020

	1 Adult	1 Adult 1 Preschooler	1 Adult 1 Preschooler 1 School-Age	2 Adults 1 Preschooler 1 School-Age
Annual Income	$26,610	$50,480	$59,612	$67,909

Source: Diana Pearce, University of Washington, The Self-Sufficiency Standard for Washington State, 2020

[45] University of Washington, Self-Sufficiency Standard: https://selfsufficiencystandard.org/washington/.

Resident Occupations

> *Employment opportunities near Bonney Lake are increasing as new industries locate in the Kent, Auburn, and Sumner Valleys. During the past four years many new industrial plants have located in Auburn and Kent, and major industrial employers in Sumner have increased their employment. This trend is continuing, and will affect population growth in Bonney Lake.*
>
> - *Plan for Bonney Lake, Washington (1964)*

While the wages for people employed within the City are lower than average in Pierce County, the household median income of households living in Bonney Lake is $108,705, which is significantly higher than the median household income in Pierce County, which is $85,866[46]. This high average household income is due to the number of residents employed outside of the City.

Exhibit 36 provides the percentage of residents employed in each of the major North American Industry Classification System (NAICS) sectors. Resident occupations show more even distribution across sectors than worker occupations, with residents primarily working in health care, construction, retail, manufacturing or education.

Exhibit 36: Resident Occupation by NAICS Industry Class and Sector, Bonney Lake, 2020

NAICS Code	NAICS Description	Resident Occupation
Goods Producing		
23	Construction	11.6%
31 – 33	Manufacturing	9.6%
11	Agriculture, Forestry, Fishing and Hunting	0.6%
21	Mining, Quarrying, and Oil and Gas Extraction	0.1%
Trade, Transportation and Utilities		
44 – 45	Retail Trade	11.6%
48 – 49	Transportation and Warehousing	6.6%
42	Wholesale Trade	5.3%
22	Utilities	0.4%
All Other Services		
62	Health Care and Social Assistance	12.5%
61	Educational Services	8.3%
72	Accommodation and Food Services	6.2%

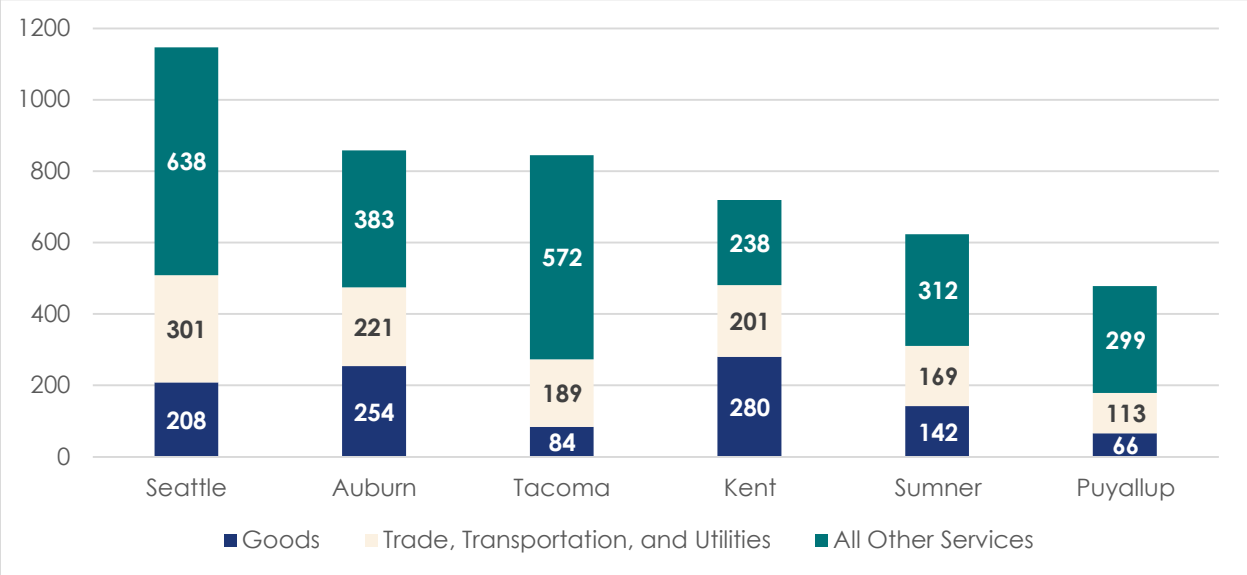
[46] Source: ACS Table S1901, Bonney Lake and Pierce County, 2021

NAICS Code	NAICS Description	Resident Occupation
92	Public Administration	5.4%
56	Administration & Support, Waste Management and Remediation	4.9%
54	Professional, Scientific, and Technical Services	4.9%
52	Finance and Insurance	2.7%
81	Other Services (excluding Public Administration)	2.6%
51	Information	2.2%
71	Arts, Entertainment, and Recreation	1.8%
53	Real Estate and Rental and Leasing	1.5%
55	Management of Companies and Enterprises	1.4%

Source: LEHD OnTheMap, Bonney Lake, 2020

Residents primarily commute outside of the city for work, with almost half commuting to Seattle, Auburn, Tacoma, Kent, Sumner and Puyallup (see **Exhibit 37**).

Exhibit 37: Top Commute Locations for Residents by NAICS Industry Segment[50], Bonney Lake, 2020



Source: LEHD OnTheMap, Bonney Lake, 2020

[50] The 2-digit NAICS codes associated with each industry class are as follows: Goods Producing includes NAICS 11, 21, 23, and 31-33, Trade Transportation and Utilities includes NAICS 42, 44-45, 48-49, and 22, and All Other Services includes the remaining twelve 2-digit NAICS industry sectors.

The City's quality of life will be important to continue to attract individuals employed in these regional industry clusters to live in Bonney Lake. Quality of life is a concept often used to describe an individual's or group's satisfaction with a residential location based on number of factors, which can include traffic, crime, availability of open space and parks, quality of local public schools, job opportunities, and housing affordability.

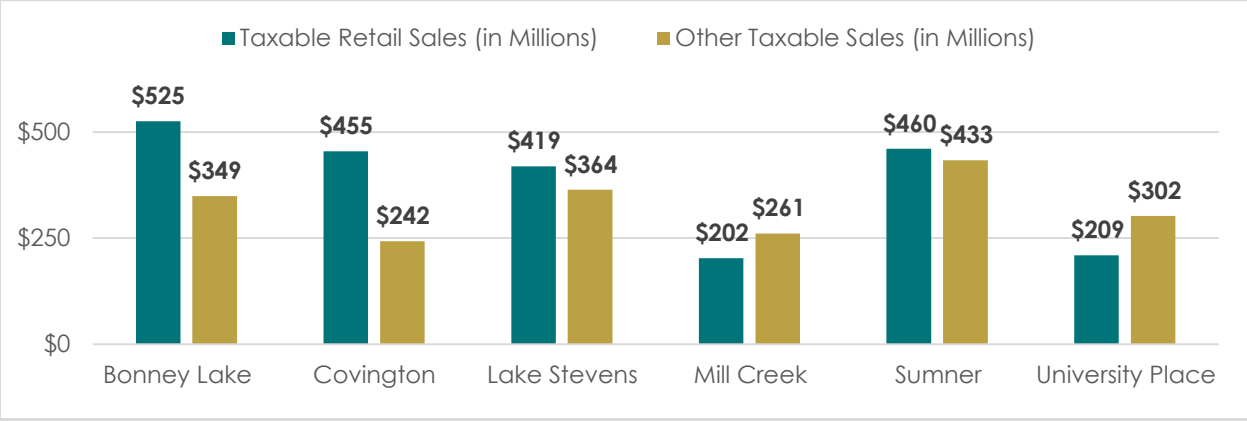
As residents are the main driver behind Bonney Lake's large retail sector and its overall economic development, maintaining a high quality of life is important for future economic development planning. To help maintain and enhance Bonney Lake's quality of life, the following are priorities for the City to make continued investments[57]:

- Traffic mobility;
- Recreational amenities including parks and trails;
- Creating a city or civic center; and
- Improving the look and feel of the SR 410 retail corridor.

Taxable Revenues

Key indicators of the economic health and vitality of the jurisdiction's tax base is the total amount collected and diversity of those taxable revenues[59]. Bonney Lake's total taxable sales in 2023 was 31% higher than the average of comparable cities[60] (see **Exhibit 38**).

Exhibit 38: Taxable Sales, Bonney Lake and Comparable Cities, 2023



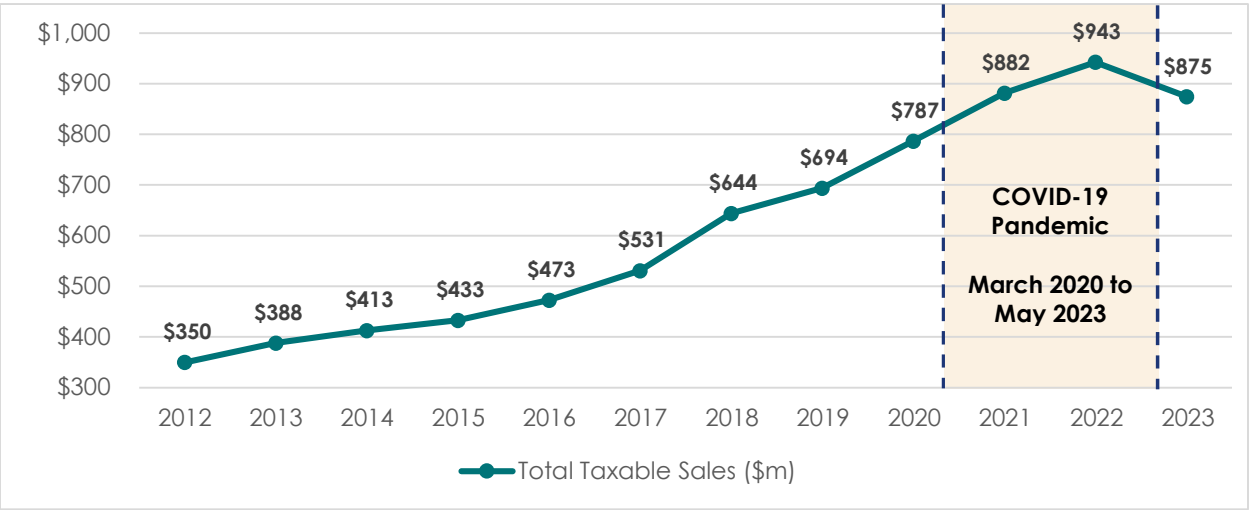
Source: Washington State Department of Revenue, Taxable Retail Sales by City Calendar Year, 2023

[57] BERK Consulting Inc. (January 2015). *City of Bonney Lake Economic Development Study – Final Report*.
[59] Total taxable revenue is the total revenue collected by a business on which sales taxes are paid. The total sales tax collection is the local tax rate multiplied by the total taxable revenue.
[60] Comparable cities are jurisdictions similar to Bonney Lake based on six criteria, described in the Introduction Element.

The City's total taxable sales increased 150% between 2012 and 2023 (see **Exhibit 39**). This increase is likely due to:

- Completion of several large commercial developments in Midtown;
- An increase in the number of housing units and population; and
- Increased use of delivery services during the COVID-19 pandemic, and to a lesser extent, after the pandemic[61].

Exhibit 39: Total Taxable Sales in Millions, Bonney Lake, 2012 – 2023

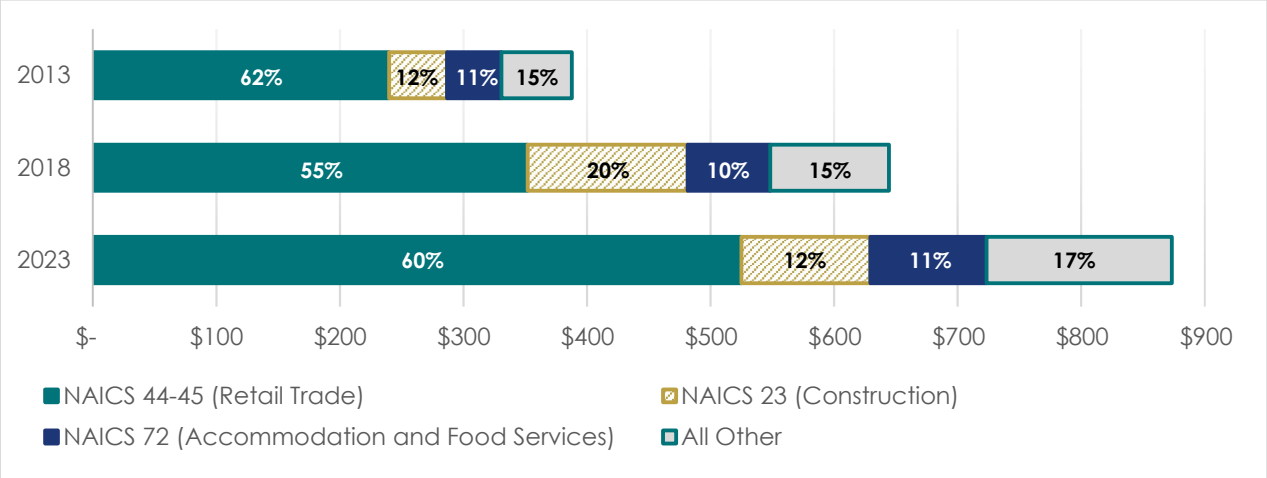


Source: Washington State Department of Revenue, Taxable Retail Sales by City Calendar Year, 2012 – 2023

Bonney Lake's total taxable sales are primarily from three NAICS Sectors: Retail Trade (NAICS 44-45), Construction (NAICS 23), and Accommodation and Food Services (NAICS 72). Between 2013 and 2023, the volume of taxable sales more than doubled, however the proportion of these three sectors stayed relatively steady (see **Exhibit 40**). Warehouse clubs, home centers, full-service and limited-service restaurants are consistently in the top five industries generating sales tax in the city (see **Exhibit 41**).

[61] X. Wang, W. Kim, J. Holguín-Veras, and J. Schmid. *Adoption of delivery services in light of the COVID pandemic: Who and how long?*, Transportation Research Part A: Policy and Practice. Volume 154, 2021 (pages 270-286).

Exhibit 40: Taxable Sales by NAICS Sector, Bonney Lake, 2013, 2018, and 2023



Source: Washington State Department of Revenue, Taxable Retail Sales by City by NAICS Grouping, 2013, 2018, and 2023[63]

Exhibit 41: Top 5 NAICS Industries, Bonney Lake, 2013, 2018, and 2023

Rank	NAICS	Industry Name	2023 Total Sales $ / %	2018 Total Sales $ / %	2013 Total Sales $ / %
1	452311	Warehouse Clubs & Supercenters	$232m / 27%	$150m / 23%	$72m / 18%
2	444110	Home Centers	$88m / 10%	$68m / 11%	$43m / 11%
3	459999	All Other Miscellaneous Retailers[64]	$48m / 6%		
	236220	Commercial & Institutional Building Construction		$47m / 7%	
	452112	News Dealers & Newsstands[65]			$29m / 8%
4	722511	Full-Service Restaurants	$42m / 5%	$29m / 4%	$19m / 5%
5	722513	Limited-Service Restaurants	$37m / 4%	$27m / 5%	$10m / 5%
		Total Taxable Sales from Top 5:	**$447m / 51%**	**$322m / 50%**	**$180m / 46%**

Source: Washington State Department of Revenue, Taxable Retail Sales by City by NAICS Grouping, 2013, 2018, and 2023

[63] Available online at: https://apps.dor.wa.gov/ResearchStats/Content/TaxableRetailSalesLocal/Report.aspx

[64] Top businesses by annual sales for NAICS 459999 include Amazon, QVC, Ebay, Wayfair, etc. See description at: https://www.census.gov/naics/?input=459999&year=2022&details=459999 and top businesses at: https://www.naics.com/naics-code-description/?code=459999&v=2022.

[65] The Courier Herald, a local newspaper, was previously located within the City limits.

Retail Surplus and Leakage

Retail demand is the volume of retail purchases local residents want to make. Those purchases can be made within the local trade area (the area where customers live and how far they are willing to travel to make a purchase) or elsewhere. Retail supply is the volume of retail sales local businesses can support.

In some communities, the volume of retail supply is higher than what residents what to purchase, creating a *retail surplus*. This means that a community's trade area is capturing the local market plus shoppers not living within the trade area. Having a retail surplus does not necessarily mean there is no room for new retailers, since communities can have clusters of destination retail stores that have an appeal to a larger geographic area than the local trade area.

When demand outstrips supply, *retail leakage* occurs as residents travel outside of the local trade area to shop. Retail leakage can indicate either areas of unmet demand or the presence of strong competitor in a neighboring local trade area that dominates and captures that demand. For example, Puyallup and Sumner have a significant number of car dealerships that capture the demand from Bonney Lake's trade area, which translates into a retail leakage, but not necessarily unmet demand that the City could capitalize on to increase retail sales.

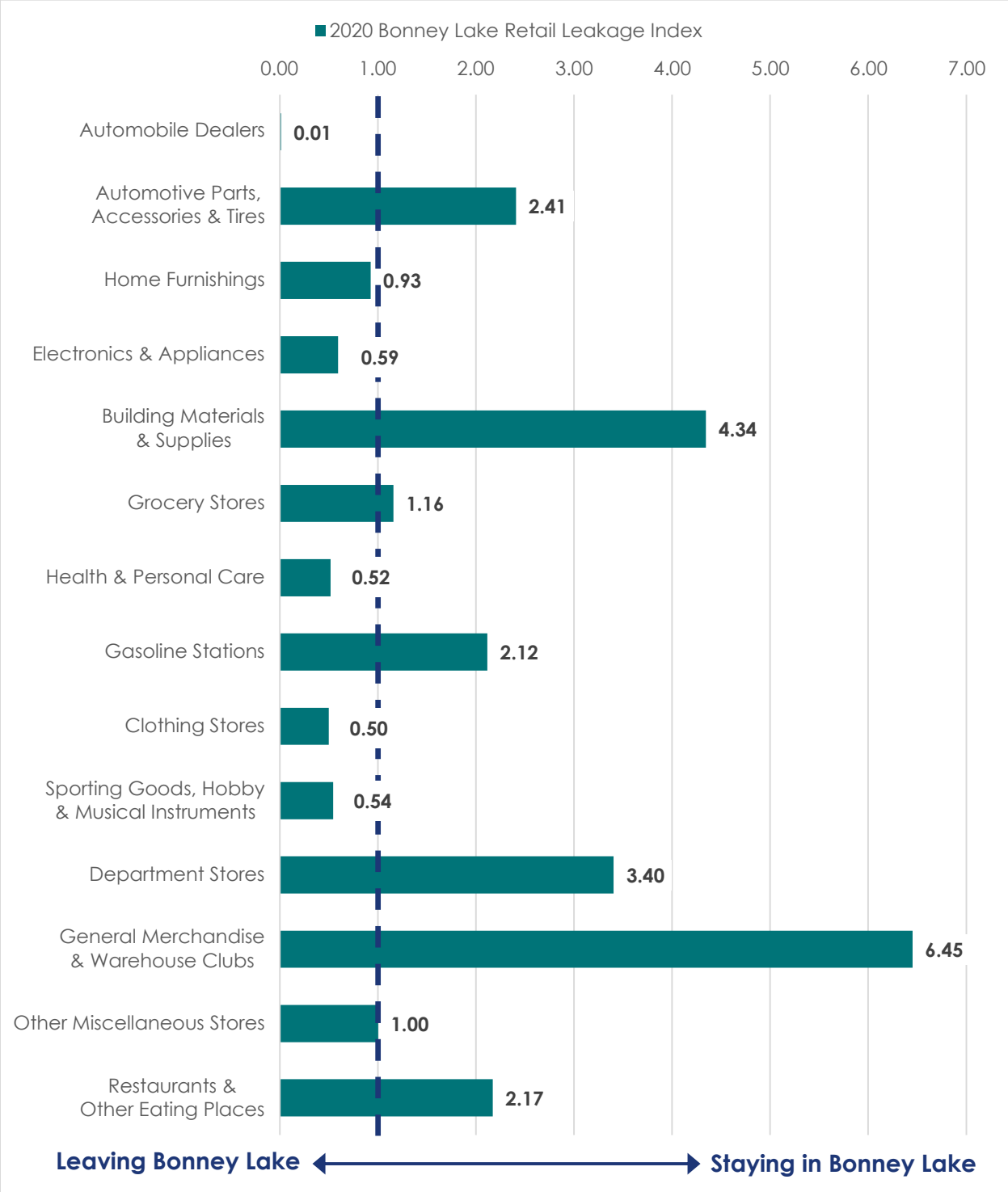
This retail surplus and retail leakage analysis examines the retail market for the City (see **Exhibit 42**) and the City's local trade area (see **Exhibit 43**) to identify possible retail opportunities. The Bonney Lake local trade area is larger than the incorporated boundaries of the City and contained approximately 100,600 people in 2020. The local trade area for this analysis is within the geographical area that is within a ten (10) minute drive of the intersection of 192nd Avenue East and State Route 410.

The City prepared a leakage index to identify leakages and surpluses for various retail and food service industries, based on the North American Industrial Classification System (NAICS). The Washington State Department of Revenue also uses the NAICS to report total retail sales for each category listed below.

To interpret the ratios in the leakage index:

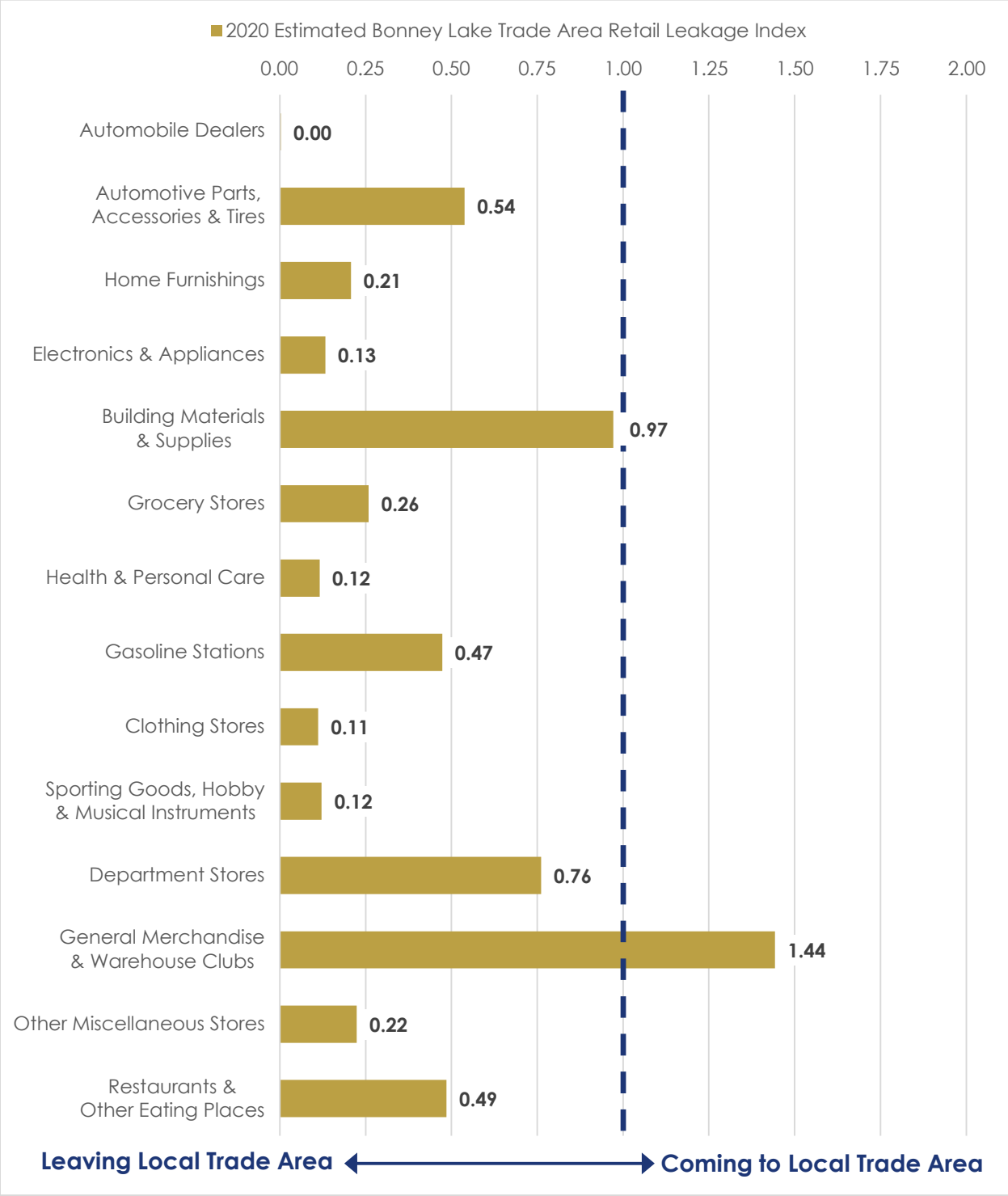
- A value of 1.00 means that the demand and sales are in balance.
- A value of 0.80 or less means that demand exceeds sales, indicating that consumers are leaving the trade area to make purchases.
- A value of 1.20 or greater means that sales exceed demand, which indicates that consumers are coming from outside the trade area to make purchases.

Exhibit 42: Retail Leakage Index, Bonney Lake, 2020



Sources: Washington State Department of Revenue, Taxable Retail Sales by NAICS Grouping, Bonney Lake and Washington State, 2020
2020 Census Population, Bonney Lake and Washington State, 2020
2017 NAICS Groupings

Exhibit 43: Retail Leakage Index, Estimated Bonney Lake Local Trade Area, 2020



Sources: Washington State Department of Revenue, Taxable Retail Sales by NAICS Grouping, Bonney Lake and Washington State, 2020
2020 Census Population, Bonney Lake and Washington State, 2020
2017 NAICS Groupings

Access to Child Care

As of 2021, Bonney Lake's largest population group was children 19 years and younger. Approximately 4,600 (72%) of this group is under the age of 14 and approximately 3,100 (49%) is under the age of 9. Bonney Lake has a number childcare facilities with varying capacities, including childcare provided by the Sumner-Bonney Lake School District (see **Exhibit 44**). These facilities serve less than 20% of the population under the age of 14 and indicate of deficit of available child care in Bonney Lake.

Pierce County is estimated to have a gap of over 20,000 childcare slots (over 50% of available supply), with estimated economic losses attributed to households, businesses, and general tax losses in Pierce County of $993 million annually[67].

Exhibit 44: Child Care Facilities, Bonney Lake, 2024

Facility	Ages Served				Total Capacity
	0-12 Months	1-2.5 Years	2.5-6 Years	6-13 Years	
Kids Country	X	X	X	X	160
Global Minds		X	X	X	33
Bonney Lake Montessori			X	X	29
KinderCare	X	X	X		111
Right at School (Bonney Lake Elementary)				X	60
Right at School (Emerald Hills Elementary)				X	60
Right at School (Victor Falls Elementary)				X	60
Panther Cubs Learning Center	X	X	X		42

Source: Washington State Department of Children, Youth, and Families. Available online at: https://www.findchildcarewa.org/

4.3 EMPLOYMENT GROWTH

The GMA requires Pierce County and its cities to evaluate development (land consumption) over time to determine whether the adopted urban growth areas and zoning density provide land capacity sufficient to accommodate the adopted population and employment projections.

[67] Bipartisan Policy Center, Child Care Gaps Assessment (2020). Available online at: https://childcaregap.org/

Employment Growth Allocation

Pierce County adopted employment growth targets for 2044 under Pierce County Ordinance No. 2022-46s[31, 32] (see **Exhibit 45**).

Exhibit 45: Employment Allocation, Bonney Lake, 2020 – 2049

	2020	2044		2049[68]	
	Estimated Existing Employment	Employment Growth Allocation	Total Employment Target	Planning Horizon	Total Employment Target
Pierce County Adopted Target / Land Capacity Analysis Assumption	6,365	1,717	8,082	412	8,494

Source: Adapted from Pierce County Ordinance No. 2022-46s and the Bonney Lake Land Capacity Analysis

Land Capacity Analysis

The Land Capacity Analysis[69] (LCA) evaluated existing zoning designations and whether there was adequate capacity to support future growth. Based on that analysis, the City completed a Growth Alternatives Memo[70] to evaluate potential zoning scenarios that would accommodate the adopted employment target. On April 23, 2024, City Council moved to identify **Alternative 2: Bend the Trend**, as the Council's preferred growth alternative (Motion No. M24-33). This alternative anticipates a surplus of employment capacity through 2044 (see **Exhibit 46**).

Exhibit 46: Employment Capacity Summary, Bonney Lake, 2020 – 2044

	Estimated Employment Growth 2020-2023	Total Pipeline Employment Capacity	Remaining Zoned Employment Capacity[71]	Total Employment Capacity	Employment Capacity Surplus or Deficit	
					2044	2049
Total Capacity	504	684	1,235	2,423	706	294

Source: Adapted from Bonney Lake Growth Alternatives Memo

[68] The average annual growth rate was extended at a constant rate to establish an estimated total target for the 2049 planning horizon. This is an assumption to assist in making growth related decision for various City utilities and services and to coincide with the centennial of the City.
[69] See **Appendix B**.
[70] See **Appendix C**.
[71] **Total zoned capacity** is the capacity for additional jobs from vacant, underutilized, and developable land, minus displaced jobs from underutilized land.

4.4 BUSINESS CLIMATE

Every year there is a limited pool of money that spent in Central Puget Sound Region and Pierce County by businesses either to expand current operations or to enter a new market. Local jurisdictions do not control when this spending occurs but can control whether the conditions are favorable to businesses through clear policies, development regulations, and availability of infrastructure and services. For Bonney Lake, this means that the City competes with other communities in the Central Puget Sound Region and Pierce County to attract businesses that provide jobs for residents, as well as to recruit businesses that offer goods and services needed and desired by the community.

A local jurisdiction cannot fully control several of the factors used by business to determine where to invest (e.g. the availability of skilled workers, location of a City in relationship to the regional transportation systems, or the number of residents meeting certain demographic criteria). However, a jurisdiction can help to attract new business and retain existing business by creating a positive business climate by:

- Providing quality public services and facilities.
- Ensuring the development review process is reasonable and predictable, and that the cost for development (e.g. permit fees, impact fees, connection charges, taxes, etc.) is proportionate to the benefit received by the business and community.
- Building the social capital of existing business by facilitating interactions between businesses by supporting organizations like the Bonney Lake Chamber of Commerce and Beautify Bonney Lake.

A positive economic climate requires sustained efforts by numerous parties. Many factors are beyond the City's control, such as the educational resources allocated by the Sumner School District, or the housing investment decisions made by the private sector. Additionally, by virtue of being an incorporated city in Pierce County, the City is included in a variety of countywide and regional economic development efforts, including those of the Puget Sound Regional Council, Prosperity Partnership, the Piece County Regional Council, the Port of Tacoma, the Economic Development Board of Tacoma-Pierce County, and the Pierce County Economic Development Division.

When the factors within and beyond the control of the City align, Bonney Lake has a powerful advantage in the marketplace. Bonney Lake must take a facilitative approach to encouraging business investment, study options for development fees, and communicate the City's interest in business growth. This will help to ensure that when there is an opportunity for investment between similar communities in the area; Bonney Lake will be the preferred location.

4.5 INFRASTRUCTURE DEVELOPMENT

One of the City's other critical economic development roles is to plan, design, and build the infrastructure that support the City's continued development. By adopting and investing in the necessary infrastructure to support the desired land uses, the City lays the foundation upon which development can occur.

Bonney Lake updates its Capital Improvement Plan on a regular basis, and thus is able to respond to changing development pressures and needs. This allows the City to grow thoughtfully, to meet the needs of both existing neighborhoods and new development.

Likewise, the City encourages the deployment of private sector infrastructure, such as telephone, electricity, and natural gas distribution systems, to meet the needs of development. When new infrastructure needs emerge, such as broadband and wireless communication systems, the City encourages the extension of these services to residences and businesses.

As areas mature and market conditions change, new challenges and opportunities arise, and the City undertakes planning activities to help areas adjust. By doing this basic task well, Bonney Lake is able to ensure infrastructure improvements will attract and retain the desired economic development, while protecting neighborhoods from the impacts of unplanned growth.

One of the biggest infrastructure issues that the City must address, in addition to water and sewer service, is the transportation network. This is especially true for SR 410, which serves as both the primary thoroughfare and artery into and out of Bonney Lake and as the main commercial and retail corridor for the City and plateau. There are few alternative routes to travel in and out of Bonney Lake with limited public transit service. With the majority of residents commuting to and from Bonney Lake for work, the current traffic loads on SR 410 will only increase as population on the plateau continues to grow in the future and could negatively affect Bonney Lake's residential quality of life, attractiveness to new businesses, and overall economic development.

4.6 ECONOMIC VITALITY GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CD-EV-1:	**Expand socio-economic opportunity for the citizens of Bonney Lake.**	
Policies:	**CD-EV-1.1**	Recruit business enterprises that will provide residents with employment wages at or above county median income levels.
	CD-EV-1.2 :	Encourage institutions of higher education to create online or satellite educational and training programs that are readily available to Bonney Lake citizens, or within reasonable commuting distance.
	CD-EV-1.3	Work with other public agencies and private interests, including the Tacoma-Pierce County Economic Development Board (EDB), Sumner and White River School Districts, Chamber of Commerce, and others to promote employment and occupational training and advancement programs and job placement skills.
	CD-EV-1.4	Work with other public agencies and private interests to promote daycare services and facilities for pre-school children, before and after school latchkey children, and special populations including elderly and handicapped adults to support working household members.
	CD-EV-1.5	Work with other public agencies and private interests to create interactive and linked websites listing employment opportunities.
	CD-EV-1.6	Identify and encourage programs that will reduce the cap between wages paid and the Self Sufficiency Standard.
	CD-EV-1.7	Enhance access to quality childcare through programs that are compatible with households' economic resources and supported by public and private resources.
Goal CD-EV-2:	**Enhance and maintain Bonney Lake's residential quality of life as an economic development strategy, capitalizing on Bonney Lake's affordability, recreational amenities, and scenic resources to attract people to live and work within the City.**	
Policies:	**CD-EV-2.1**	Promote the proximity of Lake Tapps, Crystal Mountain, and Mount Rainier as part of business recruitment and marketing efforts.

CD-EV-2.2 Maintain and increase City investment in public amenities that contribute to high quality of life for Bonney Lake residents, including parks, public spaces, civic gathering places, sidewalks and streetscapes.

CD-EV-2.3 Utilize design guidelines to improve the City's physical environment and make the City an attractive destination.

CD-EV-2.4 Develop a system of sidewalks, bicycle lanes and trails to provide pedestrian and bicycle connection between residential neighborhoods, parks, civic gathering spaces and centers.

Goal CD-EV-3:	**Strengthen Bonney Lake's role as a hub for regional retail, personal and professional services, and employment.**

Policies:

CD-EV-3.1 Promote Bonney Lake's role as a regional retail center and raise awareness of retail development opportunities to build upon or round out the City's economic strengths.

CD-EV-3.2 Ensure that the City maintains sufficient land capacity to support continued expansion of Bonney Lake's retail base, as well as meet demand for professional and medical offices and other target sectors.

CD-EV-3.3 Actively promote investment and business recruitment to strengthen Bonney Lake's position in sectors that have significant growth potential, such as professional services and medical office.

CD-EV-3.4 Provide flexibility in land use plans and development regulations to allow the local business community to take advantage of new business trends and opportunities that are consistent with the City's economic development vision.

Goal CD-EV-4:	**The City will strive to have higher and technical educational opportunities available to all residents within Bonney Lake.**

Policies:

CD-EV-4.1 Build relationships with community colleges and technical colleges in order to develop a long-term strategy to locate a technical college, community college extension, or training programs within Bonney Lake.

Goal CD-EV-5:	**Establish a supportive climate that encourages the retention of existing businesses and encourages business investment in the community.**

Policies:

CD-EV-5.1 Promote economic development as a City priority, tied directly to the City's ability to serve residents and businesses well. Ensure City

staff members have appropriate understanding of the City's economic development interests and their individual roles in contributing.

CD-EV-5.2 Promote a customer-service orientation in development services that facilitates development aligned with the community's vision and land use regulations.

CD-EV-5.3 Clearly establish and communicate the community's vision for Bonney Lake as a whole, as well as for major sub-geographies, to provide the local business community with clear direction on the appropriateness of various types of development in different parts of the City.

CD-EV-5.4 Ensure that taxes, fees, and dedications assessed as part of the development review process do not become an undue obstacle to economic growth.

CD-EV-5.5 Enforce development regulations in a consistent, objective manner, encouraging and facilitating investment that adheres to these policies.

CD-EV-5.6 Promote public understanding of the City's positive development climate and desire for business investment, both within the local business community and for the public.

CD-EV-5.7 Consider the use of organizational and financial tools to leverage private sector resources in accomplishing the city's economic development and land use vision.

CD-EV-5.8 Facilitate economic development in commercial areas through public/private partnerships if the activity is consistent with the city's adopted policies, if there is a compelling public benefit, and if there is an acceptable level of risk.

Goal CD-EV-6:	**Implement subarea plans for the Downtown, Midtown,and Eastown Centers to ensure a balanced mix of jobs and businesses and to enhance Bonney Lake's built environment.**

Policies:

CD-EV-6.1 Establish a regular review and update cycle for the Centers and Eastown Subarea Plans to keep these plans current with emerging economic trends and changing development conditions in Bonney Lake.

CD-EV-6.2 Ensure the vision statements of the Centers and Eastown Subarea Plans each promote a particular mix of businesses and define land uses that are most appropriate and desirable for each subarea.

	CD-EV-6.3	Ensure the policies and standards of the Centers and Eastown Subarea Plans establish distinct identities for each subarea and for Bonney Lake as a whole.
Goal CD-EV-7:	**Provide well-planned, maintained, and high-quality public infrastructure that supports business and community growth.**	
Policies:	**CD-EV-7.1**	Coordinate with the Washington Department of Transportation (WSDOT) and Pierce County to plan for access improvements and infrastructure maintenance in the SR 410 corridor and surrounding area.
	CD-EV-7.2	Partner with local businesses to identify infrastructure conditions that pose obstacles to economic growth.
	CD-EV-7.3	Maintain updated plans for water, sewer, stormwater, and transportation infrastructure to ensure that the facilities necessary to serve desired commercial growth are in place.

5. PROPERTY RIGHTS

5.1 ABOUT TAKINGS

The Fifth Amendment to the United States Constitution provides that private property shall not be taken for public use without just compensation. Article 1, section 16 of the Washington State Constitution provides that "[n]o private property shall be taken except for public purposes within its constitutional authority and only upon payment of just compensation."

The Washington Growth Management Act (GMA) plays a significant role in balancing property rights with the state's goals for sustainable development, efficient land use, and environmental protection. The GMA recognizes that property owners have the right to use and develop their land in accordance with applicable zoning and land use regulations, subject to certain limitations to protect public health, safety, and welfare. While property rights are respected, the GMA recognizes that land use decisions have broader implications for the public interest, including the need to manage growth, protect natural resources, and promote livable communities. Local governments are required to balance the interests of property owners with the goals of the GMA.

The State of Washington Office of the Attorney General published guidance[72] to help local jurisdictions avoid violating property rights. In it, the Attorney General states that:

> *State governments have the authority and responsibility to protect the public health, safety, and welfare. This authority is an inherent attribute of state governmental sovereignty and is shared with local governments in Washington under the state constitution. Pursuant to that authority, which is called the "police power," the government has the ability to regulate or limit the use of property.*
>
> *Police power actions undertaken by the government may involve the abatement of public nuisances, the termination of illegal activities, and the establishment of building codes, safety standards, and sanitary requirements. Government does not have to wait to act until a problem has actually manifested itself. It may anticipate problems and establish conditions or requirements limiting uses of property that may have adverse impacts on public health, safety, and welfare.*
>
> *Sometimes the exercise of government police powers takes the form of limitations on the use of private property. Those limitations may be imposed through general land use planning mechanisms such as zoning ordinances, development regulations, setback requirements, environmental regulations, and other similar regulatory limitations. Regulatory activity may also involve the*

[72] Available online at: https://www.atg.wa.gov/avoiding-unconstitutional-takings-private-property

use of permit conditions that dedicate a portion of the property to mitigate identifiable impacts associated with some proposed use of private property.

- Advisory Memorandum and Recommended Process for Evaluation of Proposed Regulatory or Administrative Actions to Avoid Unconstitutional Takings of Private Property (September 2018)

5.2 PROPERTY RIGHTS GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CD-PR-1:	**Protect the property rights of landowners.**	
Policies:	**CD-PR-1.1**	All private property and private property rights of Bonney Lake residents shall be fully protected under the Fifth and Fourteenth Amendments of the United States Constitution and the United States Civil Rights Act.
	CD-PR-1.2	Balance the responsibility to protect the community from the impacts associated with new residential and commercial development with the responsibility to protect property rights.
	CD-PR-1.3	Build into the regulatory framework procedures for avoiding takings, such as variances or exemptions.
	CD-PR-1.4	Continue working to streamline the permitting process utilizing LEAN principals in order to efficiently process permit applications.
	CD-PR-1.5	Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
Goal CD-PR-2:	**Provide property owners the opportunity to participate in local decision-making when the decisions affect their lives and property.**	
Policies:	**CD-PR-2.1**	The following rights shall be considered in decision-making: (1) The right of a property owner to physically possess and control their interests in property, including easements, leases, or mineral rights. (2) The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances. (3) The right of the property owner to privacy and to exclude others from

the property to protect the owner's possessions and property. (4) The right of a property owner to dispose of his or her property through sale or gift.

CD-PR-2.2 Persons within 300-feet of site specific quasi-judicial and legislative action have the right to notice of public hearing(s) and participate in land use and zoning decisions of the City.

CD-PR-2.3 The City will ensure that its land development regulations provide adequate public notice of proposed changes to the comprehensive plan, and zoning changes to afford affected persons with sufficient time to become informed and participate in the decision-making process.

CD-PR-2.4 The City will consider implementing and maintaining processes to better inform the public of proposed changes to the comprehensive plan and zoning regulations.

DRAFT

6. LAND USE

Develop Bonney Lake as a balanced community, maintaining and enhancing the existing single family residential 'bedroom' character with a thoughtful blending of desired economic activities and higher density residences.

- *Bonney Lake Comprehensive Plan (1985)*

6.1 PLANNING FOR LAND USE

Growth Management Act

This Land Use Sub-Element has been prepared to comply with the GMA, consistent with RCW 36.70A.070(1). At a minimum, this Sub-Element must contain:

- The proposed distribution and location of land uses, including (where appropriate), land designated for agriculture, timber production, housing, commerce, industry, recreation, open spaces, general aviation airports, public utilities, public facilities, and other land uses;
- Population densities, building intensities, and future population estimates;
- Protection of the quality and quantity of groundwater used for public water supplies (see the **Community Services and Facilities Element**); and
- Review drainage, flooding, and stormwater runoff in the area and provide guidance for corrective actions to mitigate or cleanse those discharges (see the **Community Services and Facilities Element** and the **Environmental Stewardship Element**); and

As described in **Section 1.1: Regulatory Context**, this Sub-Element must also be consistent with adopted multi-county planning policies (MPPs) and county-wide planning policies (CPPs).

In 2023, the Washington State Legislature passed a major update to the requirements of the Land Use Element (E2SHB 1181)[73], which expanded the minimum requirements for this element related to environmental justice, promoting physical activity, reducing per capita vehicle miles traveled, and reducing risk associated with wildfire. These changes are not required to be completed until funded by the state and may be completed as part of a future update.

[73] Available online at: https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/House/1181-S2.SL.pdf

Multi-County Planning Policies (MPPs)

As part of the VISION 2050 update, PSRC changed how jurisdictions are categorized based on their size, function, and access to transit options. Bonney Lake is in the "Cities and Towns" category, described as follows:

> *Cities and Towns are expected to accommodate relatively less growth than historical trends and remain relatively stable for the long term. Many Cities and Towns are served by local transit options, but these jurisdictions are not connected to the regional high-capacity transit system. Some may not be served by scheduled fixed-route transit or be within a transit service district. Their locally-designated city or town centers provide local job, service, cultural, and housing areas for their communities. These local centers should be identified in local comprehensive plans and become priority areas for future investments and growth at the local level.*
>
> *… Free-standing cities and towns are separated from the contiguous urban growth area and should serve as hubs for relatively higher-density housing choices and as job and service centers for surrounding rural areas. These cities should be the focal points of rural-based industries and commerce and the location of schools and other institutions serving rural populations. Due to their physical isolation from the rest of the designated urban growth area, they will likely receive a lesser overall share of growth and are not expected to grow as much as cities and towns in the contiguous urban growth area.*
>
> - *VISION 2050, Regional Growth Strategy (2020)*

This Land Use Sub-Element must be consistent with VISION 2050 in the following areas:

- **Regional Growth Strategy**: Achieve a development pattern that aligns with Vision 2050, reduces rural growth rates, and focuses growth in cities.
- **Jobs-Housing Balance**: Providing housing options with nearby jobs, to reduce the length of commute travel and number of vehicle trips.
- **Growth Targets:** Ensure consistency between city and county adopted growth targets.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated CPPs in 2022. This Land Use Sub-Element is required to be coordinated and consistent with the CPPs in the following areas:

- **Buildable Lands**: Contribute to the development, monitoring, and evaluation of the Buildable Lands Program.
- **Countywide Growth Centers**: Maintain consistency with the standards for Countywide Growth Centers in Downtown Bonney Lake.
- **Community and Urban Design**: Plan and shape the built environment in a way that maintains the interests and objectives of the community.

- **Essential Public Facilities**: Allow for the siting of Essential Public Facilities in compliance with State law.
- **Growth Targets**: Conform with the Regional Growth Strategy envisioned by VISION 2050 and allocated through the Pierce County growth target process.
- **Healthy Community Planning:** Consider how the design and development of communities can impact the physical, social, and mental health of residents.
- **Historic, Archaeological, and Cultural Preservation:** Preserve historic and cultural resources as assets for the future where possible, and establish a meaningful consultation process with local, Federally recognized tribes.

6.2 LAND USE PROFILE

Bonney Lake's land use pattern is defined by the City's topography, recreational past, transportation network, and location in one of the nation's largest metropolitan areas. When the City incorporated in 1949, it was developed primarily as a bedroom community, with residents commuting to the north and west for work. Situated on an undulating plateau located between the Puyallup River Valley and the Carbon River Valley, Bonney Lake is framed by the shores of Lake Tapps to the north. Fennel Creek and its associated wetlands divide the north and west portions of Bonney Lake from the south and east portion. Geographically, the City encompasses almost 8.3 square miles (5,305 acres). **Exhibit 47** provides a breakdown of the different land uses within Bonney Lake.

Exhibit 47: Land Area by Land Use, Bonney Lake, 2020

Land Use	Total Acres	% of Total
Commercial and Industrial	**417.6**	**7.9%**
Finance, Insurance, and Real Estate	126.9	2.4%
Retail	169.1	3.2%
Mixed Use	35.8	0.7%
Manufacturing	4.1	0.1%
Warehousing and Utilities	81.6	1.5%
Residential	**2,407.8**	**45.4%**
Single-Unit	2,204.4	41.6%
Multi-Unit (2-4 Units)	37.3	0.7%
Multi-Unit (5+ Units)	27.0	0.5%
Mobile Home	98.0	1.8%
Retirement	6.2	0.1%
Other Residential	35.0	0.7%
Government and Open Space	**848.5**	**16.0%**
Education	184.0	3.5%

Land Use	Total Acres	% of Total
Government	17.0	0.3%
Open Space / Parks	557.2	10.5%
Resource Lands (Title 84 RCW)	90.4	1.7%
Vacant – Undeveloped or Not Associated with a Tax Parcel	**1,631.1**	**30.7%**
Vacant – Commercial	219.9	4.1%
Vacant – Other	454.0	8.6%
Vacant – Rights-of-Way or Not Associated with a Tax Parcel	957.2	18.0%

Source: Adapted from Pierce County Buildable Lands Report Data Spreadsheets (November 2022)

6.3 EXISTING DEVELOPMENT PATTERNS

> *The Town of Bonney Lake has been blessed with natural beauty, far beyond the scenery of other areas. Lake Tapps, and the other lakes within the Town, together with the hills that offer views of the valleys and the mountains give Bonney Lake natural amenities that are not found anywhere else in the Puget Sound Region. It is desired to protect these amenities as much as possible.*
>
> - *Plan for Bonney Lake, Washington (1964)*

Bonney Lake has been, is, and will remain primarily a residential community. The residential areas form the foundation of the community and are the physical and social expressions of community. The City is committed to preserving and strengthening these areas by:

- Protecting existing housing stock;
- Maintaining the physical quality of Bonney Lake's neighborhoods;
- Enhancing walkability; and
- Providing convenient access to shopping, services, open spaces, parks, civic facilities, and educational facilities.

While the City will continue to strengthen the fabric of these residential areas, Bonney Lake must also accommodate additional growth to meet City's mandatory population, housing and employment growth targets.

The elements of the built environment (e.g. high quality walkable neighborhoods, well-designed centers and multimodal corridors) facilitate formal and informal social interactions between the residents, workers, and visitors of Bonney Lake, which is crucial to building social capital between community members. This social capital is the glue that binds residents to Bonney Lake and each other fosters civic engagement and

volunteerism; and constitutes one of the defining elements in creating a community[76]. Social capital has a positive association with the health of individuals within a community as people with more social capital, "… appear to have lower mortality rates and are less likely to report being in 'fair' or 'poor' health…." [77].

Another important part of strengthening the City's identity is protecting the forested hillsides, the overall tree canopy, Lake Tapps, Fennel Creek, and the views of Mount Rainier, the Cascades Mountains, and the Olympic Mountains through a continued commitment to open space preservation and conservation of natural resources.

To meet the growth targets and develop a balanced community that maintains the existing residential areas while providing for increased economic activities and higher-density residential areas, the City should be developed based on the following priorities.

Centers

Centers are the most active places in the community, with a mix of housing, shopping, dining, services, recreation, civic and cultural events, and social activities. Centers are critical to the Central Puget Sound Region's ability to sustainably accommodate population and employment growth over the coming decades. Bonney Lake's Centers will provide high-density housing, regional shopping, and recreational areas that will draw individuals and families from across east Pierce County. Much of the Bonney Lake's growth potential lies within these centers. The **Bonney Lake Centers Plan** (2017), incorporated by reference, as amended (see **Exhibit 48**):

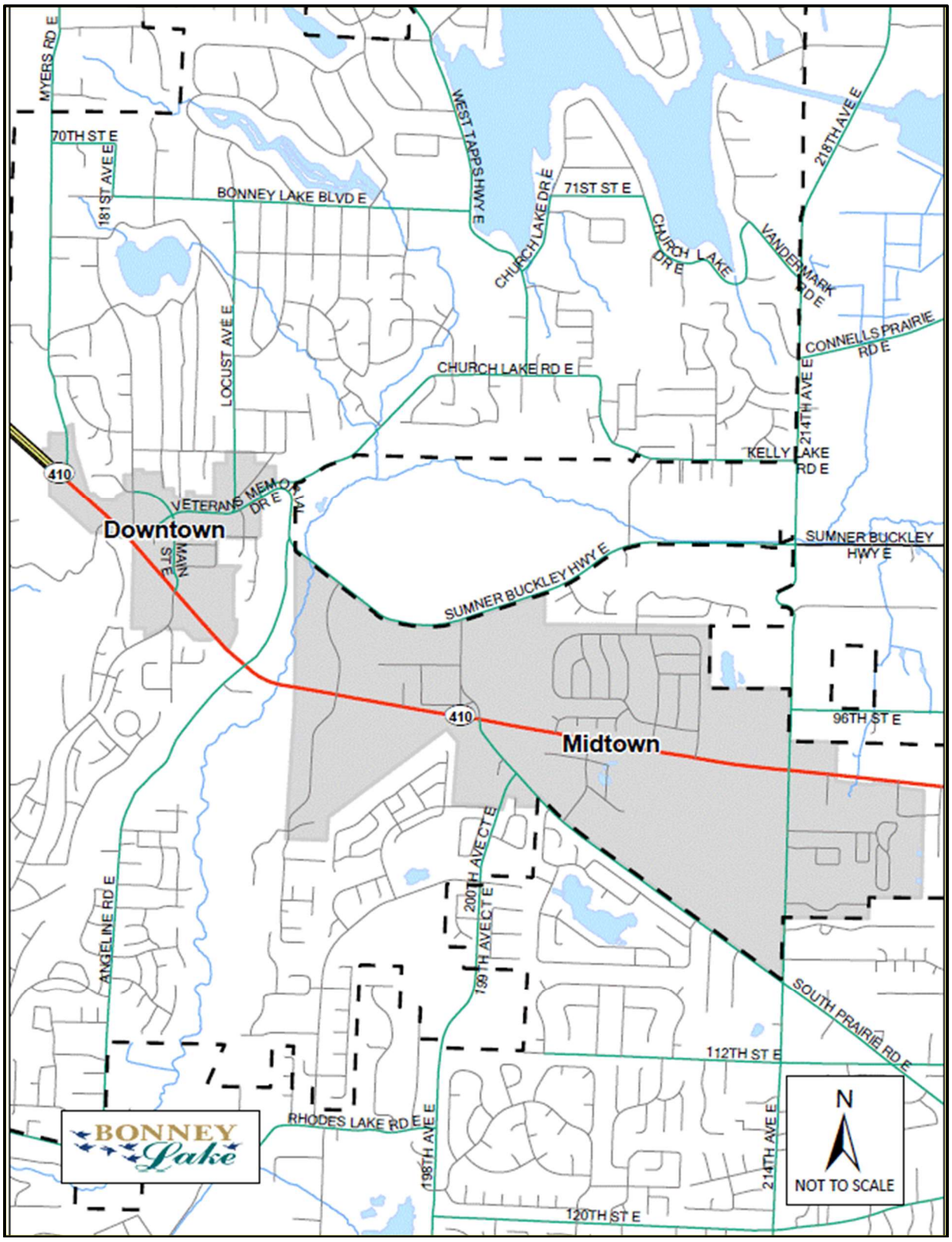
- **Downtown:** Centrally located to Bonney Lake residents, this area is the traditional community center, and is a designated Countywide Center planned for lively shopping streets, office buildings, residences, and public facilities.
- **Midtown:** Bonney Lake's commercial center of gravity. It is automobile-oriented, but has potential for higher diversity of uses and human-scale development in the areas that remain undeveloped, especially in those portions that will be served by side streets and frontage streets. Pedestrian facilities need to be provided in balance with the auto-centric nature of the uses in the area.

---

[76] Robert E. Lang and Styen P. Hornburg (1998) What is social capital and why is it important to public policy?. *Housing Policy Debate*, 9(1), 1-16.

[77] Policy Link and the California Endowment (2007) *Why Place Matters: Building a Movement for Healthy Communities*.

Exhibit 48: Bonney Lake Centers

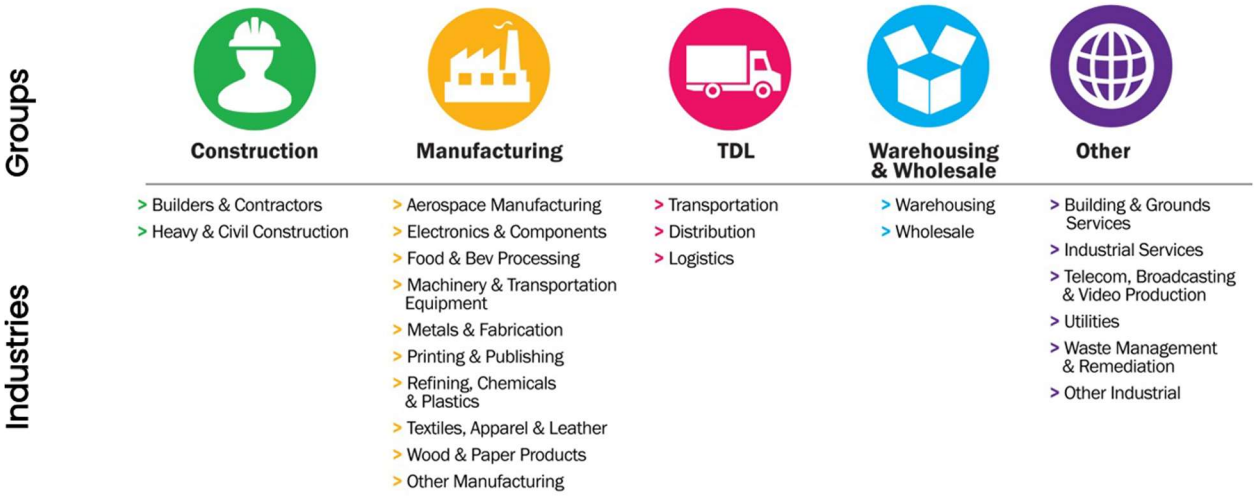


Light Industrial Areas

In 2024, PSRC updated its **Industrial Lands Analysis** to provide an assessment of industrial land in the Central Puget Sound region, including identification of the existing industrial lands and strategies to maintain, preserve, and increase the supply of these industrial lands in the region. The Industrial Lands Report identified ten (10) geographical concentrations or subareas of industrial lands, designated as Manufacturing/Industrial Centers (MICs) in VISION 2050.

In addition to these specifically identified subareas, other non-concentrated industrial lands were identified in the report. The Eastown subarea was identified as one of these areas and was categorized as part of the Industrial-Commercial supply. Industrial-Commercial zoning is a type of local zoning classification that permits a variety of industrial and commercial uses[79] (see **Exhibit 49**).

Exhibit 49: Typical Industrial Employment Groups



Source: Courtesy of Puget Sound Regional Council (2024) Industrial Lands Analysis. Figure 3.1, p. 18. Available online at: https://www.psrc.org/media/8716

The City's Eastown subarea provides an opportunity for the City to diversify its economic base and add family-wage jobs. While the area will not provide a regionally significant number of manufacturing jobs, development of light industrial uses in Eastown will allow more people to live and work within the City. See the **Eastown Subrea Plan** (2017), incorporated by reference, as amended.

[79] Puget Sound Regional Council (2024) *Industrial Lands Analysis.* p. 11. Available online at: https://www.psrc.org/media/8716

Residential Areas

Vibrant residential areas that are inclusive and supportive of all people at all stages of life including families, young people, older adults, and persons with disabilities are fundamental to the health and vitality of Bonney Lake and its residents. Residential areas should include amenities for recreation, culture, and social interaction while providing opportunities to connect with the community and nature. These amenities and spaces include parks, natural lands, schools, libraries, place of worship and civic buildings. It is important that these resources are located within or near residential areas, close to residents and accessible by walking and bicycling.

Open Space

> *Green belts and parks are an important land element within the plan for Bonney Lake, since one of the primary purposes of a municipality is to offer maximum recreation facilities in a suburban setting. The green belts may be any open space such as watersheds, farms, forest and parks.*
>
> - *Plan for Bonney Lake, Washington (1964)*

Preservation of open space around Bonney Lake, complemented by local parks and natural areas, has been a critical component of the City's Comprehensive Plan since 1964. The City has consistently worked to protect the City's natural resources, provide opportunities for recreation, enhance visual beauty, and shape Bonney Lake's character. Open space is the third largest land use within the city limits, encompassing over 557 acres. It provides structure to the City, space for recreation, and a means of protecting important natural resources.Policies for parks, private open space, and other open spaces in Bonney Lake reflect the City's commitment to enhancing the City's character, meeting the recreational needs of its residents, improving the health of the community, and protecting the natural environment. The policies in the **Community Services and Facilities Element** and the **Parks, Trails, Recreation and Open Space Plan** (incorporated by reference, as amended) supplement the policies in this Element.

Public Spaces

The most familiar public spaces in Bonney Lake are parks, schools, and public buildings, but the term also applies more broadly to the entire public "realm" including streets, sidewalks, medians, planting strips, and all the public spaces one experiences when traveling through the City.

Corridors have traditionally been associated with transportation functions – carrying vehicles from freeways to homes and businesses in the City. Over the years, this function

has influenced land use, to the point that many corridors have become centers themselves. Some Bonney Lake corridors are lined with shopping, services, offices, and community institutions. The existing pattern largely favors automobiles over pedestrians and other modes, and is part of Bonney Lake's legacy as an auto-centric city. Looking to the future, some of the City's corridors will be reshaped to reflect contemporary planning and development practices. Activity will be focused around nodes rather than continuing the current linear commercial pattern, creating denser, pedestrian-oriented places at key locations.

The policies in this Element strive to create memorable public spaces throughout the City. For City parks and public buildings, this means creating focal points for neighborhoods and centers. Public open spaces such as parks and plazas can help strengthen civic identity and provide important community gathering places. Public buildings such as schools, fire stations, recreation centers and municipal offices should likewise highlight exemplary design.

The most basic infrastructure opportunities involve existing streets and highways. The City has already invested millions of dollars in streetscape improvements, including street lighting, undergrounding of utilities, landscaping, street trees, irrigation systems, signage, and street furniture, to improve the visual quality of its streets and make them safer and more attractive. The design of street space is particularly important to the goal of making the city more pedestrian- friendly.

Scenic Resources

In addition to the buildings, landscapes, and public spaces, the City's natural surroundings including beautiful lakes, wooded hillsides, the Fennel Creek corridor, and views of Mount Rainier, the Cascade Mountains, and the Olympic Mountains help shape Bonney Lake's character. As Bonney Lake continues to grow, a key challenge will be balancing new development with preservation of the natural resources that give the area much of its character.



Exhibit 50: View of Mount Rainier

Top community priorities include:

- Preserving the lakes and views of Mount Rainier, the Cascade Mountains, and the Olympic Mountains;
- Preserving large tracts of woodland and open space for public enjoyment;

- Adding landscaping at gateways and along key corridors; and
- Preserving vegetation in new developments to the greatest extent possible and, when not possible, re-vegetating developed areas.

While City programs and requirements such as open space preservation and environmental critical area regulations protect the natural settings, additional comprehensive strategies are needed to protect scenic resources and preserve the "scenic routes" illustrated on **Exhibit 53** throughout the City.

Gateways



Exhibit 51: Ascent Park

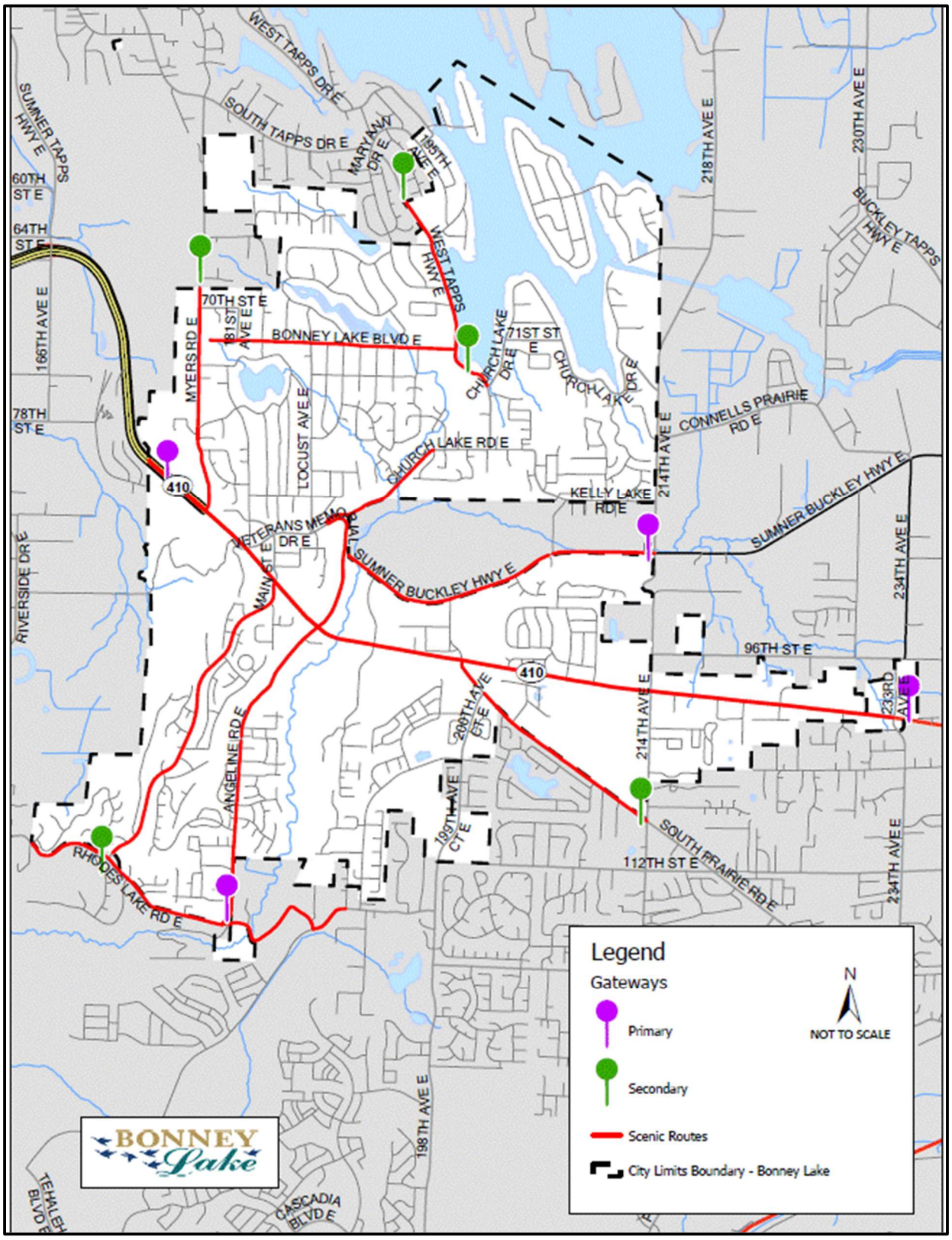
First impressions are important to a positive community character. "Gateways" are key locations throughout the community where these impressions can best be established and reinforced. Gateways provide a focal point and a visual "announcement" of the City of Bonney Lake by communicating the unique character and identity of Bonney Lake, and by visually distinguishing its neighbors.

There are three types of gateways (see **Exhibit 53** for locations):

- **Primary Gateways** are focal points, typically located around highway intersections/ interchanges and major entrances to Bonney Lake. These gateways are the highest priority for improvements. Private development around these areas should create a distinctive image and be held to the highest design and aesthetic standards. Aesthetic improvements in these areas should incorporate elements that enhance the community image with enhanced landscaping and aesthetic elements such as decorative street lighting, public art, unique signage and decorative paving.
- **Secondary Gateway** are focal points around other major street intersections and entrances into Bonney Lake. These areas should project a positive community image, and private development around these areas should be held to the highest design and aesthetic standards, which creates a distinctive image for Bonney Lake. Aesthetic improvements in these areas should reinforce the community's unique character through compatible streetscape enhancements, monuments and public art.

- **Neighborhood/District Gateways** highlight particular neighborhoods and business districts that help announce a development and transition from the public setting to the more private setting of a neighborhood or business district. Unlike Primary and Secondary gateways, these improvements are largely the responsibility of private property owners. Amenities include well-designed entry monuments, private art, unique landscaping, and other elements that further establish Bonney Lake's character while announcing the neighborhood or development. Public infrastructure in these areas should meet enhanced standards for appearance and general maintenance.

Exhibit 53: Bonney Lake Scenic Routes and Gateways



Guiding Development

Growth must be carefully managed to maintain and enhance Bonney Lake's high quality of life. New development should make a positive contribution to the City by creating an attractive, livable, and walkable community, promoting public health, and protecting the elements of community life valued by Bonney Lake's residents.

Bonney Lake's development regulations are particularly important as those regulations implement the Comprehensive Plan at the parcel level and establish detailed standards and parameters for the use of property. The objective is to create great places of lasting value.State law requires the City's development regulations to be consistent with this Comprehensive Plan By:

- Addressing the subdivision of land;
- Providing for the improvement of infrastructure and public facilities to keep pace with growth;
- Promoting high quality development;
- Addressing the relationship of buildings with the surrounding neighborhood context;
- Ensuring that development is safe, aesthetically pleasing, and harmonious with its setting;
- Supporting the goals of the community; and

Managing the ways Bonney Lake will carry out its commitment to be a sustainable suburban community.

6.4 POTENTIAL ANNEXATION AREAS

Annexation is the process under Washington State law that cities and towns use to expand their boundaries. With limited exceptions, urban development, densities, and services can only occur within an incorporated city or town. Once an area is annexed, the property owners are able to benefit from the municipal services, regulations, voting privileges and taxing authority of the city or town. In Washington, annexations are generally limited to areas that are contiguous to an existing city boundary and are located within a city or town's designated Urban Growth Area (UGA).

Pierce County is responsible for designating the UGA, which must be of sufficient size to accommodate the County's allocated population growth for the upcoming 20-year planning period. The GMA requires the county to coordinate with local cities and towns to identify portions of the UGA for future annexation by a specific city or town. In Pierce County, these areas are called Potential Annexation Areas (PAAs), and cannot be annexed by another city. The remaining areas that have not yet been identified for

annexation by a particular city or town are called the Comprehensive Urban Growth Area (CUGA).

Pierce County has officially identified two PAAs in coordination with for Bonney Lake:

1. **Victor Falls/Country Highlands PAA:** The Victor Falls/County Highlands PAA includes the Victor Falls Terrace subdivision and the area bounded by the City on the west and the north, 198th Avenue East on the west, and Rhodes Lake Rd E on the south. The PAA contains approximately 112.84 acres. The PAA and the City of Bonney Lake share a common boundary of 60%; therefore, the City could pursue annexation of the area pursuant to RCW 35A.14.460.

2. **Ponderosa Estates/Wilderness Ridge PAA:** The area is bounded by the City limits on the west and the north, 214th Avenue East on the east, and 112th St E on the south. The PAA contains approximately 289.45 acres. The PAA and the City of Bonney Lake share a common boundary of 69%; therefore, the City could pursue annexation of the area pursuant to RCW 35A.14.460.

In addition to these two PAAs, the City is also evaluating the possiblity of adding three other areas to the Bonney Lake UGA (BLUGA) as PAAs. Some of the areas are currently within the CUGA and others are outside of the CUGA, but all were identified for inclusion in the BLUGA in the Comprehensive Plan Update and Draft Environmental Impact Statement Bonney Lake Washington (July 1, 1994). The intent of adding the following areas to the CUGA is not to perpetuate the conversion of rural lands into urban lands, but to ensure that areas already "characterized by urban growth" are included in the CUGA or in the UGA as a PAA for the City, as envisioned by RCW 36.70A.110(1):

A. **214th Avenue East:** This area is bounded by the existing city limits on the north, west, and south, and by 214th Avenue East on the east, containing approximately 29 acres. Nearly half of this PAA is covered with wetlands The primary intent of this expansion would be to establish a regular boundary between the City and rural Pierce County. This area would only be added to the Urban Growth Area following a reduction somewhere else in the Pierce County Urban Growth area so that there is no net gain in the overall capacity of the CUGA.

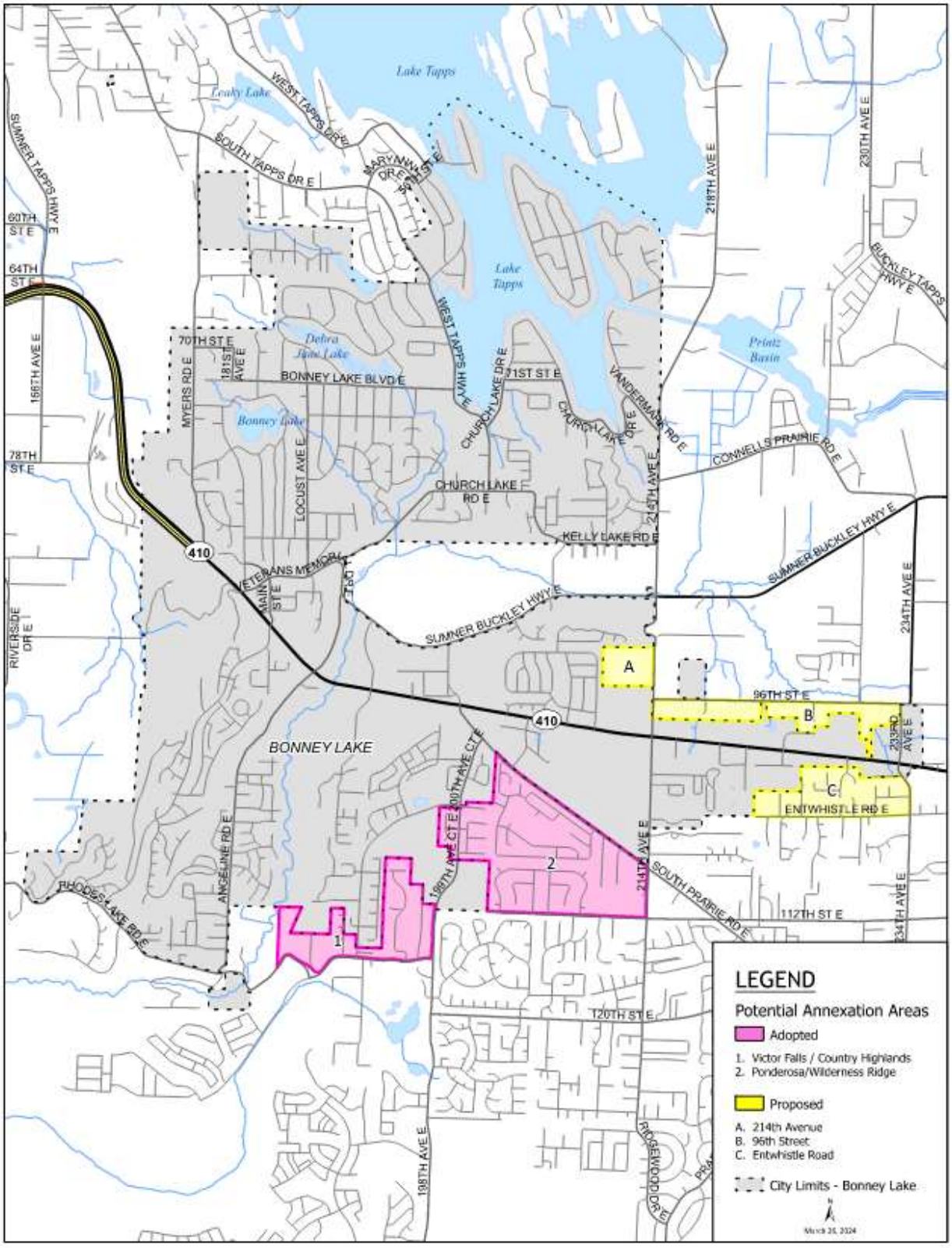
B. **96th Avenue East:** This area is bounded by 214th Avenue East on the west, 96th Street East on the north, 233rd Avenue East on the east, and the existing City boundaries on the south. It contains approximately 71 acres. The intent of this expansion would be to establish a regular boundary between the City and rural Pierce County. This area would only be added to the Urban Growth Area following a reduction somewhere else in the Pierce County Urban Growth area so that there is no net gain in the overall capacity of the County's Urban Growth Area.

C. **Entwhistle:** This area is bounded by 214th Avenue East on the west, the City boundaries on the north, 234th Avenue East on the east, and Entwhistle Road on the south. It contains approximately 97 acres. The primary intent is to establish a regular boundary between the City and rural Pierce County. This area would only be added to the Urban Growth Area following a reduction somewhere else in the Pierce County Urban Growth area so that there is no net gain in the overall capacity of the County's Urban Growth Area.

The City expects to enter into Joint Planning Agreements prior to the official expansion of the BLUGA / PAAs by Pierce County. During the process of working with Pierce County to add these areas to the CUGA, the City would work with Pierce County to identify other areas within the CUGA that still retain a rural character and which could be removed from the CUGA to ensure that there is not an overall increase in the capacity of the CUGA.

See **Exhibit 54** for the locations of PAAs and potentials PAAs.

Exhibit 54: Bonney Lake Potential Annexation Areas (PAAs) and Proposed PAAs



6.5 FUTURE LAND USE MAP OVERVIEW

The Future Land Use Map (FLUM) uses color-coded designations to express the intended use of land across the Bonney Lake area within the planning horizon of this Comprhensive Plan. Preparation of the FLUM is explicitly required by the GMA.

In most cases, the designation on the FLUM matches the existing use of land. In other cases, the designation may be different from the current use or development located on a property, indicating that the City expects the current use to change and redevelopment to occur as Bonney Lake adds population and jobs. For example, a parcel that is in "commercial" use today but designated as "mixed use" on the map would be expected to redevelop with a mix of commercial and residential uses.

The FLUM is implemented through the City's zoning regulations. Each color-coded category on the FLUM has one or more corresponding zoning districts. While the FLUM guides zoning, it is not the same as the Zoning Map. By definition, the FLUM is intended to be general and does not necessarily follow parcel boundaries. Streets and public rights-of-way have the same designation as the adjacent property; however, the rights of way remain uncolored on the FLUM until the street or right-of-way is vacated (see **Exhibit 55**).

6.6 FUTURE LAND USE DESIGNATIONS

Residential – Low Density

Intended For: Detached residential development, but also may include accessory dwelling units, attached or detached single-unit housing, townhomes, or cottages. This category is appropriate for planned public and semi-public uses designed to be compatible with residential uses, such as schools, religious institutions, and civic uses.

Zoning District(s): Low-Density Residential (R-1)

Residential – High Density

Intended For: A variety of high-density residential land uses, including townhomes, multiplexes, and garden apartment/condo dwellings. Additional uses including institutional and civic uses, live/work, offices, and neighborhood-scale retail stores (not including automotive-oriented uses and freestanding pad sites) as part of mixed-use developments. Such nonresidential uses are intended to provide services only to residents of the surrounding area and to be placed in locations with a design character that blends into the neighborhood.

Zoning District(s): High-Density Residential (R-3)

Public Facility

Intended For: Non-open space parcels owned by public agencies or utilities. The designation includes City facilities, public schools, water and sanitary

district facilities, transit agency facilities, utilities, and other federal, state, county, and local government facilities.

Zoning District(s): Public Facilities (PF)

Commercial – General

Intended For: Areas for commercial and service uses, which are compatible with neighborhoods. Typical uses include local services, retail, eating and drinking establishments, and civic facilities.

Zoning District(s): Commercial (C-2) or Midtown Core (MC)

Commercial – Mixed Use

Intended For: A mix of high-density residential, institutional, and civic uses, offices, cultural activities, and retail sales and services, with protections against retail sales and services becoming dominant. Mixing of uses on the same site is encouraged.

Zoning District(s): Downtown Mixed Use (DM), Downtown Core (DC)

Commercial – Industrial

Intended For: Appropriately located areas for various land intensive and/or limited service commercial establishments, office uses, major retail stores and service establishments offering commodities and services required by residents and the surrounding market area, wholesale distribution facilities, research and light industrial enterprises which do not generate excessive noise, odors, dust, smoke, heavy traffic congestion or pollution of water or air.

Zoning District(s): Eastown (E)

Open Space – Public

Intended For: Public parks that are owned and operated by the City of Bonney Lake, including active and passive recreation areas and environmentally critical areas. Typical uses include athletic fields, playgrounds, and trails. The appropriate uses in any given park are based on the park's classification and standards, (described in the Parks, Recreation, Trails & Open Space Plan, incorporated by reference, as amended).

This category also includes lands owned by public or quasi-public agencies other than the City of Bonney Lake, including the Buckley-Bonney Lake Regional Park, the Tacoma Public Utilities transmission line rights-of-way, and property owned by the Cascade Water Alliance above the ordinary high-water mark (OHWM).

Zoning District(s): Residential/Conservation (RC-5) or Public Facility (PF)

Open Space – Private

Intended For: Private land set aside as open space within planned communities. Private open space uses may include natural areas, passive use areas, and outdoor recreation facilities, clubhouses, community

amenities, such as playgrounds and picnic areas, and areas classified as environmentally critical areas located on private property. Except for ancillary structures related to the intended open space use, other types of development are not permitted in areas with this designation.

Zoning District(s): R-1, High-Density Residential (R-3) or Residential/Conservation (RC-5)

Open Space – Conservancy

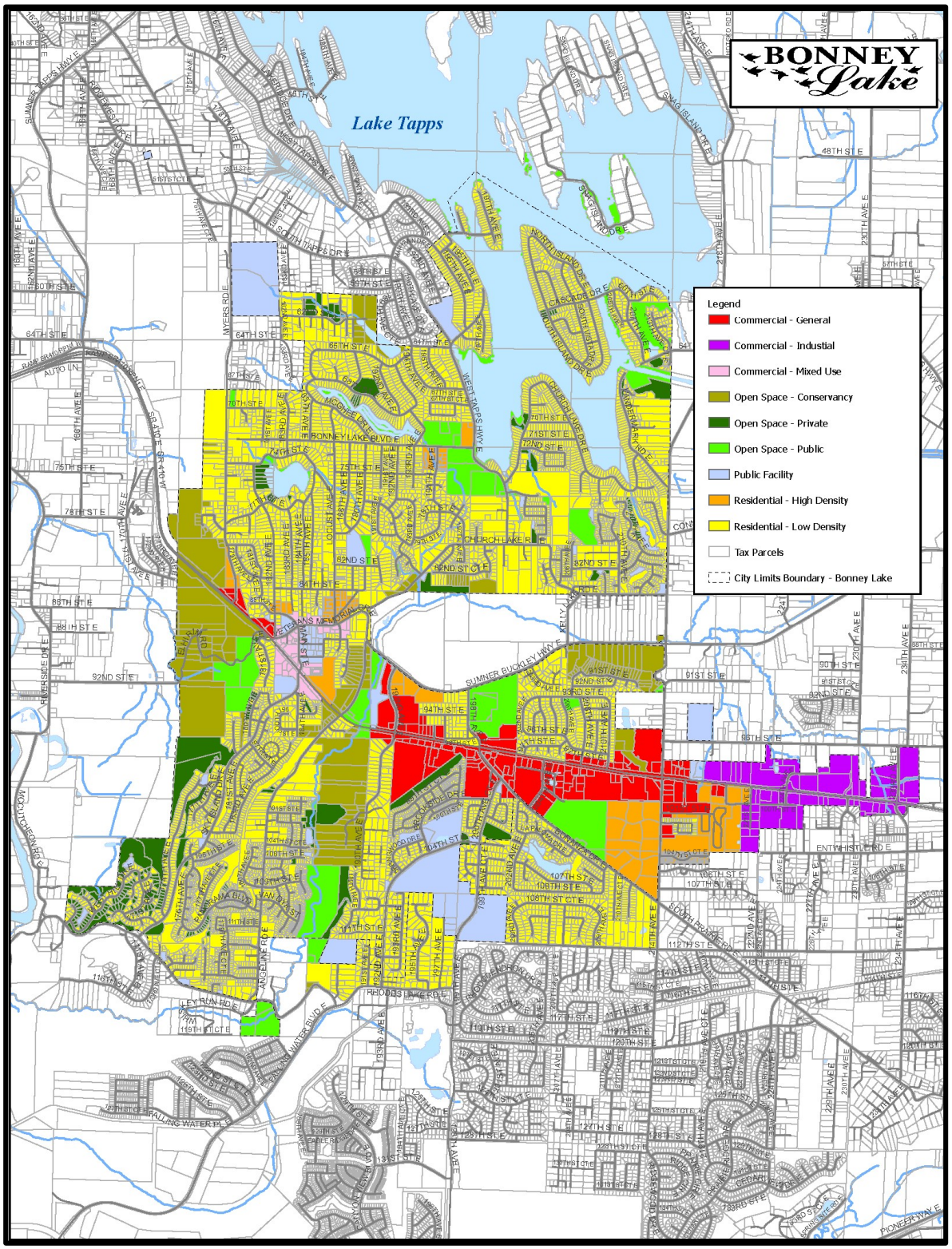
Intended For: Private land with an open space character that is vacant or previously developed. Properties within this designation may be subject to constraints of soil instability, property access, water and flood levels, landslides, or slopes greater than 30% that restrict the use of the property with structures. Allowable uses for this designation include public facilities, recreation facilities, quasi-public facilities, one single-family home on a legally established lot, grazing, and small-scale cultivation.

New residential development is allowed at a maximum density of one unit per five acres. Undeveloped portions of property within the Conservancy designation should be set aside for conservation purposes.

Zoning District(s): Residential/Conservation (RC-5) or Public Facility (PF)

6.7 FUTURE LAND USE MAP

Exhibit 55: Bonney Lake Future Land Use Map (FLUM)



6.8 FUTURE LAND USE GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CD-LU-1:		**Develop dynamic and vibrant centers accommodating housing, shopping, services, civic activities, entertainment facilities, and recreational opportunities in a manner that harmoniously blends the natural and built environments.**
Policies:	**CD-LU-1.1**	Local centers take a variety of forms. Some may be characterized by predominantly retail uses, while others may contain a more varied mix of activities including commercial, office, residential, parks, community centers, other civic facilities, and education facilities. Bonney Lake will maintain a variety of centers within the City that meet a range of neighborhood, citywide, and regional needs based on the following hierarchy: ➢ Downtown, which will accommodate pedestrian-oriented retail uses, uses that serve residents and employees, and specialty and "niche" activities such as entertainment, outdoor dining, and civic uses. ➢ Midtown, which will accommodate a variety uses including high density residential, offices, restaurants, large regional grocery stores, specialty retail stores, and regional shopping centers.
	CD-LU-1.2	Encourage the development of mixed-use, senior housing, high-density residential, and public services uses such as education, health care, libraries, child care, governmental facilities in the centers to create vibrant activity nodes, provide a variety of housing choices, advance sustainable development principles, and support transit.
	CD-LU-1.3	In selecting which transportation or infrastructure projects to be funded by the City, the City should give priority to the City's Centers.
	CD-LU-1.4	Support the transformation of auto-oriented shopping centers—currently characterized by retail strips surrounded by large surface parking lots—into more pedestrian-oriented centers to generate foot traffic, create a stronger sense of place, and bring life to outdoor spaces.
	CD-LU-1.5	Encourage the use of shared parking in commercial districts, rather than independent parking lots on each commercial

property in order to reduce the total land area dedicated to parking and create a more pedestrian-friendly environment.

CD-LU-1.6 Develop the Downtown as Bonney Lake's center with the highest level of land use diversity, architectural interest, pedestrian orientation, and human-scale design. New buildings should have their facades at the sidewalk edge except in certain cases along SR-410, as shown in the Centers Plan.

CD-LU-1.7 Develop the Midtown Center as a mixed-use district with the highest possible level of architectural interest, pedestrian orientation, and human-scale design consistent with the facts that 1) much of it is already built and 2) pedestrian traffic alongside and across the highway will suffer due to high vehicular traffic. Wherever possible, developments should reach deeply into the adjoining commercial land, provide local access streets as dictated by the Mobility Element, and place their building facades at the edge of the sidewalk adjoining said local access streets.

Goal CD-LU-2: Develop Eastown as a light-industrial area to increase the number and diversity of jobs available to the citizens of Bonney Lake and to diversify the City's tax base.

Policies:

CD-LU-2.1 Develop Eastown with 1) architectural detail suitable for automobile orientation along SR-410, 2) internal and, if possible external pedestrian connections, and 3) preference for business park or campus-scale development.

CD-LU-2.2 Encourage parcel consolidation to provide infill sites for redevelopment and expansion opportunities.

CD-LU-2.3 Encourage best management practices for site planning and design related to, but not limited to, building placement and orientation, vehicular and pedestrian circulation patterns, open space, landscaping, lighting, stormwater management, interfacings with adjacent neighborhoods and developments, and appropriate accommodation of the site's natural features.

CD-LU-2.4 Improve services to the area to support redevelopment opportunities primarily the development of sanitary sewer.

Goal CD-LU-3: Provide healthy, livable, well maintained, walkable, and safe residential neighborhoods that provide opportunities for social interaction in a manner that harmoniously blends the natural and built environments.

Policies:

CD-LU-3.1 Planning and land use decisions should recognize residents as the foundation of the community, by promoting compatibility between existing and new housing units, protecting residential uses from adverse impacts and uses, and maintaining a range of residential zones to support the identified housing needs.

CD-LU-3.2 Allow home occupations in Bonney Lake's residences when all applicable regulations can be satisfied.

CD-LU-3.3 Support healthy and safe neighborhoods by developing and implementing programs to address nuisances and environmental hazards (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.).

CD-LU-3.4 Conserve and protect the unique ecological characteristics of the City and utilize urban forestry to integrate open space, parks, green belts, street trees, landscaping, and natural features into future development in order to maintain Bonney Lake's livability, improve access to nature, and to address climate change by utilizing trees to sequester carbon from the atmosphere.

CD-LU-3.5 Utilize capital improvement projects, design guidelines, and land use decisions to improve the walkability of neighborhoods, enhance the ability to travel by bicycle or public transportation, and minimize the distance a resident must travel to reach basic services, shopping, parks, schools, and other civic amenities.

CD-LU-3.6 Create standards for clustering developments that conserves natural features and which minimizes the impact of development in environmentally sensitive areas.

CD-LU-3.7 Encourage subdivision designs in which residential lots are oriented towards, and take access from, the neighborhood of which they are a part.

CD-LU-3.8 Residential developments should be sited so individual residential dwelling does not take direct driveway access from an arterial.

Goal CD-LU-4: Provide streets, sidewalks, parks, plazas, civic buildings, and other public spaces that contribute to Bonney Lake's sense of place and visual quality.

Policies:

CD-LU-4.1 Recognize the importance of streets as public space: Landscaping, lighting, streetscape elements, pavement changes, signage improvements, banners, and other public realm improvements can enhance the experience of traveling along a corridor without diminishing its functional capacity.

CD-LU-4.2 Improvements to corridors should be appropriate to the scale and character of each street, reflecting their traffic volumes and intended functions.

CD-LU-4.3 Design guidelines, design review requirements, engineering standards, and capital improvement projects should aim to improve the visual quality of street space.

CD-LU-4.4 Use street furniture (e.g. benches, trash cans, kiosks, bicycle lockers, bus shelters, etc.) to improve the pedestrian experience, create stronger identity and visual cohesion, and contribute to the desired character of an area.

CD-LU-4.5 Encourage the development of public gathering spaces within new developments that are responsive to a project's scale and expected level of activity, and respectful of surrounding land uses.

CD-LU-4.6 Encourage plazas, pocket parks, and similar spaces to stimulate pedestrian activity, provide community-gathering places, and complement the overall appearance and form of adjoining buildings.

CD-LU-4.7 While the design of each public space must be sensitive to its context, all public spaces should share several common design characteristics. These include:

- Locations in prominent, recognizable and accessible locations where they are likely to receive frequent use and be highly visible.
- Seating areas, signage, pedestrian amenities, activity areas and other design features that increase usability and functionality.
- A unique identity that enables the space to function independently, while still allowing the space to work in connection with adjacent development.
- Accommodation of a variety of users (i.e. arts, cultural, recreational, different ages, abilities, etc.).
- Variations in landscaping, pavement, lighting, public art, and other amenities which improve the quality of each space and define its character.
- Protection from wind, sun, and noise exposure.
- Spaces that utilize a mixture of direct sunlight and shade.

CD-LU-4.8 Develop key "multi-modal" corridors that accommodate multiple modes of transportation that connect Bonney Lake's neighborhoods and centers, enhance the City's civic identity,

encourage transit use, reduce vehicle miles traveled, provide comfortable walking and bicycling environments, and project a positive image of the city.

Goal CD-LU-5:	**Improve gateways into Bonney Lake and into its individual neighborhoods and districts to achieve a sense of transition and arrival.**	
Policies:	**CD-LU-5.1**	Develop gateway standards which provide guidance for the design and appearance of primary and secondary gateways into Bonney Lake.
	CD-LU-5.2	Private development located within gateway areas should incorporate public improvements that enhance the identity and image of the City.
	CD-LU-5.3	Encourage new development projects to provide gateway features, if their location and context warrant such inclusion.
Goal CD-LU-6:	**Guide growth and development to ensure that it is orderly and efficient; leverage public investment to address the needs of the underserved areas; ensure the continued availability of infrastructure and public services; reduce adverse impacts on adjacent properties; and to protect the natural environment.**	
Policies:	**CD-LU-6.1**	Ensure that land use decisions consider the characteristics of the transportation network, including road capacity, the quality of the streetscape, and the availability of public transportation and other modes of travel.
	CD-LU-6.2	Adopt and routinely update development regulations to direct growth, ensure sufficient opportunities for new development, maintain and improve Bonney Lake's quality of life, preserve and rehabilitate existing housing stock, mitigate nuisances, achieve compatibility between adjacent properties and uses, and protect the health, safety and welfare of residents, workers, and visitors.
	CD-LU-6.3	Utilize urban design guidelines to guide and evaluate remodeling projects, additions, and new construction. Guidelines should: ➢ Address building height, scale, massing, materials, colors, and detailing; ➢ Ensure pedestrian connections; ➢ Encourage interesting features such as varied roof forms, canopies, balconies, window displays, bay windows, vertically and horizontally modulated wall surfaces,

trellises with native vines, porches, artwork, planting beds, ornamental trim, modulations and varied textures, colors, and materials; and

- Ensure that sites are designed in context and relationship to surrounding uses and landscapes.

CD-LU-6.4 Recognize certain areas as having natural constraints that preclude safe or environmentally sound development. These constraints are discussed further in the **Environmental Stewardship Element**.

CD-LU-6.5 Allow new development to occur only when the public facilities needed to serve that development are available, or when provided for by the development through the payment of impact fees, in-lieu fees, or connection charge; construction of the facility as part of the development; or other mitigation measures.

CD-LU-6.6 Although the Comprehensive Plan provides for development capacity to accommodate growth through the planning period, steps should be taken to retain some of this capacity for after the planning period and guide development towards the Downtown and Midtown Centers.

CD-LU-6.7

- Avoid the creation of "problem" parcels that are not practical to develop, access, or to provide with services. Work to eliminate or merge such parcels where they already exist.

CD-LU-6.8 Encourage partnerships between the City and the private sector to undertake joint public-private development.

CD-LU-6.9 Integrate new large-scale development projects into the fabric of the existing community rather than allowing such projects to be self-contained, walled off or physically divided from surrounding uses. New development should be viewed as an opportunity to improve connectivity between neighborhoods. To the extent feasible, circulation systems and open spaces in such developments should tie into existing streets and open spaces on the perimeter. In addition, existing development should be retrofitted over time to reduce unnecessary walls and barriers and improve pedestrian connections between neighborhoods.

CD-LU-6.10 Establish development regulations that facilitate the development of a positive regional identity for Bonney Lake as a City with outstanding neighborhoods and vibrant centers that provide gathering places for residents and visitors.

CD-LU-6.11 Redevelop Bonney Lake's under-developed or vacant sites in a manner that balances providing an array of housing, jobs, retail, recreational, and entertainment opportunities, with the need to respect the planned scale and form of surrounding properties and neighborhoods.

CD-LU-6.12 Allow for the siting of Essential Public Facilities as required by State law.

Goal CD-LU-7:	**Preserve open space, parks, greenbelts, and natural areas, which together protect the Bonney Lake's natural resources, provide opportunities for recreation, enhance visual beauty, and shape Bonney Lake's character.**

Policies:

CD-LU-7.1 Maintain development regulations which distinguish between different types of open space, based on the different types of activities that take place on undeveloped land.

CD-LU-7.2 Maintain and enhance a network of neighborhood, community, and linear parks. Parks should be recognized as fundamental to Bonney Lake's quality of life, and should be carefully managed to create a balance between passive and active open space.

CD-LU-7.3 Utilize open space, including parks, greenbelts, easements, and other open areas to connect the City, provide car-free corridors for pedestrians and bicyclists, and tie together Bonney Lake's neighborhoods, centers, and employment districts.

CD-LU-7.4 Encourage private-public partnerships to create on-site open space for public enjoyment in mixed-use areas and commercial areas.

CD-LU-7.5 Allow community gardening and "urban" agriculture in residentially-zoned areas and open spaces, provided that these uses do not impact the functions and values of environmentally critical areas.

CD-LU-7.6 Allow recreational uses on lands designated as environmentally critical areas, provided that these uses do not impact the function and values of environmentally critical areas.

CD-LU-7.7 Establish zoning standards to mitigate for the presence of infrastructure facilities such as radio and telecommunication towers within designated open space areas.

CD-LU-7.8 Prevent the encroachment or conversion of common open space areas within planned developments or other residential

projects. Shared open space areas in residential subdivisions shall be permanently restricted to open space uses through deed restrictions or other appropriate means.

CD-LU-7.9 Advocate for open space conservation and resource protection in the unincorporated areas east of the Bonney Lake's city limits but within the City's sphere of influence. These areas should remain in agricultural and open space uses for the lifetime of this Comprehensive Plan.

CD-LU-7.10 Preserve historic and cultural resources as assets for the future, in consultation with local, Federally-recognized tribes.

Goal CD-LU-8:	**Protect and enhance Bonney Lake's scenic, natural, and visual character.**

Policies:

CD-LU-8.1 Preserve views through sensitive site design, especially along scenic corridors. Prevent new development from blocking important public views.

CD-LU-8.2 Maintain a network of designated scenic routes through Bonney Lake. A particular road or corridor may be considered scenic by virtue of its design or amenities, the terrain and natural features it traverses, or the views and visual importance it commands. The designation expresses an intent to maintain or improve visual features, which protects public views through land use, transportation, and capital improvement decisions, as well as landscaping, operations, and maintenance activities along these corridors, but does not necessarily limit abutting uses.

CD-LU-8.3 Acquire lands or view easements if necessary to preserve important public views.

CD-LU-8.4 Encourage developers to retain mature trees to the extent possible, particularly in residential areas.

CD-LU-8.5 Reduce the visual impacts of utility lines and poles along corridors by continuing to underground overhead lines within existing development, and by requiring underground utilities in new developments.

CD-LU-8.6 On the south side of SR-410 near the western city limits, tree cutting shall not extend so far from SR-410 as to remove the solid backdrop of mature trees as viewed horizontally from SR-410.

Goal CD-LU-9:	**Improve access and opportunities to enhance the health of all Bonney Lake residents while reducing the negative factors that reduce their well-being.**	
Policies:	**CD-LU-9.1**	Reduce the negative health effects of air, noise and light pollution through regulation and environmental strategies.
	CD-LU-9.2	Improve walkability and promote active, nonmotorized forms of transportation to improve public health and minimize environmental impacts.
	CD-LU-9.3	Increase access to healthy food for all Bonney Lake residents by encouraging and supporting healthy food retail and partnerships with the local food bank.
Goal CD-LU-10:	**Ensure that development in the City's potential annexation area is accompanied by adequate urban services and facilities; reduces sprawl; implements the Growth Management Act, Vision 2050's Multi-Countywide Planning Policies for Pierce County and the Bonney Lake Comprehensive Plan.**	
Policies:	**CD-LU-10.1**	Review proposed annexations for their timeliness, the City's ability to provide them with urban services, and the costs and revenues that the City would likely incur. The City may refuse annexations in which public facilities are below the City's level of service standard.
	CD-LU-10.2	The City shall actively pursue joint planning agreements with Pierce County to ensure that all development within Bonney Lake's PAA is built to mutually agreed upon standards. These agreements should cover a wide range of areas, including, but not limited to, development standards, collection of impact fees, annexations, urban service provision and land use, transportation, parks, and capital facilities planning.
	CD-LU-10.3	Consult affected residents, cities, special purpose districts, tribes, and other parties prior to final approval of any annexation.
	CD-LU-10.4	Ensure that additional capacity associated with expansion of the BLUGA maintains the current capacity of the Pierce County urban growth area through targeted reductions to the CUGA.

Historic Preservation & Cultural Resources Element

Envision BONNEY LAKE
Celebrating 100 Years

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1. INTRODUCTION

Historic preservation is the protection and restoration of sites, buildings, structures, and objects significant in American and Washington state history, architecture, archaeology, or culture (Revised Code of Washington (RCW) 27.34.020). Cultural resources are physical locations and materials that have ceremonial, historical or other significant meaning to the community. As development pressure increases, these physical places and social traditions connect the past and present, helping to identify what is unique about Bonney Lake.

1.1 REGULATORY CONTEXT

Growth Management Act

Historic preservation has been a goal of the Growth Management Act (GMA) since adoption in 1990 (RCW 36.70A.020). The three (3) GMA goals that apply to historic preservation and cultural resources are:

- **Urban Growth:** Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
- **Citizen Participation and Coordination:** Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.
- **Historic Preservation:** Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.

While a separate Historic Preservation & Cultural Resources Element is not a mandatory element required by RCW 36.70A.070, it is necessary to ensure that the City is considers and incorporates historic preservation as required under the goals of the GMA, and to ensures consistency with the adopted Multi-County Planning Policies (MPPs) and County-Wide Planning Policies (CPPs), as required by RCW 36.70A.100.

The Cultural Arts portion of this Element from the 2015 Comprehensive Plan was relocated into the **Parks, Trails, Recreation and Open Space Plan** (incorporated by reference, as amended).

Multi-County Planning Policies (MPPs)

The Puget Sound Regional Council (PSRC) adopted MPPs in VISION 2050[1]. These policies encourage local jurisdictions to adopt coordinated strategies, policies, and actions to ensure the region's needs are met. This Element was prepared to be consistent with VISION 2050 in the following areas:

- **Historic Preservation**: Preserve significant regional historic, visual, and cultural resources, including public views, landmarks, archaeological sites, historic and cultural landscapes, and areas of special character.
- **Regional Coordination**: Coordinate with tribes in regional and local planning, recognizing the mutual benefits and potential for impacts between growth occurring within and outside tribal boundaries.
- **Impacts to Historic Resources**: Consider the potential impacts of development to culturally significant sites and tribal treaty fishing, hunting, and gathering grounds.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated CPPs in 2022[2] that further refine how municipal comprehensive plans are drafted and adopted. This Element was prepared to be consistent with the CPPs in the following areas:

- **Historic Preservation**: Identification and preservation of historic, archaeological and cultural lands, sites, and structures.
- **Impacts to Tribal Sites**: Consider the potential impacts of development to culturally significant tribal sites.
- **Regional Coordination:** Work across jurisdictions to cooperatively identify and designate local historic, archaeological and cultural lands, sites, and structures of significance.
- **Development Regulations:** Use approaches to ensure that development preserves and enhances historic resources.

[1] Available online at: https://www.psrc.org/planning-2050/vision-2050
[2] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29

1.2 ORGANIZATION

The Element is divided into the following sections :

- **Section 2: Regional Coordination** describes the relationship between local, regional and tribal coordination related to historic and cultural resources.
- **Section 3: Brief History of Bonney Lake** provides a summary history of Bonney Lake through incorporation.
- **Section 4: Planning for Historic Preservation** provides information on loca, state, and federal historic planning and preservation tools..
- **Section 5: Historic Preservation Goals and Policies** contains goals and policies meant to guide day-to-day City decisions on preservation of historic and cultural resources.

2. REGIONAL COORDINATION

Historic preservation and cultural resources are regulated under a variety of federal, state, and local laws. Regional coordination among the various governmental entities is complicated by the relationship between local governments and tribal nations, whose rights as sovereign nations and rights granted by various treaties[3] with the federal government predate, supersede, and often overlap those of local governments.

Until recently, the relationship between tribal nations, local governments, and regional planning was not clearly described in the Growth Management Act (GMA). In 2022, the Washington State Legislature passed Substitute House Bill 1717[4] (HB 1717), adding provisions to support formal coordination between local governments and federally recognized tribes, in addition to existing coordination occurring between cities, counties, state and federal agencies, utilities, and other partners.

The City of Bonney Lake would like to acknowledge that it is located upon the ancestral lands and usual and accustomed grounds of the following federally recognized tribes, who were stewards of the areas between the Cascade Mountains and Puget Sound (also known as the Salish Sea):

- Muckleshoot Indian Tribe (*bəqəlšuɬabš – people of the prairie between the rivers*)
- Nisqually Indian Tribe (*dxʷsqʷaliʔabš – people of the river, people of the grass*)
- Puyallup Indian Tribe (*spuyaləpabš – people from the bend at the bottom of the river*)
- Snoqualmie Indian Tribe (*sdukʷalbixʷ – people of the moon)*
- Squaxin Island Tribe (*sqʷaxšədəbš – people of the water)*
- Suquamish Tribe (*suq̓ʷabsˇ– people of the clear salt water*)
- Yakama Nation

[3] See the Treaty of Medicine Creek (1854), Treaty of Point Elliott (1855), and Treaty with the Yakama (1855) for agreements made with sovereign tribes whose usual and accustomed grounds are located in or near Bonney Lake. These treaties are available on the Washington State Governor's Office of Indian Affairs website at: https://goia.wa.gov/tribal-government/treaty-medicine-creek-1854

[4] Available online at: https://app.leg.wa.gov/billsummary?billnumber=1717&year=2022

3. BRIEF HISTORY OF BONNEY LAKE

Native Americans

Tribal nations have been stewards of the land in and around Bonney Lake since time immemorial. While there are no known permanent settlements of people on the plateau, the area served as a critical trade, fishing, hunting, and gathering route for local tribes along the Naches Trail. This trail was the only route known between Puget Sound and Eastern Washington across the Cascade Mountains in the 1850s.

Early Expeditions

In 1841, Lieutenant Robert Johnson crossed the Naches Trail as part of the United States Exploring Expedition of 1838–1842 (also known as the Wilkes Expedition), a worldwide project to map and explore the Pacific Ocean, Antarctica, and the northwest coast of the United States. A small cabin was built along the trail by fur traders.

Sherwood Bonney was the first known settler to arrive in the Bonney Lake area in 1850. He built a cabin on what is now known as Lake Bonney in 1853.

Naches Trail

The first wagon train to cross the Cascades north of the Columbia River was the Longmire train in 1853. The group stopped at Connell's Prairie, crossing Fennel Creek where Kelley Farm is located, through Grainger Springs and down to the Puyallup River. Following that first crossing, the trail was relocated to run roughly along the same route as the Old Sumner-Buckley Highway.

That same year, Captain George B. McClellan was assigned the task of surveying the Naches Trail as a possible route for the Northern Pacific Railroad and to explore the Cascades. After failing to cross Naches pass due to deep snow, he recommended that emigrants cross the Cascades along the Columbia River instead of using the Naches Trail.

Treaties with the Native Americans

Washington Territorial Governor Isaac I. Stevens wanted to make it easy for the emigrants from the United States to settle and populate the territory north of the Columbia River. In the mid-1850s, Governor Stevens signed a series of treaties

with tribes across Washington State, including the Treaty of Medicine Creek (1854) and the Treaty of Point Elliott (1855).

The treaties between the sovereign tribal nations and the United States guaranteed the tribes certain rights, including use of their usual and accustomed grounds for fishing, hunting, gathering roots and berries, gathering shellfish, and/or pasturing horses in exchange for certain lands.

The Treaty of Medicine Creek ceded land that makes up most of the current boundaries of Bonney Lake. The Treaty of Point Elliott ceded land associated with the northernmost portion of the City, along what is now Lake Tapps.

Indian War

Armed conflict erupted between settlers arriving to file Donation Land Claims and Native Americans who continued to use their usual and accustomed grounds. The conflict resulted in lives lost on both sides, including during a series of skirmishes on Connell's Prairie in 1855.

In 1856, the U.S. Military and the Washington Territorial Volunteers built structures at Connell's Prairie to intercept Native Americans travelling along the Naches Trail. In November of that year, Nisqually Chief Leschi was charged with murder for deaths that occurred at Connell's Prairie. Leschi's brother, Quiemuth, was killed while in custody of Governor Stevens in Olympia; and Chief Leschi was convicted and executed based on withheld evidence.

These incidents resulted in a renegotiation of the Treaty of Medicine Creek and the expansion of reservation areas, influencing the development of Pierce County for decades to come. In 2004, Chief Leschi was exonerated by a unanimous vote by a Historical Court of Inquiry.

Early Settlers

Following the Indian War, the return of settlers to the plateau was very slow until the Homestead Act of 1862. Settlers could pay a modest fee and claim 160 acres, or 320 acres if married. Notable settlers include:

- William Kelley and his family settled on the prairie and land adjacent to what is now known as Fennel Creek. William Kelley went on to serve in the Washington Territorial Legislature and as the Pierce County Auditor.
- The Vandermark family settled on what is now Lake Tapps. The family moved their house when the site was flooded by the construction of the White River dam.

- The Moriarty family, loggers who settled near Allan Yorke Park.
- Some others who settled in the area include the Orcutt, Wahl, Haase, and Angeline families, among many others.

Creation of Lake Tapps

In the early 1900s, the Puget Sound Power & Light Company (now Puget Sound Energy) created the Lake Tapps reservoir by building dikes and berms around four (4) existing lakes: Lake Kirtley, Lake Crawford, Church Lake, and Lake Tapps (see **Exhibit 1**). A dam was built to divert water from the White (Stuck) River to the new reservoir and to generate hydroelectric power.

The reservoir was eventually sold to the Cascade Water Alliance (CWA), a collective of agencies that provide water to residents of King County. CWA maintains the reservoir for a variety of purposes, including:

- Public water supply;
- Use and recreation by adjacent homeowners;
- Adequate instream water flow for fish, consistent with treaty rights and agreements between CWA and the Muckleshoot and Puyallup tribes.

Great Depression

The Great Depression saw an increase of population on the plateau. Many people arrived from the ravaged "dust bowl" regions of the Midwest to begin again in Washington. The sparsely populated plateau where Bonney Lake sat offered inexpensive, available land.

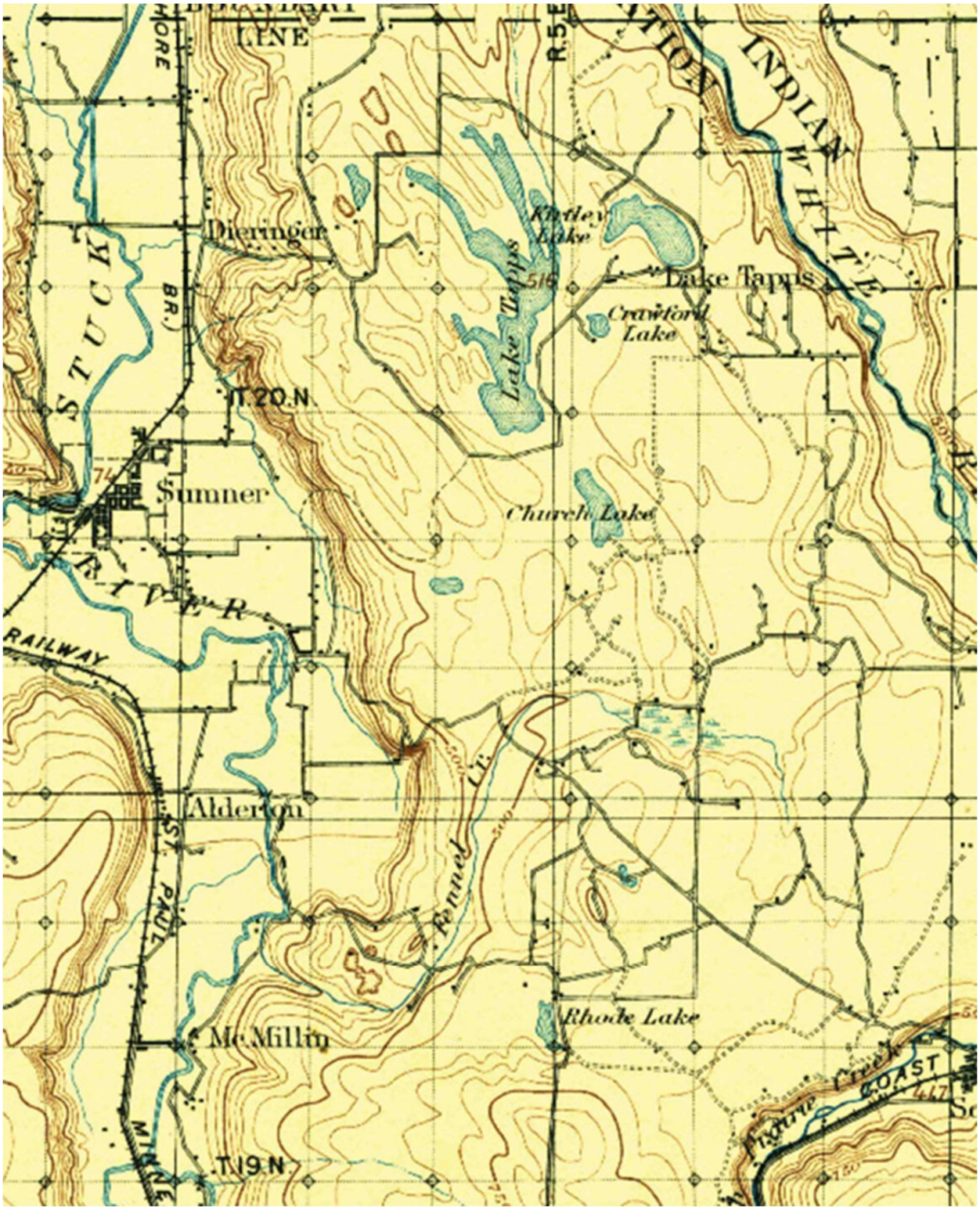
Bonney Lake Incorporation

When Ken Simmons visited the area in 1945, he and his wife saw the potential of developing the area as a recreational paradise. They bought approximately 1,000 acres and divided the property into lots for sale.

Despite being next to a major regional water and power supply, there was very little infrastructure to support residents. Simmons successfully convinced area residents to incorporate, and on February 28, 1949, the Town of Bonney Lake was established. The water system, roads, electric and telephone service were quickly installed. By 1957, there were at least 12 businesses located in the city.

In 1964, the Town adopted its first Comprehensive Plan. That planning emphasis remains today, as urban development continues to change the community and heighten demand on facilities and services.

Exhibit 1: Excerpt from Map of Tacoma, 1897



Source: Courtesy of United States Geological Survey (USGS), Map 2183, August 1897. Available online at: https://ngmdb.usgs.gov/topoview/viewer

4. PLANNING FOR HISTORIC PRESERVATION

Protection, recognition of sites, and educational programs will be the focus of preservation efforts in the City over the next 20 years, since many of its remaining historical resources are under development pressures. To achieve these ideas, the City needs to:

- Continue to identify archaeological and historic resources within Bonney Lake and develop appropriate protection measures;
- Provide incentives to private owners for preservation, restoration, and use of historic sites;
- Seek both public and private funding for restoration and enhancement of historical resources; and
- Recognize significant historical sites.

A community's identity and civic pride is rooted in the physical and cultural links to its past. To understand and appreciate Bonney Lake's history, the City is committed to recognizing, conserving and enhancing historic and cultural resources.

This Element sets the goals and policies for historic and cultural planning, which are to identify, recognize, protect, enhance and properly manage the City's historic and cultural resources. Because of the relative newness of the City and its buildings, most of the heritage of Bonney Lake relates to sites, landscapes and historical events, rather than buildings and structures. Accordingly, the emphasis of this Element is to promote a sense of time and place and to cultivate a genuine appreciation for local history.

The Washington Growth Management Act (GMA) does not require a Historic Preservation Element, but the GMA does include a goal which calls for jurisdictions to "identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance". This includes activities that embody historic preservation, historic presentations, collections of historic materials and/or structures, celebrations of historic events, oral histories, genealogy, etc.

Historic sites and areas are the physical evidence of our connective past. Bonney Lake can recognize the importance of its historic resources through the identification and recognition of historic resources, historic tours, festivals, and special events.

4.1 WHAT MAKES SOMETHING HISTORIC?

Due to the nature of the development of the Bonney Lake community, there are likely no current structures in Bonney Lake that would likely qualify to be included on the National Register of Historic Places (NRHP). However, the national NRHP guidelines can nonetheless be used to determine the relative value of a historic site to the local community. To be considered historically significant, a landmark or site should meet the following criteria:

- Its value as a significant reminder of the cultural or archaeological heritage of the city, state, or nation.
- Its location as a site of a significant local or regional event.
- Its identification with a person or persons who significantly contributed to the development of the city, state, or nation.
- Its identification as the work of a master builder, designer, or architect whose individual work has influenced the development of the City.

Exhibit 2: Kelley Lake School, 1928



4.2 PRESERVATION TOOLS AND RESOURCES

The following are of some of the tools, resources and activities commonly used in historic preservation:

- **Preservation Period:** Hold an annual "Preservation Week", which may include the identification of significant historic places, recognition of individuals who have contributed to the preservation of our Bonney Lake heritage, or education of residents about the benefits of the preservation and protection of cultural, historic, architectural, and archaeological resources.
- **Workshops:** Periodically participate in workshops with local and regional historic preservation groups and historical societies that advocate and educate participants about appropriate preservation technology and techniques.
- **Tours:** Sponsor, coordinate, and/or promote tours of the community that identify and interpret local cultural, historic, architectural, and archaeological resources.
- **Plaques:** Present plaques to owners of the City's cultural, historic, architectural, and archaeological resources, for public display, that recognize the significance of the resource(s).
- **Maps:** Provide a brochure that identifies the City's key historical sites and markers.
- **Educational Materials:** Use educational materials to:
    - Publicize the City's historic resources and local efforts to protect, preserve, and enhance Bonney Lake's heritage
    - Provide information to the public on methods of maintaining and rehabilitating historic properties.
    - This may take the form of pamphlets, newsletters, workshops or similar activities.
- **Construction Sales Tax Rebates:** Provide tax rebates for material purchased for historic preservation work.
- **Property Tax Rebates:** Provide tax rebates for the increase in assessed value resulting from improvements made to restore a locally designated historic property.
- **Reduction of Building Permit Fees:** Reduce fees for construction related activities to restore or preserve a state or locally designated historic property.
- **Recognition:** Officially recognize excellence in such areas as the rehabilitation of historic objects, buildings, structures, or sites, and encourage appropriate measures for such recognition.

4.3 LOCAL PRESERVATION EFFORTS

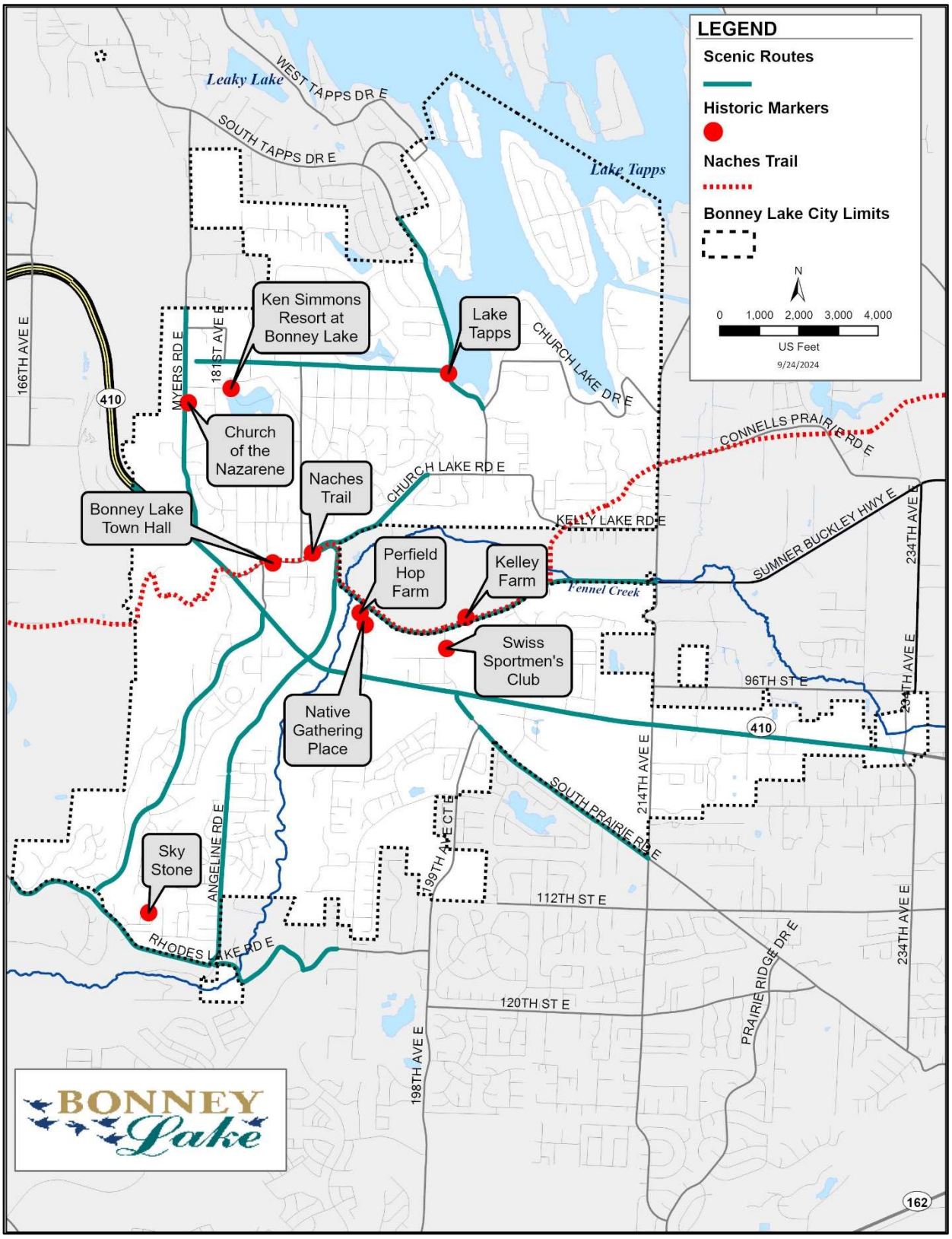
Historic Markers

In 2009, the City of Bonney Lake, Pierce County, and the Greater Bonney Lake Historical Society collaborated on a project identifying historical attractions within the Bonney Lake area. Plaques were installed at the following locations:

- **Bonney Lake Town Hall:** The original town hall located near the intersection of Main Street and Veterans Memorial Drive.
- **Church of the Nazarene:** In 1935, Oscar Bowen donated materials to construct the first church in Bonney Lake on Myers Road.
- **Kelley Farm:** After being abandoned by Reuben Finnell during the Indian War, William Kelley settled the property, eventually donating land for the Kelley Lake School.
- **Ken Simmons Resort:** Ken Simmons purchased the land surrounding Lake Bonney to develop a resort, complete with a clubhouse, boardwalk, and swimming area. The resort was a major draw when he began selling lots in the new Town of Bonney Lake.
- **Lake Tapps:** The location of a major public works project to install a dam and reservoir to provide water and hydroelectric power to the region.
- **Naches Trail:** The trail was the only known east-west route between Puget Sound and Eastern Washington used by Native Americans for trade, hunting, gathering, and visiting.
- **Native Gathering Place:** Located along Fennel Creek and the Naches Trail, this prairie provided enough space for large gatherings of Native Americans.
- **Perfield Hop Farm:** After an infestation of "hop lice" in the 1890s, many hop farms went out of business. By 1940, the Perfield farm was one of the last in Western Washington.
- **Sky Stone:** Situated at a location with exceptional views of the area, this unusually large rock deposited by glaciers was used by Native Americans for various purposes.
- **Swiss Sportsman's Club:** Originally 10 acres, this site hosted a variety of activities, including shooting competitions, wrestling, choir, and relief services.

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Exhibit 3: Bonney Lake Historic Monument Locations



Historic Structures

Bonney Lake is still a relatively new city. At the time of incorporation in 1949, there were less than 100 homes within the original boundaries of the Town of Bonney Lake. Of these, 17 still exist (see **Exhibit 4**). This represents a loss of three (3) historic homes since the 2015 Comprehensive Plan was prepared. In the area annexed since incorporation, an additional 15 homes remain that were constructed in 1949 or earlier, which is four (4) less than when the 2015 Comprehensive Plan was prepared.

Exhibit 4: Pre-1949 Homes in Bonney Lake, 2024

Address	Year Built	Parcel No.
Pre-1949 Homes Within the Original Incorporation Boundaries of Bonney Lake		
19219 Church Lake Rd E	1924	0520331010
7722 Myers Rd	1927	0520298069
18420 89th St E	1927	5640001470
7402 Myers Rd E	1928	0520294095
8709 188th Ave E	1930	5640001280
19003 Church Lake Rd E	1940	0520331015
18512 84th St E	1940	5640000300
8409 183rd Ave E	1940	5640001042
18915 Veterans Memorial Dr E	1940	5640001210
7406 Myers Rd E	1942	0520298039
8806 Main St E	1943	5640001592
7706 182nd Ave E	1944	0520298034
8804 Main St E	1944	5640001521
18814 84th St E	1945	5640000120
18702 84th St E	1945	5640000136
8016 Locust Ave E	1945	5640000175
8406 Locust Ave E	1945	5640000742

Address	Year Built	Parcel No.
Pre-1949 Homes Outside of the Original Incorporation Boundaries of Bonney Lake		
9714 to 9716 233rd Ave E	1900	0519012035
7721 W Tapps Hwy E	1915	0520273003
10215 214th Ave E	1928	0519022000
11007 Angeline Rd E	1928	0519047006
7514 192nd Ave E	1929	7110000560
6408 S Vista Dr E	1930	4720001530
20808 95th St E	1940	2947002350
10318 Angeline Rd E	1940	0519051009
10404 Angeline Rd E	1940	0519054005
7608 W Tapps Hwy	1945	0520273022
9405 210th Ave E	1946	2947002310
6006 207th Ave E	1946	3050500020
11115 Angeline Rd E	1948	0519047007
11608 Angeline Rd E	1948	0519081078
9615 192nd Ave E	1948	4910000050

Heritage Trees

In 2005, the City established a Heritage Tree program. For a tree to be designated as a Heritage Tree by the City Council, it must meet the following criteria:

1) The tree is historically significant by virtue of its association with or contribution to a historic structure or district, or its association with a noted person or historic event.
2) The tree has exceptional significance because of its age, size, form, or rarity.
3) The tree is a recognized Landmark of the City.

When a tree is designated as a heritage tree, a plaque is placed near the tree. It is the duty of property owners to maintain heritage trees to the best of their ability.

4.4 STATE AND FEDERAL PRESERVATION REGULATIONS

The following is a short list of state and federal preservation laws that directly or indirectly regulate historic preservation. A complete list can be found on the Washington State Department of Archaeological and Historic Preservation (DAHP) website at: https://dahp.wa.gov/project-review/preservation-laws:

Washington State Environmental Policy Act (SEPA)

Impacts to cultural resources must be considered during the public environmental review process. Under the Washington State Environmental Policy Act (SEPA), DAHP is the sole agency with technical expertise regarding cultural resources. DAHP provides formal opinions to government agencies on a site's significance and the impact of proposed projects upon such sites.

Washington State Forest Practices Act

This act requires notification to impacted tribes and a protection plan when a proposed timber harvest area may contain cultural resources.

Washington State Governor's Advisory Council on Historic Preservation

The Advisory Council on Historic Preservation (ACHP) is a seven-member panel of citizens with expertise and/or training in historic preservation and related fields. Members are appointed by the Governor to advise on policy matters affecting preservation of cultural resources. The ACHP primarily documents nominating Washington state properties for listing in the National Register of Historic Places.

Washington State Historic Preservation Plan

DAHP is responsible for preparing and updating a plan regarding preservation in Washington and providing goals, objectives, and specific tasks for strengthening communities by capitalizing on their cultural resources.

Washington State Shoreline Management Act (SMA)

Shoreline areas with archaeological sites require an inspection or evaluation by a professional archaeologist in coordination with affected tribes prior to issuing development permits.

Section 4(f) of the Department of Transportation Act

The Federal Highway Administration (FHWA) and Washington State Department of Transportation (WSDOT) cannot approve the use of land in a park, recreation area, wildlife or waterfowl refuge, or any significant historic site for a transportation project unless the following conditions apply:

1) There is no feasible and prudent alternative to the use of land, or

2) The action includes all possible planning to minimize harm to the property resulting from use.

Section 106 of the National Historic Preservation Act of 1966

The Act requires all federal agencies consider cultural resources as part of all licensing, permitting, and funding decisions. As part of that process, each agency must consult with DAHP to assure that cultural resources are identified, and to obtain the formal opinion on each site's significance and the impact of the proposal action upon the site.

National Register of Historic Places

Properties that have historic, architectural, archaeological, or cultural significance may be nominated for inclusion on the National Register of Historic Places. A property nominated to the National Register can attain significance at a national, state, or local level, but must meet defined criteria to be listed in the National Register.

4.5 LOCAL AND STATE HERITAGE ORGANIZATIONS

This subsection contains a short list of organizations that cover historic preservation in Bonney Lake. Additional organizations can be found on the Washington State Department of Archaeological and Historic Preservation (DAHP) website at: https://dahp.wa.gov/historic-preservation/experience-history/find-heritage-organizations.

Greater Bonney Lake Historical Society

The Greater Bonney Lake Historical Society is a collection of local residents that gather to research and share the history of Bonney Lake.

Washington State Historical Society

The Washington State Historical Society is a trustee agency created by state statute (RCW 27.34) . The Society is comprised of museums and research centers that offer a variety of services, including the Washington State History Museum in Tacoma.

Washington Women's History Consortium

The Washington Women's History Consortium, created by state statute (RCW 27.34.360) in 2005 as a Washington State Historical Society-led initiative, is dedicated to preserving and making available resources about Washington women's history.

Washington Trust for Historic Preservation

The Washington Trust for Historic Preservation is a statewide, non-profit organization founded in 1976 to safeguard Washington's historic places through advocacy, education, stewardship and collaboration.

History Link

HistoryLink.org is an evolving online encyclopedia of state and local history in Washington state. The organization provides a free, authoritative, and easily accessible history reference for the benefit of the public.

National Trust for Historic Preservation

The National Trust for Historic Preservation has worked for more than half a century to save the historic buildings, neighborhoods, and landscapes that form our communities

and enrich our lives. Formed by Congress in 1949, they also have an informative on-line newsletter that provides national news related to preservation issues.

5. HISTORIC PRESERVATION GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal HP-1:	**It is the goal of the City of Bonney Lake to give its residents a better understanding and awareness of the historic sites within the community. This includes enhancing information about, and access to, various Bonney Lake area historic sites, and helping residents and visitors understand and appreciate local heritage.**	
Policies:	**HP-1.1**	The City recognizes that Bonney Lake's history began before the arrival of settlers to the area and will recognize the significance of Native American sites and artifacts as well as those of the more recent past.
	HP-1.2	The City will encourage local activities, which promote the community's history.
	HP-1.3	The City will work with the Greater Bonney Lake Historical Society and others to provide access to historic documentation to landowners, citizens, and interested parties.
	HP-1.4	The City will work with organizations and business interests to promote Heritage Tourism opportunities as part of the City's economic development strategy.
	HP-1.5	The City will work with the community to provide information to interpret the history of Bonney Lake, including historical displays, programs, and interpretative signage.
	HP-1.6	The City's historical resources inventory will be maintained and updated as needed.
	HP-1.7	The City will collaborate with Sumner and White River School Districts on local history education.
	HP-1.8	The City will participate with other local, county, state and national historical organizations to educate the community about the value of local cultural and historical resources.
	HP-1.9	The City will work closely with the Greater Bonney Lake Historical Society, the Pierce County Heritage League, and other heritage

organizations in Pierce County to foster knowledge and appreciation of our historic resources.

HP-1.10 The City will encourage the Greater Bonney Lake Historical Society to establish a volunteer program similar to Beautify Bonney Lake for volunteers to work on historically significant projects.

Goal HP-2:	**It is the goal of the City to identify, preserve and protect facilities, sites, buildings, structures, trees and artifacts that are deemed by the City or other governmental agency to be historically and culturally significant.**	
Policies:	**HP-2.1**	The City will continue efforts to inventory historic structures, archeological sites, and other potential historic sites to add to the Inventory of Key Bonney Lake Historic Sites listed in this plan.
	HP-2.2	The City will coordinate with community organizations, property owners and local citizens to protect and/or restore key historic sites.
	HP-2.3	The City will encourage property owners and tenants to maintain the integrity and character of historic resources, and to restore and reuse historic resources in a manner compatible with their historic character.
	HP-2.4	The City will strive to recognize and preserve architecturally, or historically significant structures built during the 19th Century. Specifically, the City will promote the preservation of the Kelley Farm house as a key Bonney Lake area historic structure.
	HP-2.5	The City will consider the impacts of new development on historical resources as a part of its environmental review process and require appropriate mitigating measures. The City's use of State Environmental Policy Act (SEPA) requirements to evaluate the impacts of proposals on historical resources will include review of transportation projects and plans, utility projects, and other capital improvement projects to determine their impact to significant cultural and historical resources of the City.
	HP-2.6	The City will coordinate with local tribes and the State Office of Archaeology and Historic Preservation on development issues related to potential archaeological sites.
	HP-2.7	The City will seek both state/federal and private funding for restoration and enhancement of historical resources.

HP-2.8 The City will assist in the identification of available spaces for the proper storage, preservation, and display of significant cultural and historical artifacts.

HP-2.9 The City will provide appropriate means to recognize property owners who rehabilitate, restore, retain, or reproduce historical elements of their properties.

HP-2.10 While promoting historic preservation, the City will adopt no policy or regulation which shall limit a site or structure from being used in an economically viable manner.

HP-2.11 Efforts to preserve historical sites or structures should include incentives such as utilization of the state special property tax valuation, partial income tax write-off for restoration and relaxation of Zoning Code standards to encourage property owners to rehabilitate, restore, retain, or reproduce historical elements of their properties.

Community Mobility Element

Envision BONNEY LAKE
Celebrating 100 Years

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1. INTRODUCTION

Maintain awareness of the transportation policies of overlapping and surrounding jurisdictions.

- *Bonney Lake Comprehensive Plan (1985)*

The Community Mobility Element addresses the movement of people and goods within, to, and from Bonney Lake. This Element recognizes that the current primary form of transportation in the City is by automobile, and plans for the future by establishing policies that expand transportation choices, reduce dependence on single passenger automobiles, retain public transit options, and improve options to walk and bicycle in the City.

The Community Mobility Element is based on the core value that streets and trails should be great public spaces that help define the identity of the City. This Element looks beyond the transportation infrastructure and covers broader issues related to the connections between Bonney Lake and the region, the way that transportation shapes Bonney Lake's form and identity, and how mobility options improve the health and well-being of Bonney Lake residents. The Element also looks at accessibility, or the ease of reaching various destinations in the City, and the barriers to travel for persons of varying physical needs.

The policies in this Element are intended to guide day-to-day decisions related to transportation, mobility and the review of new development. The Community Mobility Element is required to be consistent and compatible with the Washington State Growth Management Act (GMA), and the plans and programs of the Washington State Department of Transportation (WSDOT), Puget Sound Regional Council (PSRC), Pierce County, and Sound Transit.

1.1 REGULATORY CONTEXT

Growth Management Act

This Mobility Element was developed in compliance with the GMA. While all elements of the Comprehensive Plan have equal weight under the GMA (Chapter 36.70A of the Revised Code of Washington (RCW)), five (5) of the 15 goals of the GMA specifically pertain to the development of a sustainable multimodal transportation system in Bonney Lake:

- **Urban Growth**: Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.

- **Transportation**: Encourage efficient multimodal transportation systems that will reduce greenhouse gas emissions and per capita vehicle miles traveled, and are based on regional priorities and coordinated with county and city comprehensive plans.
- **Environment**: Protect and enhance the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.
- **Public Facilities and Services:** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.
- **Climate Change and Resiliency:** Ensure that comprehensive plans and development regulations support reductions in greenhouse gas emissions and per capita vehicle miles traveled; foster resiliency to natural hazards; and protect and enhance environmental, economic, and human health and safety[1].

The Community Mobility Element is intended to fulfill the requirements of RCW 36.70A.070(6) as adopted on January 1, 2002[2], and RCW 36.70A.108, that local jurisdictions have a transportation element to ensure that transportation planning is directly tied to land use decisions and fiscal planning, and that the jurisdiction take steps to support multiple modes of transportation.

Multi-County Planning Policies (MPPs)

The City of Bonney Lake is a member of the Puget Sound Regional Council (PSRC), the Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO) for King, Kitsap, Pierce, and Snohomish Counties.

The Puget Sound Regional Council (PSRC) adopted MPPs in VISION 2050[3]. These policies require local jurisdictions to adopt coordinated strategies, policies, and actions to ensure the region's needs are met. This Element was prepared to be consistent with VISION 2050 in the following areas:

- **Regional Collaboration**: Coordinating planning efforts across jurisdictions to address regional transportation issues.

[1] In 2023, the Washington State Legislature passed major updates to environmental goals (RCW 36.70A.020) and mandatory element requirements (RCW 36.70A.070) in the Growth Management Act (GMA), adding a climate change and resiliency element. The requirement for a climate change and resiliency element is conditioned on the availability of state funds (RCW 36.70A.070(10)). This component is due in 2029, if funding is provided.

[2] The City has not received state funding for amendments by the Washington State Legislature to the transportation element requirements in RCW 36.70A.070(6) pursuant to RCW 36.70A.070(10) since 2002.

[3] Available online at: https://www.psrc.org/planning-2050/vision-2050

- **Environment**: Considering the impacts of development and transportation of water quality and air pollutants.
- **Air Quality**: Reducing air pollution and greenhouse gases consistent with the Puget Sound Clean Air Agency goals.
- **Promote Healthy Communities**: Design communities and transportation improvements to provide safe alternatives for pedestrians and bicyclists.
- **Supporting Growth Through Concurrency:** Focus transportation improvements on the movement of people, goods, and services, instead of just the movement of vehicles.
- **Multimodal System:** Work towards an affordable, safe, and efficient multimodal transportation system that supports the Regional Growth Strategy and Regional Transportation Plan.

PSRC has adopted *The Regional Transportation Plan 2022-2050*[4] (RTP) to comply with the requirement that RTPOs develop a twenty-year regional transportation plan that identifies the region's needs, conditions, and resources. The RTP implements PSRC's regional planning document, *VISION 2050*, which provides a regional framework for achieving the GMA goals by building on local, county, regional and state planning efforts. The GMA requires PSRC to certify that local plans are consistent with the goals and strategies presented in *VISION 2050* and the RTP, which include:

- Sustainable transportation, including transit and non-motorized improvements.
- Increase transit options through land use.
- Improvements to support bicycle and pedestrian mobility.
- Maintain and improve freight infrastructure.
- Access management.
- Prioritization of safe infrastructure and separation of modes of transportation through project development.
- Conduct extensive and effective public outreach as part of local jurisdiction and agency planning processes. Improve air quality, water quality, and overall health by trip reduction and climate resiliency strategies.
- Implementation of improvements of regional significance (trails, transit centers, and park and rides).
- Complete streets providing for multimodal transportation.
- Connectivity with adjacent jurisdictions.
- Transportation funding strategies.

[4] Available online at: https://www.psrc.org/planning-2050/regional-transportation-plan

PSRC has also developed a 6-Year Transportation Improvement Program, which identifies funding for transportation projects and programs identified in the RTP.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated Countywide Planning Policies (CPPs) in 2022[5] that establish a countywide framework for coordinating comprehensive plans of jurisdictions in Pierce County through better integration of land use and transportation planning. The City also works in collaboration with other governmental and non-governmental organizations, which include Pierce County; Pierce County Regional Council; and the Cities of Buckley, Sumner, Puyallup, and Enumclaw. This Element was prepared to be consistent with the CPPs in the following areas:

- **Regional Coordination:** Work across jurisdictions to support the Regional Growth Strategy and Regional Transportation Plan.
- **Target Zero:** Improve safety for all by working towards "Target Zero", a goal for zero deaths or disabling injuries from transportation incidents.
- **Promote Healthy Communities**: Provide transportation options that support health and well-being, including supporting alternative designs to support walking, bicycling, and physical activity.
- **Ensure Adequate Concurrency:** Consider the impact of local planning on local, regional, and state transportation systems, and ensure adequate performance of those systems over time.
- **System Maintenance, Operation, and Preservation:** Protect taxpayer investment in transportation systems through proper maintenance, operation, and preservation of these systems.

Federal and State Air Quality Regulations

The United States Environmental Protection Agency (EPA) has established minimum outdoor air quality standards for six (6) pollutants, including ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide. States and, in turn, local jurisdictions, are required to maintain air quality at or below those standards through a variety of methods. Pierce County has attained compliance with the federal air quality standards and has maintained this status since 2015[6].

[5] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29
[6] Available online at: https://www3.epa.gov/airquality/greenbook/anayo_wa.html

State Transportation Planning

Washington State has adopted a set of transportation policy, safety, and implementation plans to ensure a comprehensive approach to traffic management and safety throughout the state. These plans include:

- The ***Washington Transportation Plan: 2040 and Beyond***[7], which is the state's long-range strategic statewide transportation policy plan. This plan is developed based on the Legislature's six (6) policy goals set in RCW 47.04.280: Preservation, safety, stewardship, mobility, economic vitality, and environment.
- The ***2024 Highway System Plan*** (HSP)[8] is the action plan for preserving, maintaining, operating and improving state highways over the next 20 years. It serves as the basis for the 6-Year highway program and 2-Year biennial budget requests to the State Legislature. State highway projects must be included in the HSP before they can receive state funding. Authorized projects are listed in the ***State Transportation Improvement Plan*** (STIP)[9].
- The ***Washington State Strategic Highway Safety Plan 2024*** and the ***Highway Safety Improvement Program Implementation Plan 2024*** (HSIP)[10] serve the State's Target Zero plan, aimed at reducing traffic fatalities and serious injuries on Washington's roadways to zero by the year 2030. Local jurisdictions must complete their own Safety Action Plans and can apply for funding through HSIP to implement safety measures. The City is currently in the process of developing its Safety Action Plan.

[7] Available online at: https://wstc.wa.gov/wp-content/uploads/2020/03/WTP-2040-and-Beyond.pdf
[8] Available online at: https://wsdot.wa.gov/highway-system-plan
[9] Available online at: https://wsdot.wa.goV/Construction-planning/statewide-plans/project-delivery-plan
[10] Available online at: https://wsdot.wa.goV/Construction-planning/statewide-plans/strategic-highway-safety-plan-target-zero

1.2 ORGANIZATION

This Element is divided into the following sections:

- **Section 2: Existing Motorized Transportation System** provides an overview of the existing motorized transportation system conditions at a citywide level.
- **Section 3: Existing Active (Non-Motorized) Transportation System** provides an overview of the existing non-motorized transportation system conditions at a citywide level, including pedestrian and bicycle facilities.
- **Section 4: Transportation Safety** evaluates how well the existing system is function related to crashes, crash prevention, preservation and maintenance, and Americans with Disabilities Act (ADA) facilities.
- **Section 5: Future Multimodal System** describes the improvements needed to meet the City's adopted Level of Service, and provides a 25-year list of transportation system projects.
- **Section 6: Future Community Mobility Goals and Policies** contains goals and policies meant to guide day-to-day City decisions on transportation system improvements.

2. EXISTING MOTORIZED TRANSPORTATION SYSTEM

The existing street system in Bonney Lake includes a State highway and roadways ranging in capacity from local streets to principal arterials linking neighborhoods and business areas to each other and the region. The street system serves a wide range of users and types of travel, including residents and workers, emergency services, transit, school buses, bicyclists, and pedestrians.

2.1 FUNCTIONAL CLASSIFICATIONS

Functional classification groups streets according to its ultimate role in the street network based upon guidelines prepared by the Federal Highway Administration (FHWA). The functional classification of each roadway determines the roadway design and ultimate cross section to ensure that the needed capacity will be available and that street improvements will balance the differing needs of vehicles and non-motorized travelers. The City's functional classifications are described below:

State Highway

State Route (SR) 410 is the only state-owned facility in Bonney Lake. SR 410 provides an east-west transportation link between the South Puget Sound Region in Pierce County and the Central Washington region near Naches in Yakima County. SR 410 is a Regionally Significant Highway[11] by PSRC but is not a Highway of Statewide Significance[12]. To serve traffic at higher speeds and meet mobility and safety goals, access to SR 410 is restricted and regulated in accordance with Chapter 47.05 RCW.

SR 410 is designated as a Tier 2 route by PSRC. Tier 2 routes serve the outer urban areas which are generally farther from transit alternatives, have fewer alternative roadway

[11] Puget Sound Regional Council (PSRC) has identified facilities and adopted level of service (LOS) standards for regionally significant state highways in the central Puget Sound region. Regionally significant state highways are those highways not designated as being of statewide significance (HSS highways) but are key regional links. The PSRC took this action to comply with HB 1487, the "Level of Service Bill" adopted by the Washington State Legislature in 1998. Adoption of LOS standards for regionally significant state highways followed a yearlong process involving WSDOT and the region's cities and counties.

[12] Highways of Statewide Significance (HSS) include interstate highways and other principal arterials that connect major communities in the state. The designation helps assist with the allocation and direction of funding. The HSS was mandated by the 1998 legislature, and in 1999, legislation was passed that WSDOT update the HSS at least every five years.

routes, and are required to operate a ILOS D or better. Bonney Lake has adopted ILOS D for SR 410 consistent with the PSRC standard.

Access to state highways is managed by WSDOT as provided in Chapter 468-52 of the Washington Administrative Code (WAC). In determining access and spacing WSDOT assigns each state highway to one of five (5) classes from the most restrictive (Class 1) to the least restrictive (Class 5). SR 410 from Myers Rd to 214th Ave E is a Class 3 state highway and from 214th Ave E to 234th Ave E is considered a Class 2 state highway[13].

Characteristics of the **State Highway** functional classification include:

- Provides for east-west movement through the City.
- Primarily fed by principal arterials.
- Access to abutting properties should be very restricted.
- Traffic volumes typically exceed 40,000 Average Daily Trips (ADT).
- Roads in this classification:
    - State Route (SR) 410

Principal (Major) Arterials

Characteristics of the **Principal (Major) Arterial** functional classification include:

- Provide for movement across and between large sub-areas serving predominantly "through traffic" and major centers.
- Typically fed by other arterials and local roads.
- Access to abutting properties should be very restricted.
- Traffic volumes typically between 15,000 – 40,000 ADT.
- Roads in this classification:
    - South Prairie Rd E
    - Veterans Memorial Dr E
    - 198th Ave E/199th Ave Ct E/200th Ave Ct E
    - 214th Ave E

Minor Arterials

Characteristics of the **Minor Arterial** functional classification include:

- Minor arterials interconnect with, and augment, the principal arterial system.

[13] Detailed descriptions of the classifications of state highways and the differences between then can be found in the *WSDOT Design Manual M 22-01.23* (September 2024), Chapter 540, available online at: https://wsdot.wa.gov/publications/manuals/fulltext/m22-01/540.pdf

- Minor arterials provide intra-community continuity connecting community centers and facilities. A minor arterial may also serve "through traffic".
- Access is partially restricted.
- Traffic volumes typically range between 5,000 and 15,000 ADT.
- Roads in this classification:
    - Kelly Lake Rd E/Church Lake Rd E
    - Sky Island Dr E
    - W Tapps Hwy E
    - 198th Ave E (Between SR 410 and Old Sumner-Buckley Hwy E)

Collector Arterials

Characteristics of the **Collector Arterial** functional classification include:

- Collectors promote the flow of vehicles, bicycles, and pedestrians from arterial roads to lower-order roads.
- Collectors typically serve 50 or more dwelling units or connect to a minor arterial.
- Traffic volumes typically range between 1,500 to 5,000 ADT.
- Roads in this classification:
    - Angeline Rd E
    - Bonney Lake Blvd E
    - Church Lake Dr E (Between W Tapps Hwy E and 71st St E)
    - 71st St E (Between Church Lake Dr E and Church Lake Dr E)
    - Church Lake Dr E (Between 71st St E and Vandermark Rd E)
    - Locust Ave E
    - Main St (Between SR 410 and Veterans Memorial Dr E)
    - Myers Rd
    - Vandermark Rd E (Between Church Lake Dre and 214th Ave E)
    - 100th St E (Future 101st St E from 204th Ave E to 214th Ave E)
    - 104th St E/192nd Ave E (Between 200th Ave Ct E and Rhodes Lake Rd E)
    - 192nd Ave E (Between SR 410 and Old Sumner-Buckley Hwy E)
    - 204th Ave E (Between SR 410 and South Prairie Rd E)
    - 229th Ave E (Between SR 410 and 96th St E)
    - 233rd Ave E / 234th Ave E

Commercial Access

Characteristics of the **Commercial Access** functional classification include:

- Commercial access roads provide access within commercial, industrial, and mixed-use centers in the city.

- Traffic volumes vary and there is no specific ADT measure for these roads.
- Roads in this classification:
  - 97th St E
  - 100th St E (Between 219th Ave E to terminus past 224th Ave E)
  - 224th Ave E

Local Roads

Characteristics of the **Local Road** functional classification include:

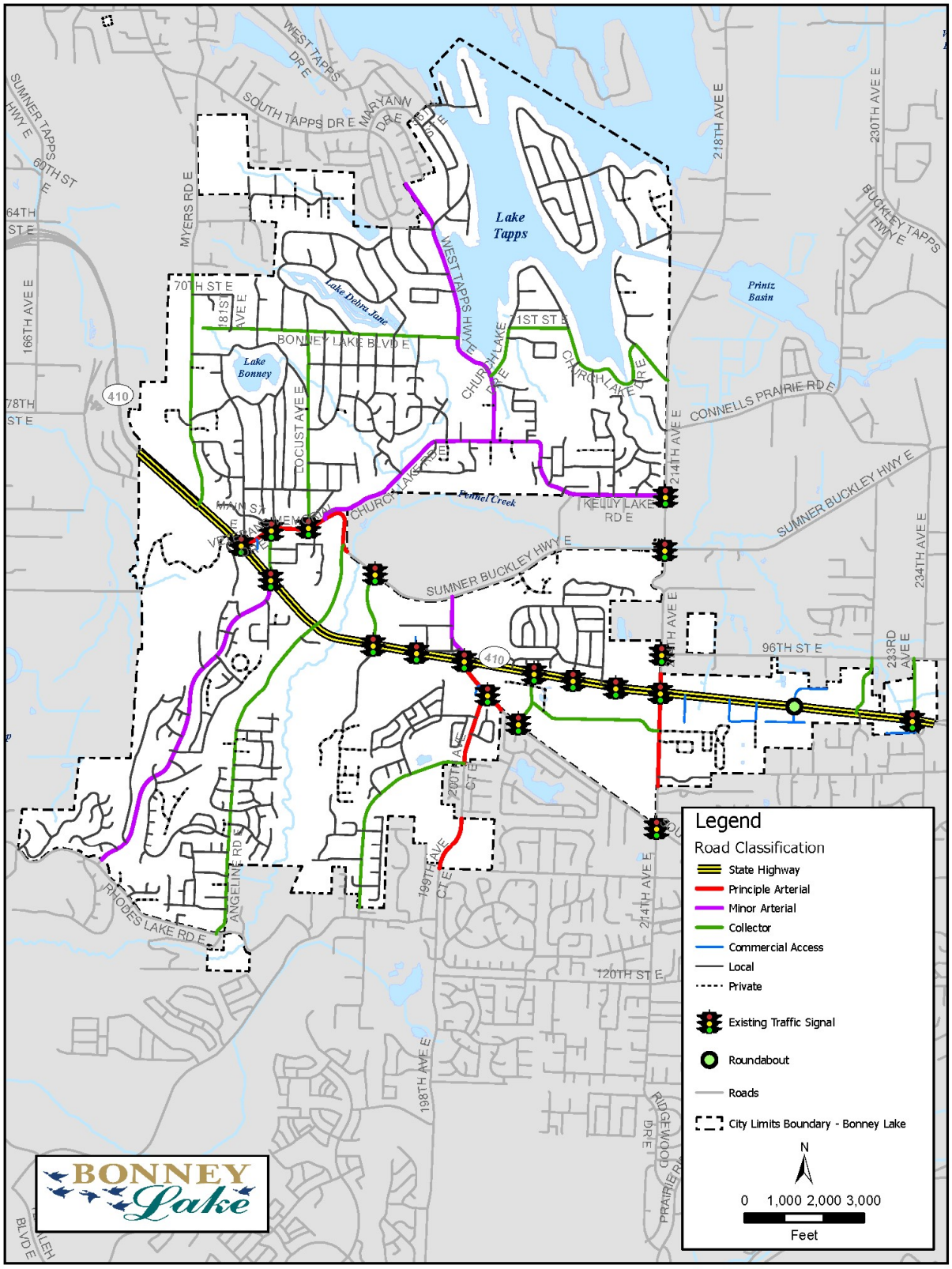
- Local roads convey vehicles, pedestrians, and bicycles to and from higher-order roads and to provide access to individual properties.
- Local roads do not carry through traffic.
- Traffic volumes are typically under 1,500 ADT.
- Roads in this classification:
  - All other public roads in the city.

Private Streets

Characteristics of the **Private Street** functional classification include:

- This classification applies to all privately owned streets in the city.
- The City is not responsible for repair, maintenance, or replacement of these streets.

Exhibit 1: Street Functional Classifications and Traffic Signals, 2025

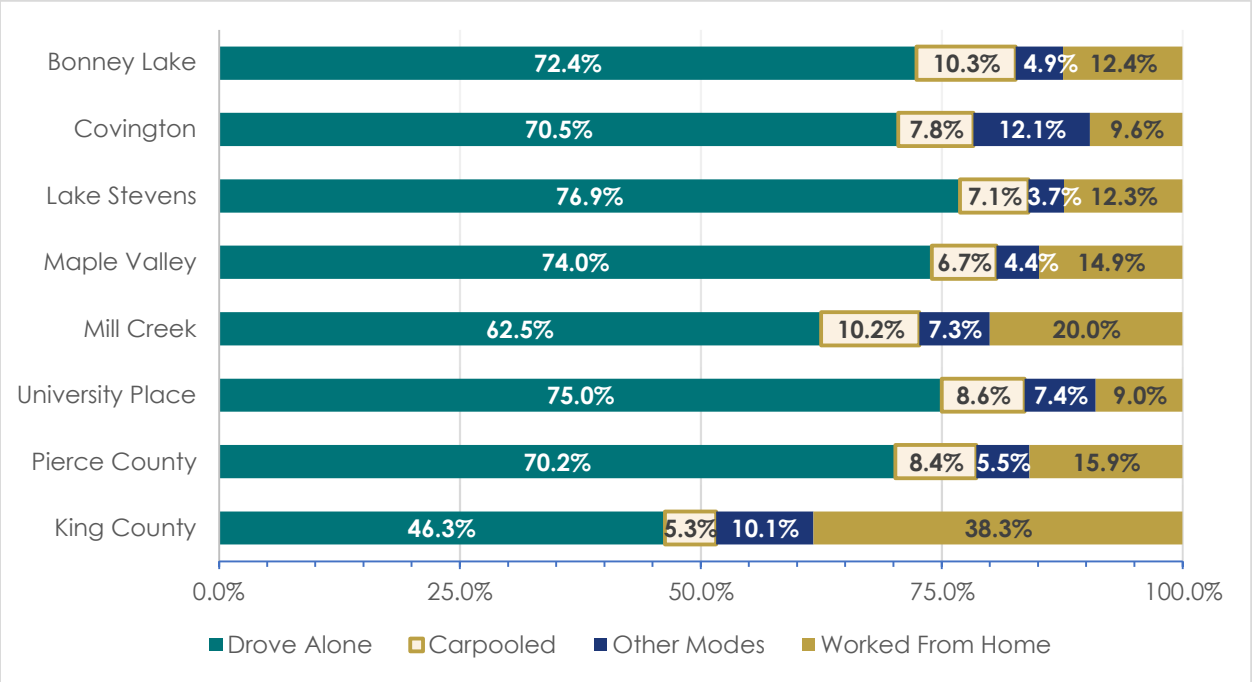


2.2 TRAVEL PATTERNS

Bonney Lake was developed as an "auto-oriented" suburb utilizing rural road standards primarily focused on enabling vehicles to move as efficiently as possible; none or little attention was paid to other modes of travel. As a result, over 80% of Bonney Lake households have two (2) or more cars, with over 41% owning two (2) cars and over 39% owning at least three vehicles. Only 2% of the City's households do not own a vehicle[14].

Exhibit 2 shows the type of transportation that residents of Bonney Lake Use to get to work.

Exhibit 2: Commute Trips by Travel Mode, Bonney Lake, 2021



Source: ACS Table S0801, 2021

In Bonney Lake, most workers travel 10 or more miles to work in Bonney Lake, and most residents travel 10 or more miles to work outside of the city (see **Exhibit 3**).

[14] US Census, American Community Survey (ACS) Table S2504, 2021

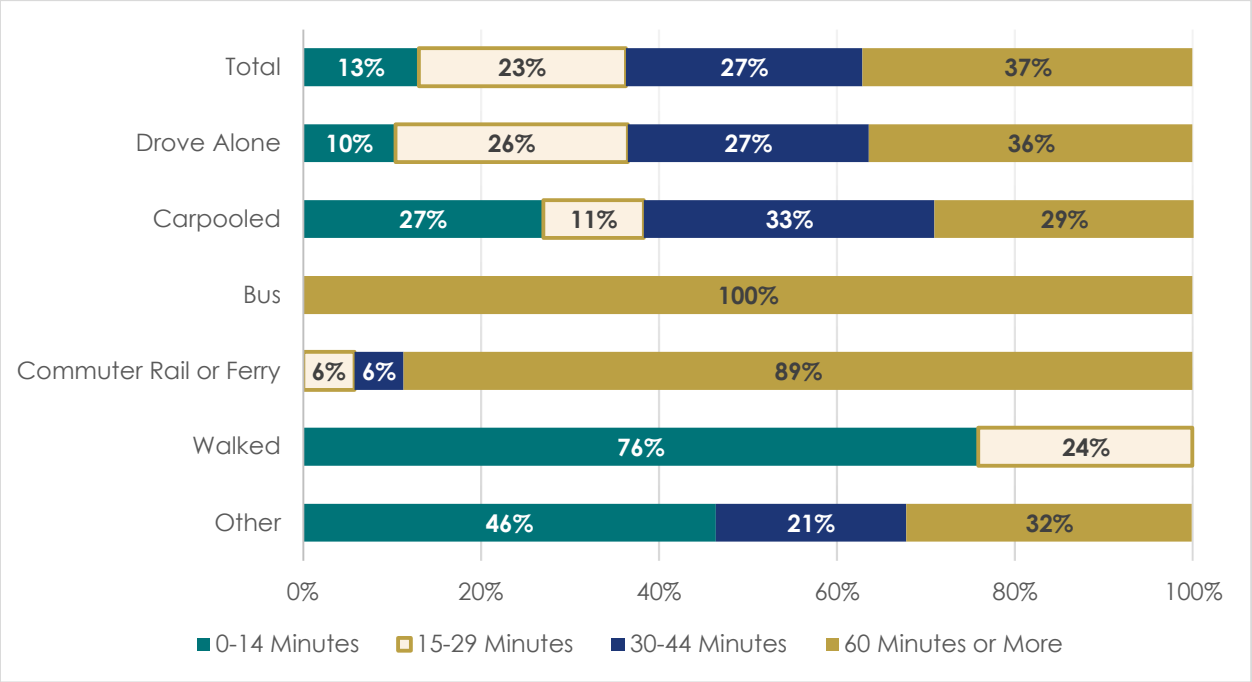
Exhibit 3: Distance Traveled by Workers, Bonney Lake, 2021

Distance Traveled	Count of Workers Employed in Bonney Lake	% of Workers Employed in Bonney Lake	Count of Workers Living in Bonney Lake	% of Workers Living in Bonney Lake
Total All Jobs	**5,376**	**100.0%**	**10,147**	**100.0%**
Less than 10 miles	2,212	41.1%	3,098	30.5%
10 to 24 miles	1,464	27.2%	3,850	37.9%
25 to 50 miles	833	15.5%	2,417	23.8%
Greater than 50 miles	867	16.1%	782	7.7%

Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Exhibit 4 shows how workers commute. The proportion of commuters driving alone or carpooling are experiencing similar commute times to the average worker. Workers commuting by bus are all experiencing commutes of 60 minutes or more. As of 2025, bus service is only available westbound in the morning and eastbound in the evening during peak hours. See **Section 2.5: Transit** for additional information.

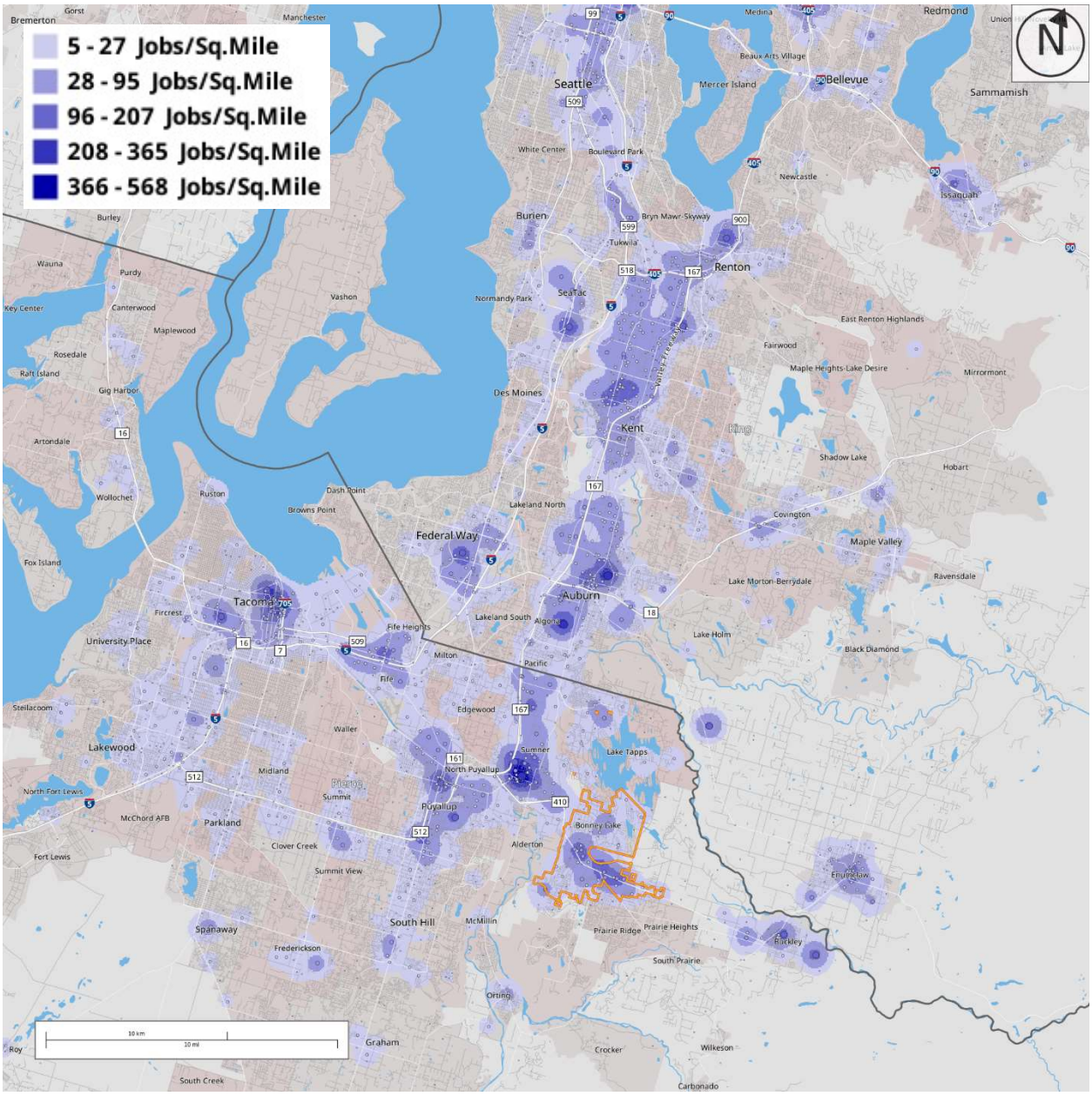
Exhibit 4: Commute Times by Means of Transportation, Bonney Lake, 2021



Source: ACS Table B08134, 2021

Commuters using the Sounder train in Sumner are also experiencing long commutes. This data is consistent with the employment destinations shown in **Exhibit 5**, which shows concentrations along the SR 167 and I-5 corridors near major transportation hubs.

Exhibit 5: Work Destinations from Bonney Lake, 2021

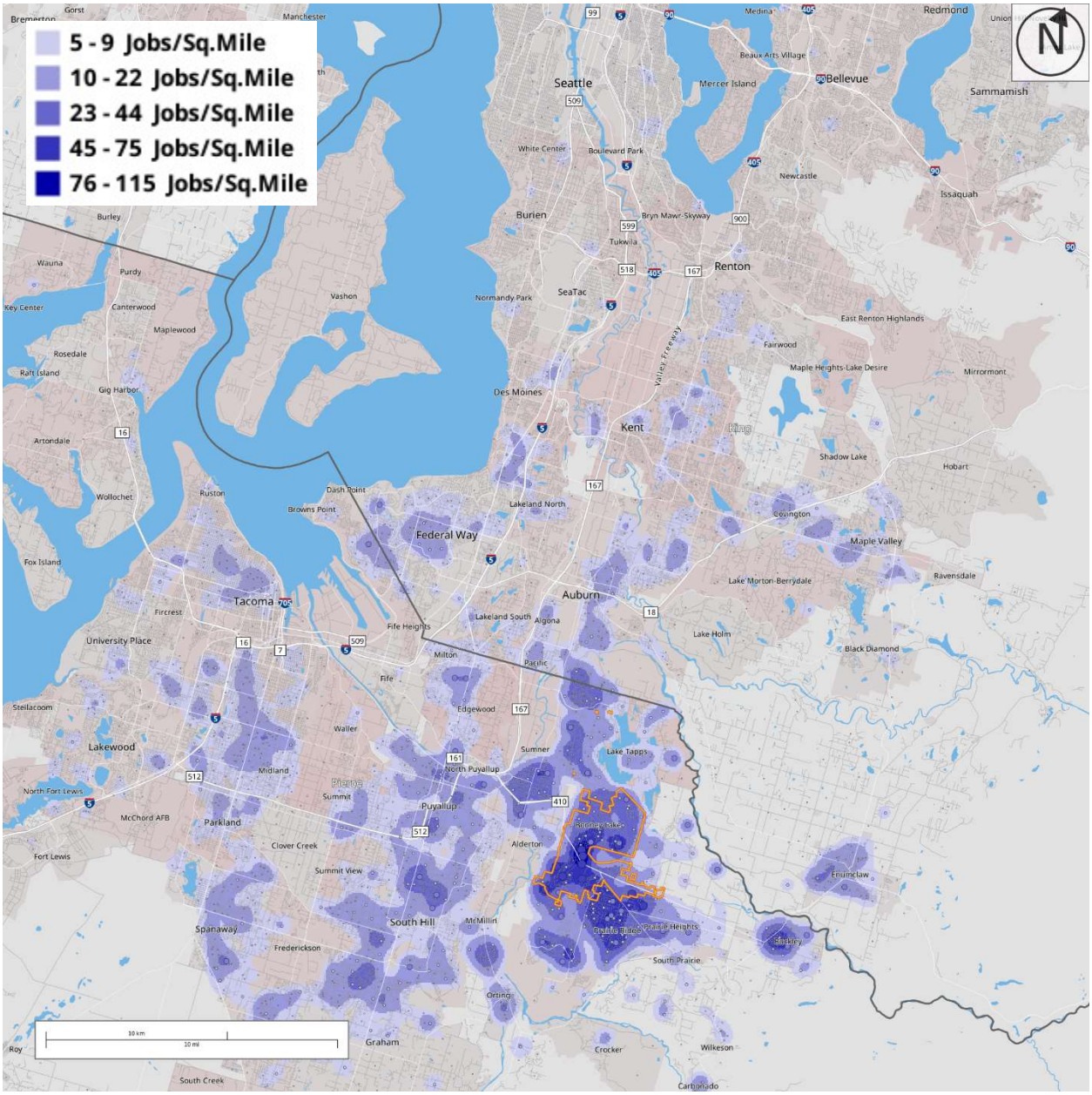


Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Workers commuting to Bonney Lake are primarily traveling from locations 25 miles or less from Bonney Lake, particularly from nearby unincorporated areas, Buckley, Sumner, and

Puyallup (see **Exhibit 6**). The ability of workers to commute to Bonney Lake may be limited by the lack of transit service to and from the City during peak commute hours.

Exhibit 6: Originating Location of Workers Commuting to Bonney Lake, 2021



Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Bonney Lake will likely remain a residential community with residents leaving and returning in peak commute hours. Single-occupant vehicles will remain the most common mode of commuting to jobs in the region now and for the near future.

2.3 TRAFFIC OPERATIONS

The effectiveness of the street system is typically measured by a series of performance metrics that describe both operational efficiency and safety. Depending on how well the existing and expected future street system operates relative to these metrics, the need for and benefit of various transportation system improvements can be identified.

Performance Measures

Street system performance can be assessed based on existing and expected future traffic volumes, levels of service and crash history. When traffic flows smoothly, congestion is minimal, and trips are predictable and efficient. However, when the streets are crowded and congested, travelers can get frustrated as the travel time increases and travel becomes unpredictable. The GMA requires the City to establish service levels for the transportation system and to provide a means for correcting current deficiencies and meeting future needs.

Intersection Level of Service (ILOS)

A qualitative Intersection Level of Service (ILOS) describes the operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. The City has adopted a two-factor ILOS that evaluates both the delay the driver experiences at the intersection and the design capacity of the roadway as compared to the observed traffic volume along the roadway.

The ILOS ranges from "A" (very little delay) to "F" (long delays and congestion), with average delay expressed in seconds per vehicle. Any transportation facility that functions below the adopted ILOS standard is considered "failing". For intersections under street stop sign control, the delay is based on the most difficult movement (typically a left turn from the lower classified street). This element of the ILOS measures the overall functionality of the intersection based on the average delay in each of the legs of the intersection. **Exhibit 7** outlines ILOS in relation to the extent of delay experienced by the average motorist for each level.

While an intersection may appear to operate at an acceptable level of overall delay, it may experience one or more failing legs that can adversely affect traffic operations for certain movements. As a result, the City has added a second factor to the ILOS, which compares the actual number of vehicles on the roadway as compared to the design capacity of the roadway. This ratio is referred to as a volume to capacity (V/C) ratio. The goal is to ensure that an intersection does not actually have a failing leg, which can be hidden if only overall delay is measured.

Any intersection that fails both ILOS measures is considered a failing intersection, and improvements must be made so that the ILOS of the intersection is D or better and has a V/C ratio of 0.9 or less. If the intersection has a delay of E or greater or has a leg that exceeds the adopted V/C ratio is an impacted intersection. In cases where only one of the ILOS measures do not meet the adopted ILOS standard, mitigation measures must be identified to return the intersection to its pre-development Delay and V/C ratio.

For all City intersections except along SR 410, The City has adopted an ILOS of D with a minimum V/C ratio of 0.90 or less for all legs of the intersection.

Exhibit 7: City of Bonney Lake Intersection Level of Service (ILOS) Criteria, 2025

Intersection Delay			V/C Ratios	Type of Delay
Level of Service (LOS) Grade	Average Control Delay (Seconds per Vehicle, Signalized Intersection)	Average Control Delay (Seconds per Vehicle, Unsignalized Intersection)		
A	≤ 10	≤ 10	≤ 0.6	Low or no congestion. Free flow operations at average travel speeds. Vehicles completely unimpeded within the traffic stream.
B	> 10 – ≤ 20	> 10 – ≤ 15	> 0.6 – ≤ 0.7	Reasonably unimpeded operations at average traffic speeds. Maneuverability within traffic stream is slightly restricted.
C	> 20 – ≤ 35	> 15 – ≤ 25	> 0.7 – ≤ 0.8	Moderate Congestion. Stable operations. Ability to maneuver becomes more restrictive.
D	> 35 – ≤ 55	> 25 – ≤ 35	> 0.8 – ≤ 0.9	Heavy congestion. Unstable traffic flow. Passing demand high but passing capacity approaches zero.
E	> 55 – ≤ 80	> 35 – ≤ 50	> 0.9 – ≤ 1.0	Extreme Congestion. Significant delays and average travel speeds less than base condition. Passing is virtually impossible.
F	> 80	> 50	> 1.0	Heavily congested flow with traffic demand exceeding capacity. High delays and queuing expected.

For all SR410 intersections, the City has only adopted an ILOS of D as required by PSRC. The V/C ratio standard does not apply to SR 410 intersections. To address the V/C ratio for roads leading up to SR 410 the City has adopted a screen line V/C level of service standard which is discussed in the **PM Peak Corridor Analysis** in **Section 5.1**.

While the City has reviewed County intersections under the City's methodology, the City's ILOS standards do not apply to intersections in which 50% or more of the legs of the

intersections under the jurisdiction of Pierce County. The reason is that Pierce County has adopted a completely different Level of Service standard based on the percentage of the capacity of the roadway over a 24-hour period. This will impact when the County considers an intersection or roadway to be failing. For these intersections the City will continue to work with Pierce County on improvements to Pierce County intersections.

Signals and Signs

The City uses traffic signals, signs, and pavement markings to move and control traffic efficiently and safely. Stop signs serve a critical function by establishing which approach has control of the intersection. Typically, traffic signals are located at the junction of two (2) higher volume streets where traffic volumes necessitate a signal to control the safe and efficient movement of the traffic flows. Guidelines for determining when an intersection should have a traffic control device, such as a stop sign, traffic signal, or other device, and how those devices should be installed, can be found in the *Manual on Uniform Traffic Control Devices* (MUTCD).

The City currently does not have dedicated annual funding to replace signs that no longer meet reflectivity standards, which can impact traffic safety. The City does have annual funding to refresh or update pavement markings. Traffic signals are maintained by Pierce County under an Interlocal Agreement.

See **Exhibit 1** for locations of traffic signals in and adjacent to Bonney Lake.

Speed Limits

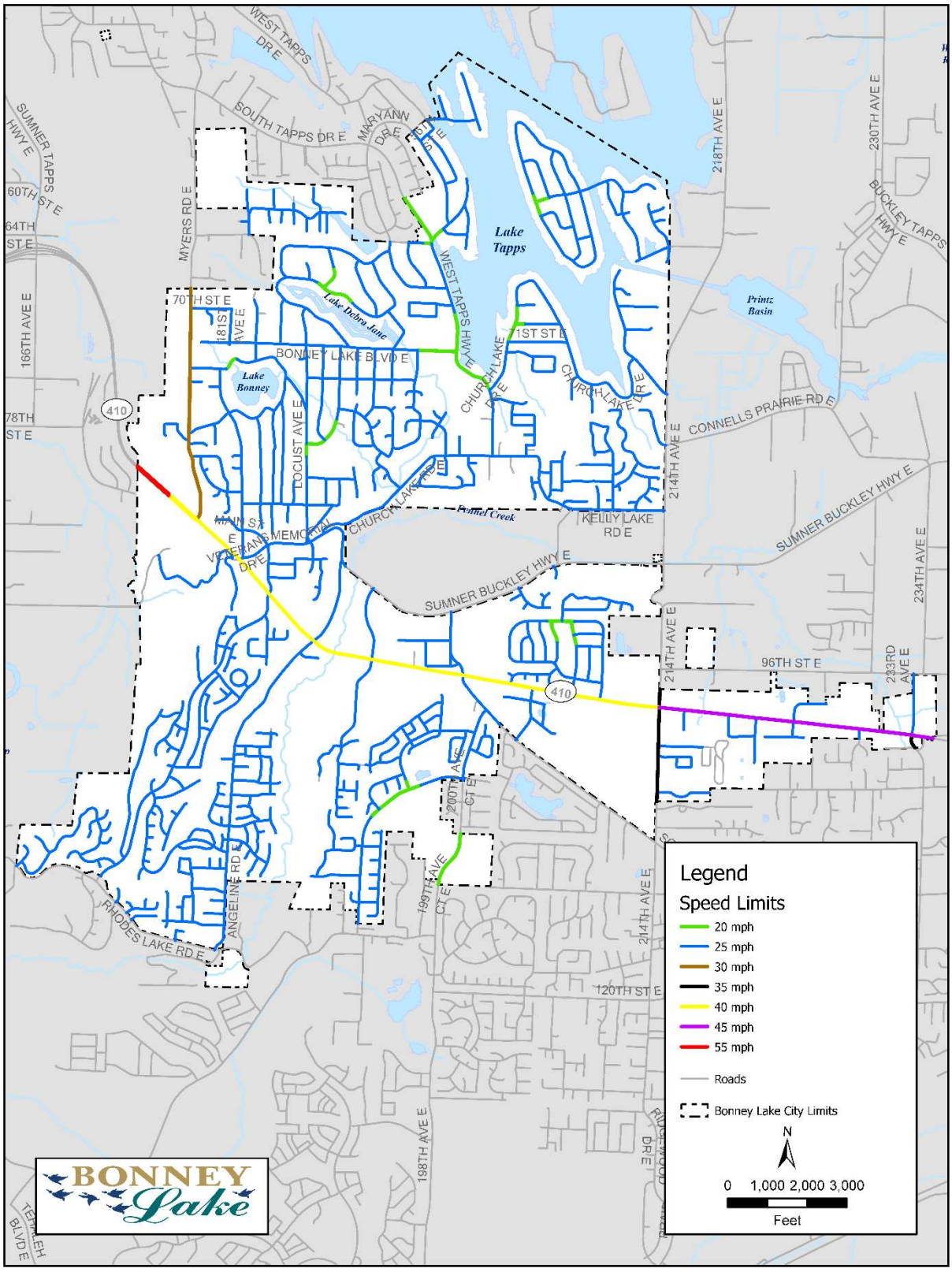
> *Establish speed limits in consideration of traffic conditions, safety requirements, street design, and adjoining land use.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

The City designates speed limits as a way of managing travel speeds. State law establishes a maximum speed limit on city streets, in school zones, and on state highways. Cities may adjust speed limits to reflect local conditions. Speed limits are based on roadway geometry, sight distance, roadway use factors, speed limit consistency, and the observed 85th percentile speed. The 85th percentile speed is the speed at which 85% of the vehicles are traveling at or under a specific speed. This speed is considered reasonable for the roadway unless other factors indicate a different speed is appropriate.

The City adopts speed limits by ordinance in the Bonney Lake Municipal Code (BLMC).

Speed limits in the City as of June 2025 are shown in **Exhibit 8**.

Exhibit 8: Speed Limits, City of Bonney Lake, 2025



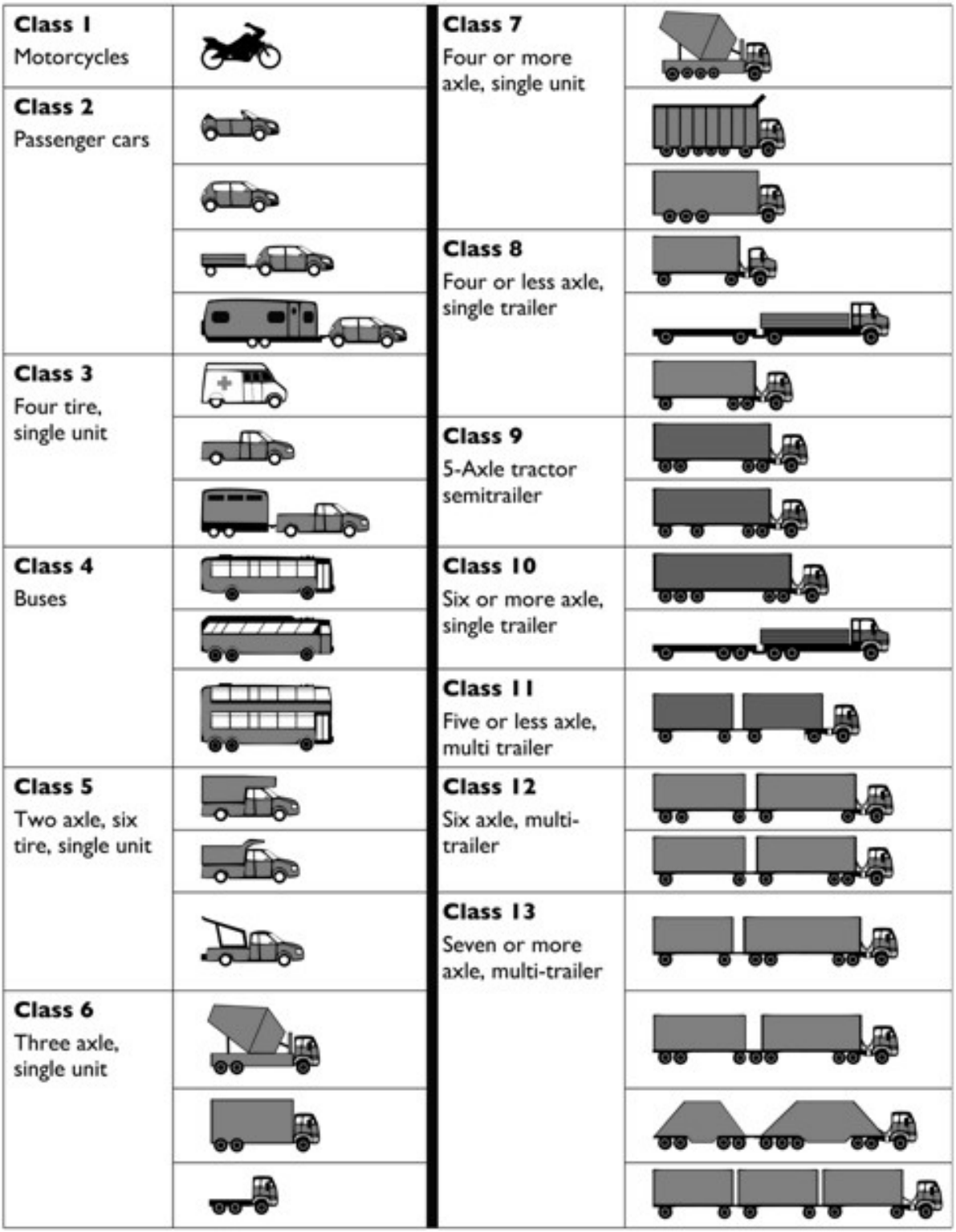
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Traffic Volumes

Hourly Vehicle Classification Counts (2023 Data)

Hourly vehicle classification counts on selected study area roadways and PM Peak Hour turning movement counts at study area intersections were collected to inform this Element. Vehicle counts are classified based on the 13 vehicle category classifications established by the Federal Highway Administration, illustrated in **Exhibit 9**.

Exhibit 9: Federal Highway Administration Vehicle Category Classification, 2025



Source: Courtesy of Federal Highway Administration. Available online at: https://www.fhwa.dot.gov/policyinformation/tmguide/tmg_2013/vehicle-types.cfm

Vehicle classification counts were taken over a three (3) day period from Tuesday, February 21, 2023, through Thursday, February 23, 2023. Data was collected in 15-minute increments that were summed to hourly volumes from 12:00 AM (midnight) to 11:59 PM on each of the three (3) days. Vehicle classification data was collected for each of the various vehicle types shown in **Exhibit 9,** including bicycles. Hourly volume data was then averaged and summarized in **Exhibit 10**.

Most city streets that were surveyed have a low level of truck activity, generally less than 1% over the course of a typical weekday. On W Tapps Hwy E, north of Bonney Lake Blvd E, nearly 2% of daily traffic includes medium and heavy duty trucks. Truck traffic is more dominant on the SR 410 corridor, which generally passes east/west through the City. The largest category of trucks observed were heavy duty trucks.

Exhibit 10: Daily Vehicle Classification Counts, City of Bonney Lake, 2023

Rd and Travel Direction	Vehicle Classifications				
	Bicycles	Motorcycles, Cars, Buses, Light Duty Trucks[15]	Medium Duty Trucks[16]	Heavy Duty Trucks[17]	Total
W Tapps Hwy, North of Bonney Lake Blvd E					
Northbound	4	2,067	5	29	2,101
Southbound	5	2,512	7	40	2,560
Total	***9***	***4,580***	***12***	***69***	***4,661***
Percent		***98.2%***	***0.3%***	***1.5%***	***100%***
Bonney Lake Blvd E, West of W Tapps Hwy E					
Eastbound	1	568	1	4	573
Westbound	0	740	4	4	748
Total	***1***	***1,308***	***5***	***8***	***1,321***
Percent		***99.0%***	***0.4%***	***0.6%***	***100%***
Locust Ave E, North of 80th Ave E					
Northbound	1	1,197	3	4	1,204
Southbound	1	1,529	4	8	1,541

[15] Includes FHWA Class 1 (Motorcycles), Class 2 (Passenger Cars), Class 3 (Other Two-Axle, Four-Tire Single Unit Vehicles), Class 4 (Buses), and Class 5 (Two-Axle, Six-Tire, Single-Unit Trucks).
[16] Includes FHWA Class 6 (Three-Axle Single-Unit Trucks), Class 7 (Four or More Axle Single-Unit Trucks, and Class 8 (Four or Fewer Axle Single-Trailer Trucks).
[17] Includes FHWA Class 9 (Five-Axle Single-Trailer Trucks), Class 10 (Six or More Axle Single-Trailer Trucks), Class 11 (Five or Fewer Axle Multi-Trailer Trucks), Class 12 (Six-Axle Multi-Trailer Trucks), and Class 13 (Seven or More Axle Multi-Trailer Trucks).

Rd and Travel Direction	Vehicle Classifications				
	Bicycles	Motorcycles, Cars, Buses, Light Duty Trucks[15]	Medium Duty Trucks[16]	Heavy Duty Trucks[17]	Total
Total	***2***	***2,726***	***7***	***12***	***2,745***
Percent		***99.3%***	***0.3%***	***0.4%***	***100%***
Veterans Memorial Dr E, West of Locust Ave E					
Eastbound	8	6,632	21	132	6,785
Westbound	9	7,274	29	67	7,370
Total	***17***	***13,906***	***50***	***199***	***14,155***
Percent		***98.2%***	***0.4%***	***1.4%***	***100%***
Sky Island Dr E, West of 184th Ave E					
Eastbound	0	3,896	1	6	3,903
Westbound	4	3,283	2	9	3,294
Total	***4***	***7,179***	***3***	***15***	***7,197***
Percent		***99.8%***	***0.0%***	***0.2%***	***100%***
Sky Island Dr E, North of Rhodes Lake Rd E					
Northbound	1	2,056	1	8	2,065
Southbound	2	1,457	1	6	1,464
Total	***3***	***3,513***	***2***	***14***	***3,529***
Percent		***99.5%***	***0.01%***	***0.04%***	***100%***
Angeline Rd, North of Rhodes Lake Rd E					
Northbound	2	1,040	1	5	1,046
Southbound	1	949	0	2	951
Total	***3***	***1,989***	***1***	***7***	***1,997***
Percent		***99.6%***	***0.0%***	***0.04%***	***100%***
SR 410, West of Myers Rd E					
Eastbound	51	26,757	145	876	27,778
Westbound	47	28,710	98	344	29,152
Total	***98***	***55,467***	***243***	***1,220***	***56,930***
Percent		***97.4%***	***0.4%***	***2.2%***	***100%***

Road and Travel Direction	FHWA Vehicle Classifications				
	Bicycles	Motorcycles, Cars, Buses, Light Duty Trucks[15]	Medium Duty Trucks[16]	Heavy Duty Trucks[17]	Total
SR 410, West of 233rd/234th Ave E					
Eastbound	13	9,888	64	201	10,153
Westbound	21	11,178	46	234	11,458
Total	***34***	***21,066***	***110***	***435***	***21,611***
Percent		***97.5%***	***0.5%***	***2.0%***	***100%***

Source: SCJ Alliance, 2025.
Note: Bicycle counts reflect daily counts at the specified location.

Peak Hour and Daily Roadway Segment Volumes (2023)

Exhibit 11 presents a summary of AM and PM Peak Hours, as well as daily traffic on a variety of City streets and along SR 410 through the City. Most City streets that were surveyed are carrying less than 5,000 daily trips (the total of both directions) with the exceptions of Sky Island Dr E west of 184th Avenue E (about 0.10 miles south of the intersection with SR 410), Veterans Memorial Dr E north of the connection with the Sumner-Buckley Hwy, and 199th/198th Ave E between Mountain View Middle School and Rhodes Lake Rd E.

As the data shows there are over 15,000 vehicles along the roadway segment near Mountain View Middle School and Bonney Lake High School during a typical weekday. Actual AM and PM Peak Hours vary depending on location, but most occur during normal commuter periods (typically 7:00 to 9:00 AM and 3:00 to 5:00 PM). In some locations, the AM peak hour occurs between 11:00 AM and 12:00 PM, mostly due to heavy through volumes on SR 410 or the types of nearby land uses.

SR 410 carries a substantially higher level of peak hour and daily traffic volumes than any City street, ranging from a daily high of nearly 57,000 vehicles on the west end of the City near Myers Road E to about 21,000 vehicles west of 233rd/234th Avenue E at the east end of the city. Depending on the adjacent land use, the PM Peak Hour may occur outside of the typical 4:00 to 6:00 PM Peak period, industrial areas (which may have a midday peak rather than an earlier AM peak) or around schools (which may have an earlier afternoon peak). The traffic volumes and ILOS presented in this Element use traffic volume counts from typical 4:00 to 6:00 PM Peak period.

Exhibit 11: Traffic Volumes on Selected Roadway Segments, City of Bonney Lake, 2023

Rd and Travel Direction	AM Peak Hour	PM Peak Hour	Daily
W Tapps Hwy, North of Bonney Lake Blvd E			
Northbound	217	204	2,101
Southbound	187	314	2,560
Total	***404***	***518***	***4,661***
Bonney Lake Blvd E, West of W Tapps Hwy E			
Eastbound	48	52	573
Westbound	51	80	748
Total	***99***	***131***	***1,321***
Locust Ave E, North of 80th Ave E			
Northbound	61	102	1,204
Southbound	112	162	1,541
Total	***173***	***265***	***2,745***
Veterans Memorial Dr E, West of Locust Ave E			
Eastbound	301	631	6,785
Westbound	602	459	7.370
Total	***903***	***1,090***	***14,155***
Sky Island Dr E, West of 184th Ave E			
Eastbound	797	531	3,903
Westbound	203	657	3,294
Total	***1,000***	***1,188***	***7,197***
Sky Island Dr E, North of Rhodes Lake Rd E			
Northbound	206	189	2,065
Southbound	64	126	1,464
Total	***270***	***315***	***3,529***
Angeline Rd, North of Rhodes Lake Rd E			
Northbound	79	134	1,046
Southbound	96	84	951
Total	***174***	***218***	***1,997***
SR 410, West of Myers Rd E			
Northbound	1,309	2,171	27,778
Southbound	2,327	1,637	29,152
Total	***3,636***	***3,808***	***56,930***

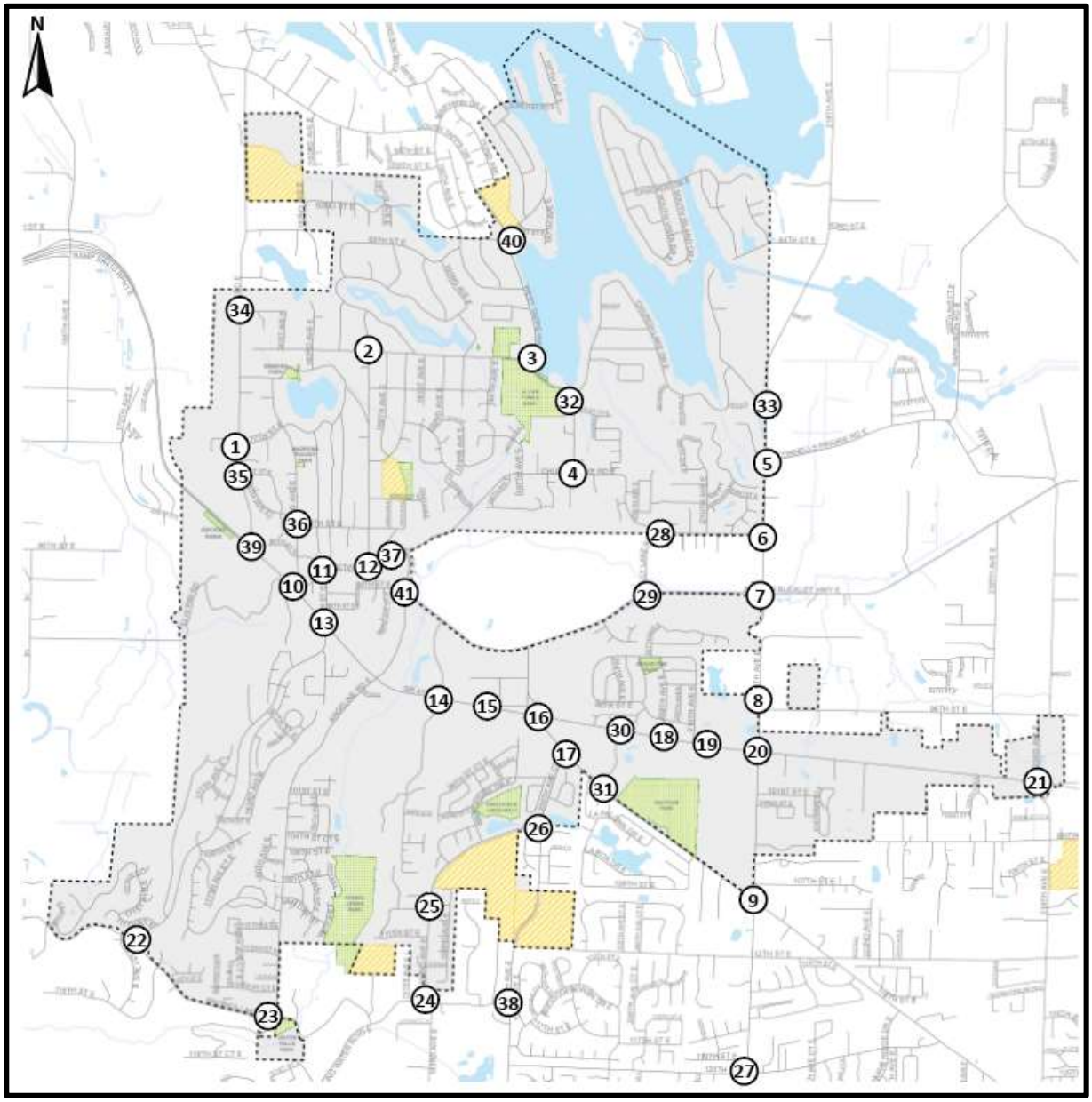
Rd and Travel Direction	AM Peak Hour	PM Peak Hour	Daily
SR 410, West of 233rd/234th Ave E			
Northbound	707	737	10,153
Southbound	810	860	11,458
Total	***1,517***	***1,597***	***21,611***
Church Lake Rd E, West of W Tapps Hwy E			
Northbound	75	128	1,528
Southbound	124	148	1,701
Total	***199***	***276***	***3,229***
Kelly Lake Rd E, West of 214th Ave E			
Eastbound	100	198	1,816
Westbound	118	211	1,949
Total	***218***	***409***	***3,764***

Source: SCJ Alliance, 2025.

PM Peak Hourly Traffic Counts

PM Peak Hour traffic counts were collected at 41 intersections, including along SR 410 as it passes through the City. These counts were collected between the hours of 4:00 and 6:00 PM on February 21, 22 and 23 of 2023, and on March 1, 2023. All counts were taken on either Tuesday, Wednesday, or Thursday during a non-holiday even under normal weather conditions. The locations for each of the 41 study intersections are shown in **Exhibit 12**. Traffic data for each intersection is included in **Appendix D**.

Exhibit 12: PM Peak Hour Traffic Count Locations, City of Bonney Lake, 2023



Source: SCJ Alliance, 2025.

Intersection Operations

An analysis was conducted of existing traffic operations based on the peak hour traffic counts, existing lane configurations and existing traffic control. This analysis is useful in that it identifies locations with heavy congestion that may need improvement. These traffic volumes were also used as the basis for future year traffic volume projections as discussed in **Section 5: Future Multimodal System**.

Traffic operations analysis at intersections is based on the performance standards discussed in **Intersection Level of Service (ILOS)**, including delay-based Levels of Service (LOS) and volume/capacity (V/C) ratios. ILOS was evaluated based methodologies in the Transportation Research Board's *Highway Capacity Manual*. **Exhibit 13** summarizes the results of this analysis.

All intersections operated by Bonney Lake are currently operating at an acceptable ILOS D or better. Several intersections also experience V/C ratios greater than the standard of 0.90 for specific vehicle movements at signalized intersections, including one location exceeding 1.00 (S Prairied Rd E at 200th Ave Ct E).

Exhibit 13: PM Peak Hour Intersection Operations Analysis, City of Bonney Lake, 2023

Intersection Number (See Exhibit 12) and Name	Intersection Control Type	ILOS (Delay in Seconds)	Worst V/C
1 Myers Rd E at 77th St E	Stop Sign	A (9.8)	0.04
2 Bonney Lake Blvd E at Locust Ave E	All Way Stop	A (8.1)	0.15
3 Bonney Lake Blvd E at West Tapps Hwy E	All Way Stop	B (10.9)	0.47
4 Church Lake Rd E at West Tapps Hwy E	Stop Sign	C (16.1)	0.53
5 214th Ave E at Connells Prairie Rd[18]	Stop Sign	**E (44.6)**	0.47
6 214th Ave E at Kelly Lake Rd E[18]	Signal	B (14.8)	0.89
7 214th Ave E at Sumner-Buckley Hwy[19]	Signal	B (15.1)	0.62
8 214th Ave E at 96th St[19]	Signal	A (5.4)	0.41
9 214th Ave E at S Prairie Rd E[19]	Signal	C (20.3)	0.82
10 SR 410 at Veterans Memorial Dr E/181st Ave E	Signal	B (14.5)	0.72
11 Veteran Memorial Dr E at Main St E	Signal	B (14.7)	0.74
12 Veteran Memorial Dr E at Locust Ave E/188th Ave E	Signal	B (11.2)	0.78
13 SR 410 at Sky Island Dr E	Signal	C (21.4)	0.86
14 SR 410 at 192nd Ave E	Signal	C (27.3)	0.92
15 SR 410 at 195th Ave E	Signal	D (35.1)	0.89
16 SR 410 at 198th Ave/S Prairie Rd E	Signal	D (37.9)	0.88
17 S Prairie Rd E at 200th Ave Ct E	Signal	D (42.9)	**1.19**
18 SR 410 at 208th Ave E	Signal	C (24.0)	0.70

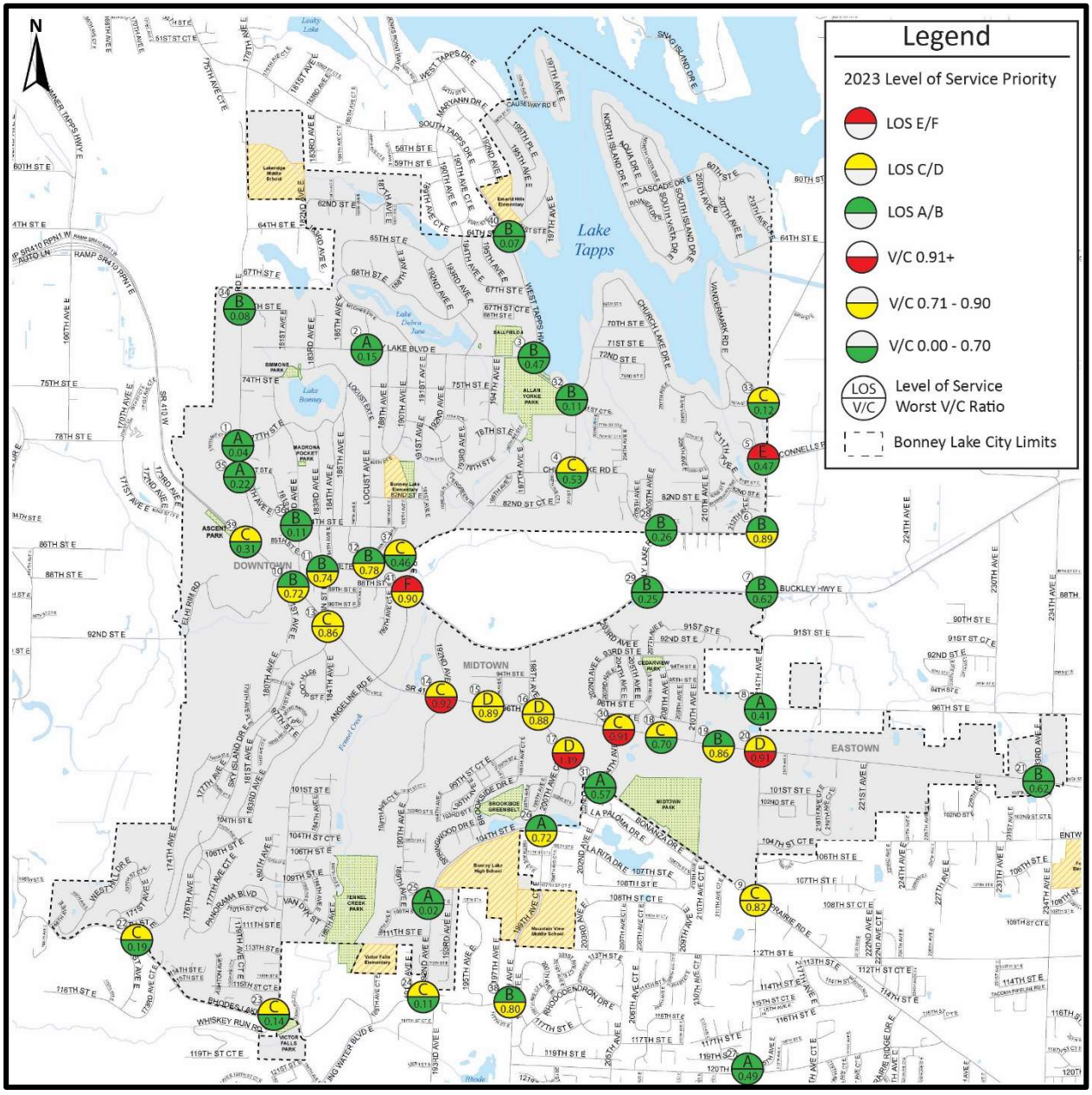
[18] Bonney Lake is responsible for one leg of this intersection; Pierce County is responsible for the remainder.
[19] Pierce County is responsible for this intersection. It is included due to its influence on City traffic patterns and intersections.

Intersection Number (See Exhibit 12) and Name	Intersection Control Type	ILOS (Delay in Seconds)	Worst V/C
19 SR 410 at 211th Ave E	Signal	B (11.6)	0.86
20 SR 410 at 214th Ave E	Signal	D (41.8)	0.91
21 SR 410 at 233rd Ave E	Signal	B (10.6)	0.62
22 Rhodes Lake Rd E at Sky Island Dr E[19]	Stop Sign	C (22.7)	0.19
23 Rhodes Lake Rd E at Angeline Rd E[18]	Stop Sign	C (19.1)	0.14
24 Rhodes Lake Rd E at 192nd Ave E[19]	Stop Sign	C (16.3)	0.11
25 109th St E at 192nd Ave E	Stop Sign	A (9.9)	0.02
26 104th St E at 199th Ave E/200th Ave Ct E[18]	Signal	A (5.5)	0.72
27 214th Ave E at 120th St E[19]	Signal	A (6.5)	0.49
28 Church Lake Rd E at Kelly Lake Rd E[18]	Stop Sign	B (14.2)	0.26
29 Sumner-Buckley Hwy at Kelly Lake Rd E[19]	Stop Sign	B (12.9)	0.25
30 SR 410 at 204th Ave E	Signal	C (20.5)	0.91
31 S Prairie Rd E at 204th Ave E[18]	Signal	A (9.5)	0.57
32 Church Lake Dr E at W Tapps Hwy E	Stop Sign	B (13.5)	0.11
33 214th Ave E at Vandermark Rd E[18]	Stop Sign	C (18.2)	0.12
34 Myers Rd E at 70th St E	Stop Sign	B (11.3)	0.08
35 Myers Rd E at 81st St E	All Way Stop	A (8.4)	0.22
36 182nd Ave E at 84th St E	Stop Sign	B (11.8)	0.11
37 Church Lake Rd E at Veterans Memorial Dr E	Stop Sign	C (21.1)	0.46
38 Rhodes Lake Rd E at 198th Ave E[19]	Signal	B (11.6)	0.80
39 SR 410 at Myers Rd E	Stop Sign	C (23.6)	0.31
40 S Tapps Dr E at W Tapps Hwy E	Stop Sign	B (11.4)	0.07
41 Veterans Memorial Dr E and Sumner-Buckley Hwy at Angeline Rd E	Stop Sign	**F (81.7)**	0.90

Source: SCJ Alliance, 2025

Analysis results are also presented in **Exhibit 14**. The letter in the top half of the circle is the ILOS and the bottom half of the circle is the worst V/C ratio for that intersection. The traffic operations analysis worksheets are included in **Appendix E**.

Exhibit 14: PM Peak Hour Intersection Operations, City of Bonney Lake, 2023



Source: SCJ Alliance, 2025

2.4 AIR, RAIL, AND FREIGHT TRANSPORTATION

Air Transportation

Seattle-Tacoma International Airport provides service to Western Washington. The airport is approximately 26 miles to the northwest of Bonney Lake and accessible from SR 410

and I-5. Two (2) small single-runway private airports are located in Buckley, WA, approximately three (3) miles from Bonney Lake: the Flying H Ranch Airport and Albritton Airport.

Rail Transportation

There is no rail transportation through Bonney Lake.

Freight Mobility

The Washington State Freight and Goods Transportation System (FGTS) is used to classify state highways, county and city roads based on the average annual gross truck tonnage they carry. Freight corridors with statewide significance, usually designated as Strategic Freight Corridors, are those routes that carry an average of four (4) million or more gross tons by truck annually. The tonnage classifications used for designating the FTGS are as follows:

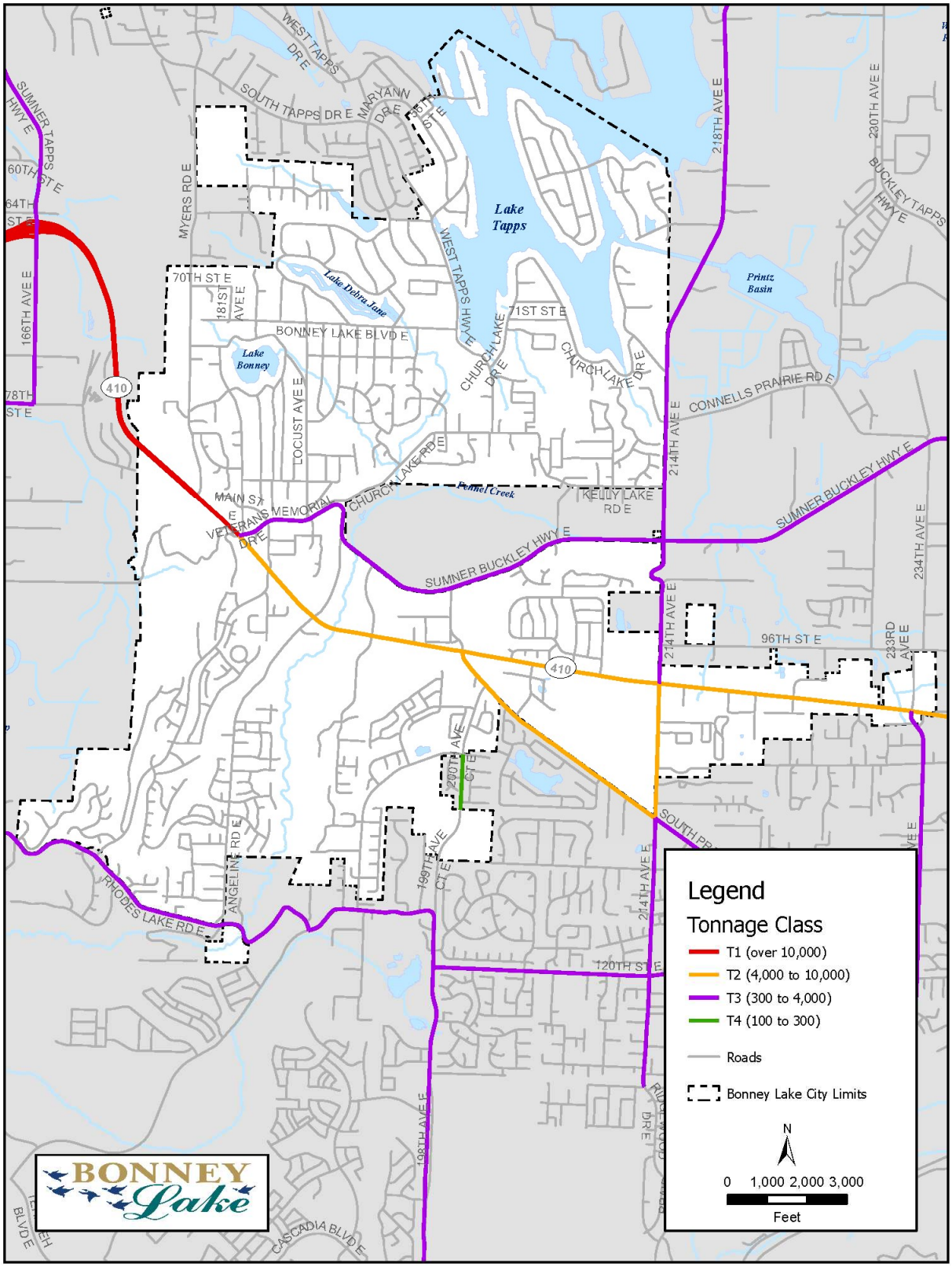
- T1 More than 10 million tons per year
- T2 4 million to 10 million tons per year
- T3 300,000 to 4 million tons per year
- T4 100,000 to 300,000 tons per year
- T5 At least 20,000 tons in 60 days

The only state facility in the City is SR 410, classified as a T1 truck route from SR 167 to Veterans Memorial Blvd E and as a T2 truck route from Veterans Memorial Blvd E to the Pierce/King County line. There are five (5) City roads identified on the FGTS map, as shown on **Exhibit 15**:

- T2 S Prairie Rd E
- T2 214th Ave (South of SR410)
- T3 214th Ave E (North of SR410)
- T3 233rd Ave E/234th Ave E (South of SR 410)
- T3 Veterans Memorial Blvd E

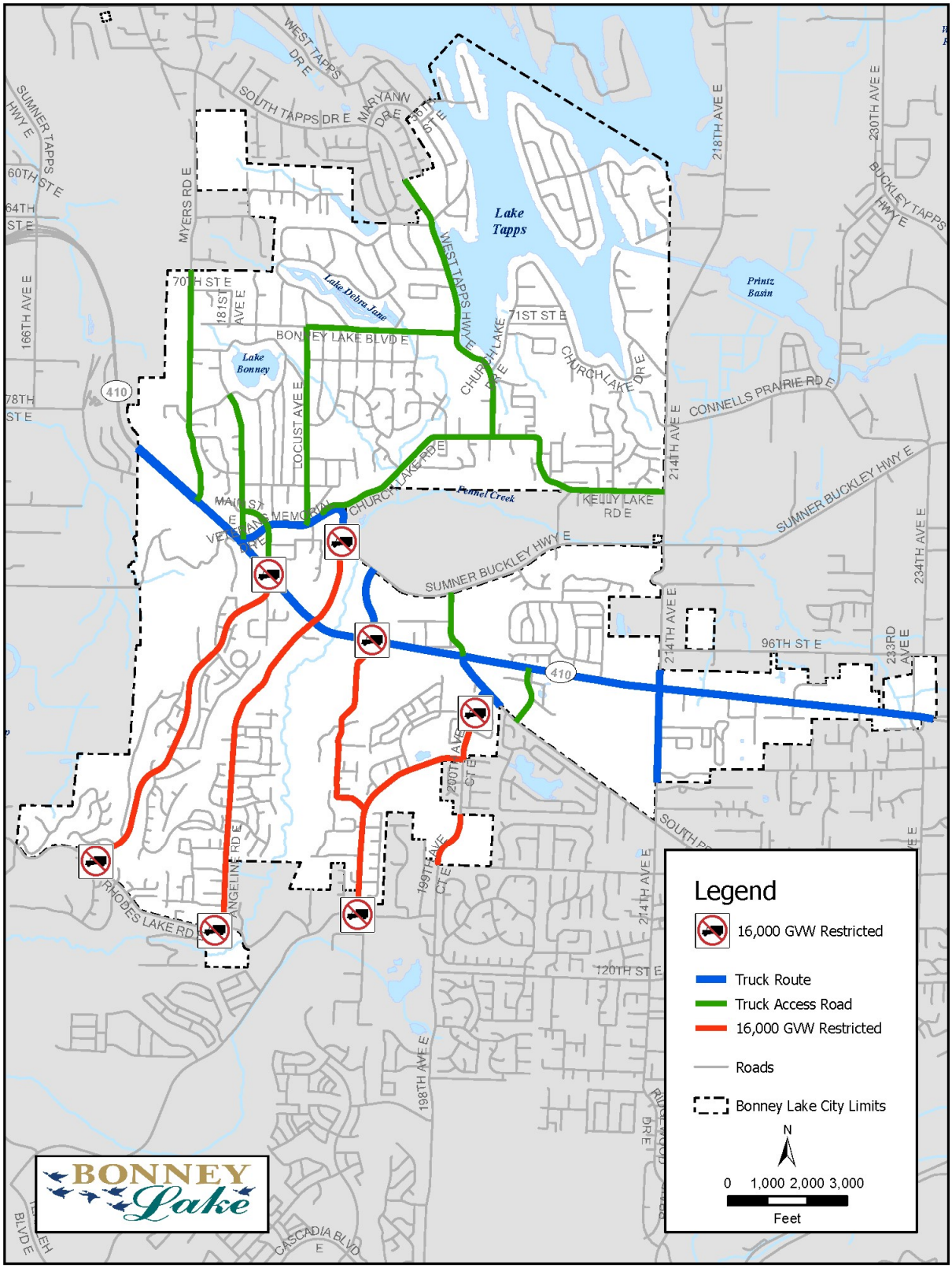
Veterans Memorial Blvd E is close to exceeding the tonnage range for a T3 truck route and is expected to be reclassified to a T2 truck route in the upcoming planning period.

Exhibit 15: Freight and Goods Transportation Classification, City of Bonney Lake, 2025



While most regional trips will occur on SR 410, the City has also designated specific commercial truck access routes due to concerns related to size, weight, emissions, and noise. Trucks accelerate slowly, require a large amount of road space, have large turning radii, and break down pavement faster because of their weight. They are noisier than cars because of their larger engines, higher engine placement, and use of air brakes. They also emit more exhaust than typical passenger vehicles. To reduce the potential for conflicts between truck and passenger vehicle traffic and to reduce adverse effects on nearby uses, the City has designated truck routes as shown in **Exhibit 16**.

Exhibit 16: Truck Routes, City of Bonney Lake, 2025



2.5 TRANSIT

> *Encourage public transportation service to serve residential neighborhoods and commercial centers.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

Improved transit service is integral to meeting the City's land use goals and the travel needs of the community. Expanding service improves mobility within the City and provides more connections to regional employment centers.

Regional Service

Sound Transit provides regional express bus service, commuter rail, and light rail in the Puget Sound Region. The only bus route in Bonney Lake operated by Sound Transit is Route 596, which provides service from the Bonney Lake Transit Center to the Sumner Station during the morning and afternoon peak commute hours to coincide with the departure and arrival of the Sounder Commuter Train.

The "Sounder" runs morning and evening trips between Lakewood and Seattle. The only other transit service provided at the Sumner Station is one Sound Transit bus that provides service from the Puyallup Station to downtown Seattle.

Local Service

At this time, there is no local transit service in the Bonney Lake area. Pierce Transit was previously the public transit provider for the Bonney Lake area. However, due to a significant decline in sales tax collections, the Pierce Transit Board of Directors voted in 2011 to end all bus service to the eastern parts of Pierce County. Following that decision, Bonney Lake along with other eastern Pierce County cities withdrew from the Pierce Transit Regional Transportation Area (RTA).

The City should consider studying the provision of local shuttle and rideshare opportunities within Bonney Lake with connections to surrounding areas such as Tehaleh, Buckley, and Enumclaw.

Paratransit

Pierce County SHUTTLE is a paratransit service provided by Pierce Transit; however, this service is only provided to locations within ¾ of a mile of a Pierce Transit fixed route. As Bonney Lake is outside of the Pierce Transit RTA, this service is not available to disabled residents of Bonney Lake.

Beyond the Borders, a free transportation service provided by Pierce County Community Connections, provides service in Bonney Lake since the City is outside of Pierce Transit's RTA. The service provides eligible older adults, individuals with disabilities, people with lower incomes and youth (age 12 to 17) with a shuttle between Bonney Lake and Sumner on weekdays.

The City operates a free shuttle service to and from the City's Senior Center. The service operates on a reservation system for seniors, and is only available for local trips during weekdays, but not in the evening or on weekends.

Rideshare

While Bonney Lake is no longer in the Pierce Transit RTA, Pierce Transit still provides rideshare services to Bonney Lake residents. This program provides a vehicle for up to 15 people to share a commute to work. Costs are based on the number of miles the rideshare travels each day. As of June 2025, 14 rideshares originate from Bonney Lake:

- Auburn
  - Boeing (1)
- Bellevue
  - Amazon (1)
  - T-Mobile (1)
- Issaquah
  - Costco (1)
- Redmond
  - Nintendo (1)
- Renton
  - Boeing (4)
  - Kenworth (1)
- Seattle
  - Amazon (1)
  - Boeing (2)
- Tacoma
  - Pierce County (1)

2.6 TRIP REDUCTION

> *Assure a circulation system that is harmonious with the residential, business, recreational and natural features of the community.*
>
> *- Bonney Lake Comprehensive Plan (1985)*

Since the passage of the Commute Trip Reduction (CTR) Act in 1991 (incorporated into the Clean Air Act), Washington State has required cities to reduce trips by encouraging large employers to develop plans that motivate employees to commute in ways other than driving alone. Jurisdictions are required to adopt a CTR program that applies to all major employers within the city limits. The law defines a major employer as one that employs one hundred or more full-time employees at a single work site who begin their workday between 6:00 to 9:00 AM. Since there are currently no major employers within the city limits, this requirement does not apply to Bonney Lake.

CTR program helps to make the transportation system work more efficiently encouraging people to ride the bus, vanpool, carpool, walk, bike, work from home, or compress their workweek and helps achieve the State's goals for reducing VMT. A higher proportion of trips made in high-occupancy vehicles, or by walking or bicycling, or avoided altogether during the morning commute also means reduced delay for everyone traveling on the system.

In 2008, the State adopted the goal of reducing Vehicle Miles Travel (VMT) by 18% by 2020, 30% by 2035 and 50% by 2050 to support the State's policy that transportation plans should promote energy conservation, enhance health communities, and protect the environment. The State successfully met the 2020 target, and in 2021, the Legislature directed various state agencies to develop a set of tools and best practices to assist agencies in making progress towards the reduction benchmarks.

The City has taken steps towards using the existing capacity more efficiently, reducing the peak transportation demands, and decreasing VMT, such as:

- Encouraging land use patterns in which people live close to jobs and services, allowing shorter and fewer vehicle trips.
- Requiring sidewalks on all new or rebuilt streets.
- Requiring new subdivisions to provide pedestrian connections to nearby activity centers.
- Building sidewalks accessing schools, parks, governmental facilities, and city centers.
- Developing a network of bicycle lanes.
- Linking the City's multimodal network to regional networks.

Environmentally sustainable transportation systems not only focus on reducing air pollutants and greenhouse gases, but also consider the environmental impacts on the immediate neighborhood from noise, light, and glare, and regional impacts to water quality.

Projects with impacts on the local community require a balanced and sensitive approach to planning, design, and construction. The City and its project partners need to understand and implement collaborative approaches that allow all stakeholders to participate in the vision, design, and construction of the project. Context sensitive design is a way to strive for balance. Projects must be supported by sound engineering standards and practices while at the same time incorporate the needs of the City and neighborhoods involved.

2.7 PARKING

Parking is simultaneously a land use issue, a mobility issue, and a community character issue. From a mobility perspective, the availability of parking influences transportation choice and traffic flow. The locations of driveways and parking lot entrances can lead to traffic delays or reduce the safety and efficiency of a street. Parking can also affect the ability of bicycles to use the street.

Although Bonney Lake wishes to be less auto oriented, the reality is that most residents will continue to own cars and will continue to use these cars for daily errands, work trips, shopping, and other activities. The challenge is to provide enough parking to meet these needs without providing so much parking that additional unnecessary trips are encouraged. The design and location of parking is a key part of the solution.

The practical impact of the City's parking strategies is that conditions will not change in most of the City, particularly in low- and medium-density residential neighborhoods. The focus will be on the higher-density residential, commercial, and mixed-use development areas making parking facilities more efficient, while de-emphasizing parking as a feature of Bonney Lake's landscape.

This will mean greater use of shared parking lots that support multiple uses at different times of the day, more flexible and accurate parking standards, and continued use of parking facilities that support transit. It also will mean greater accommodation of bicycle parking, and preferential parking for car-share vehicles and carpools. This approach will also reduce the cost of development and redevelopment in the City.

3. EXISTING ACTIVE (NON-MOTORIZED) TRANSPORTATION SYSTEM

> *Reduce the dependency of the automobile by providing opportunities for other modes of travel such as transit facilities, pedestrian ways, and bicycle trails.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

Active transportation is any self-propelled, human-powered mode of transportation, such as walking or bicycling. While this plan mainly focuses on addressing the needs of people walking and cycling, active transportation improvements can benefit multiple other forms of transportation as well, such as skateboarding, scooters, and other micro-mobility methods, wheelchairs and other mobility-assistance methods.

Walking and bicycling are efficient and low-cost modes of travel that can help to reduce traffic congestion and improve air quality. Walking and bicycling also help develop and maintain livable communities, make neighborhoods safer and friendlier, save on motorized transportation costs and reduce transportation-related environmental impacts including air quality emissions and noise.

These modes provide flexibility in the transportation system by offering alternative mobility options, particularly in combination with transit service, for people of all ages and abilities. Additionally, integrating walking and bicycling into daily activities is a key to improving public health and reducing Washington's obesity crisis.

In 2005, the Washington State Legislature passed a bill that amended the State's Growth Management Act to require consideration of physical activity and non-motorized transportation in the planning process. Sections of the bill state:

> *Whenever possible, the land use element should consider using urban planning approaches that promote physical activity.*
>
> *(The) Pedestrian and bicycle component (is) to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles.*

This requirement is conditioned on the availability of state funds (RCW 36.70A.070(10)). While the City is not required to comply with state law at this time, the City is still including pedestrian and bicycle facilities due to their importance to the City and to facilitate compliance with regional and local transportation planning efforts by PSRC and Pierce County.

In 2007, the City adopted its first plan to improve non-motorized transportation, the *Bonney Lake Non-Motorized Plan*, to promote mobility without the aid of motorized vehicles to encourage healthy recreational activities, reduce vehicle demand on City roadways, and enhance safety within the community.

In 2013, Washington State adopted "Complete Streets" legislation with the objective of further encouraging the development of non-motorized transportation facilities. WSDOT defines Complete Streets as an approach to the planning, funding and provision of a transportation system that accommodates all modes of travel that "is more accessible, comfortable, economical, sustainable and efficient in the travel space provided." The City adopted a Complete Streets ordinance in 2021 (see Chapter 12.24 of the Bonney Lake Municipal Code).

The concept of Complete Streets includes specific requirements for the pedestrian, bicyclist and transit rider experience. It is an approach to making the "transportation system work better for all, strengthening communities, expanding options for non-drivers, and making travel more predictable for everyone". Planning and designing Complete Streets projects uses a set of tools or treatments with a focus on the pedestrian and bicyclist system performance including measures of comfort, connectivity, route directness and safety.

In 2021, WSDOT published the *Washington State Active Transportation Plan: 2020 and Beyond*. The plan discusses the importance of reliable active transportation options and the challenges in active transportation if certain facilities or amenities are not complete or are blocked from use. Since this plan covers the entire state, it focuses on both major urban centers and smaller communities like Bonney Lake. The main goal for active transportation in the future is stated as, "The integrated transportation system of the future provides safe, welcoming, and connected networks that invite and enable everyone to walk and roll where they need to go".

3.1 DEFINING WALKABILITY FOR BONNEY LAKE

The initial step of creating a more walkable city is to establish the community's definition of walkability. Bonney Lake has defined a walkable community in relation to the following characteristics:

- People of all ages and abilities have easy access to their community "on foot"; an automobile is not needed for every trip.
- People walk more and the community and neighborhoods are safer, healthier, and friendlier places.
- Parents feel comfortable about their children being outside in their neighborhoods; they do not worry about the threat of motor vehicles.

- Children spend more time outside with other children and are more active, physically fit, and healthy.
- Streets and highways are designed or reconstructed to provide safe and comfortable facilities for pedestrians and are safe and easy to cross for people of all ages and abilities.
- Pedestrians are given priority in neighborhoods, work, school, and shopping areas. Motor vehicle speeds are reduced, and, in some places, motor vehicles have been eliminated to ensure compatibility with pedestrian traffic.
- Motor vehicle operating speeds are carefully controlled to ensure compatibility with adjacent land uses and the routine presence of pedestrians.
- Drivers of motor vehicles operate them in a prudent, responsible fashion, knowing that they will be held strictly accountable for any threat, injury, or death caused by their lack of due care or violation of the vehicle code.

3.2 PERFORMANCE MEASURES

The Intersection Level of Service (ILOS) standards and analysis process for motor vehicle traffic does not provide the necessary tools to evaluate how well the City's active transportation system is performing and where it should be improved. Therefore, in addition to establishing an ILOS standard for vehicular traffic, this Element establishes a Multimodal Level of Service (MMLOS) process that provides an opportunity to evaluate the transportation network, including active (human-powered) modes of transportation.

Development of the Multimodal Level of Service (MMLOS)

The qualitative assessment process described below is based on research conducted for and published by WSDOT. This approach builds on the MMLOS analysis process identified in the 2010 Highway Capacity Manual, but is simpler, less data intensive and more appropriate for a planning level assessment of needs and deficiencies. A full MMLOS analysis for all travel modes can be intensely quantitative and require a substantial amount of data. Detailed quantitative analysis may be more appropriate as part of the design of active transportation improvements.

The City's MMLOS methodology uses a systematic, context-based evaluation of roadway characteristics and applies a ranking of green, yellow, or red to individual pedestrian segments or bikeways. This analysis process is used to identify the need for potential improvements for the active transportation system, refine the type of improvement that should be developed and prioritize recommendations.

To conduct this analysis for pedestrians and bicyclists, the existing roadway system was subdivided into segments based on the relatively homogeneous portions of the road in

terms of volumes, speeds, cross-sections, major intersections (particularly signalized locations), and adjacent land use (i.e. commercial or business versus residential).

In applying these MMLOS standards, the City recognizes that development of the transportation system to meet this standard may require trade-offs between travel modes. For instance, roads that serve pedestrians or bicyclists well may also restrict vehicle flow. Likewise, roads with high automobile ILOS may limit pedestrian or bicycle MMLOS. Additionally, the City does not expect that every road will have pedestrian or bicycle facilities. The primary goal is to make it easier for residents to get from place to place without a car for secondary trips such as getting children to school or to the park, going to the grocery store or going out to eat.

MMLOS Standard

The City has adopted a Yellow MMLOS rating for pedestrian and bicycle facilities. This rating is comparable to ILOS C as used for motor vehicles but is based on the evaluation and comparative conditions for each facility. Each facility is given a numeric score for each of the categories, then weighted as shown in in **Exhibit 17**:

Exhibit 17: MMLOS Category Weighting

MMLOS Category	Pedestrian Facility Weight	Bicycle Facility Weight
Facility Type	25%	35%
Width	25%	Not Applicable
Buffer	15%	Not Applicable
Traffic Speed	15%	10%
ADA Compliance	5%	8%
Traffic Control	15%	15%
Pavement Condition	Not Applicable	6%
Grade	Not Applicable	7%
Stop Frequency	Not Applicable	6%
Visibility	Not Applicable	6%

The overall numeric score is calculated then converted into a qualitative score, which is assigned to a color based on the score range as shown in **Exhibit 18**:

Exhibit 18: MMLOS Scoring

MMLOS Level	Numeric Score
Desirable MMLOS 🟢	80 – 100
Acceptable MMLOS 🟡	60 – 79
Unacceptable MMLOS 🔴	59 or less

3.3 PEDESTRIAN FACILITIES

Existing Pedestrian Facilities

Between the 1940s and 1990s, federal, state, and local policies and standards focused on vehicular traffic, treating pedestrian travel as an afterthought. As a result, many transportation facilities have obstacles to pedestrian travel, including:

- No sidewalks or gaps in the sidewalk system, particularly within older and underserved residential neighborhoods.
- Narrow walkway widths.
- Difficult street crossings.
- Bridges without a place to walk except in the travel lane.
- Barriers to pedestrians, such as major arterials without crosswalks.
- Inadequate facilities for access to transit services.
- Conflicts between pedestrian and other modes, such as high speeds and traffic volumes adjacent to pedestrian facilities.
- Difficult pedestrian connections to schools, parks, shopping, and residential areas.

Exhibit 19 summarizes the presence of pedestrian facilities along arterials and collectors:

Exhibit 19: Existing Pedestrian Facility Inventory for Certain Functional Classifications, City of Bonney Lake, 2025

Road and Travel Direction	Arterials	Collectors	Overall Subtotal
Roadways with Complete Pedestrian Facilities			
Miles	1.54	1.95	**3.49**
% of Classification Total	20.6%	19.6%	**20.0%**
Roadways with Partial Pedestrian Facilities			
Miles	2.55	2.99	**5.54**
% of Classification Total	34.2%	30.0%	**31.8%**

Road and Travel Direction	Arterials	Collectors	Overall Subtotal
Roadways without Pedestrian Facilities			
Miles	3.37	5.03	**8.40**
% of Classification Total	45.2%	50.4%	**48.3%**

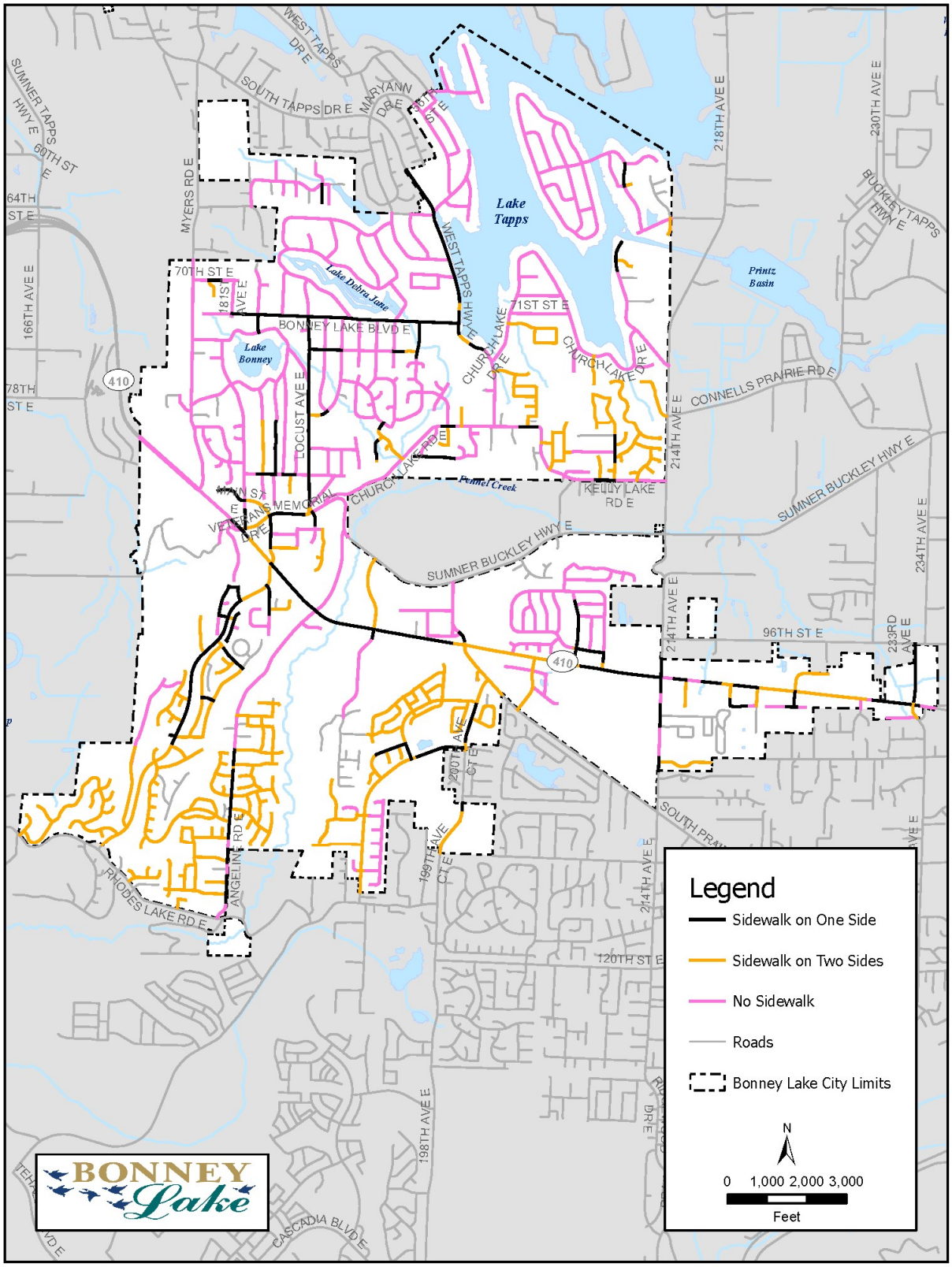
Source: SCJ Alliance, 2025

While 48% of the City's arterial and collector streets do not have pedestrian facilities, the City has made significant progress in building a sidewalk network since 2015 when 55% of the City's streets did not have sidewalks. These improvements were the result of the City's adoption of revised street design standards that include sidewalks and annual sidewalk improvement projects. Newer residential developments are required to construct sidewalks on both sides of new streets that comply with Americans with Disabilities Act (ADA) standards. Approximately 32% of the City's streets have sidewalks on one(1) side and approximately 20% have sidewalks on both sides of the street.

Given that most of the sidewalks were recently constructed, nearly all the existing sidewalks are five (5) feet or wider. Only a small percentage of existing sidewalks are less than four (4) feet wide.

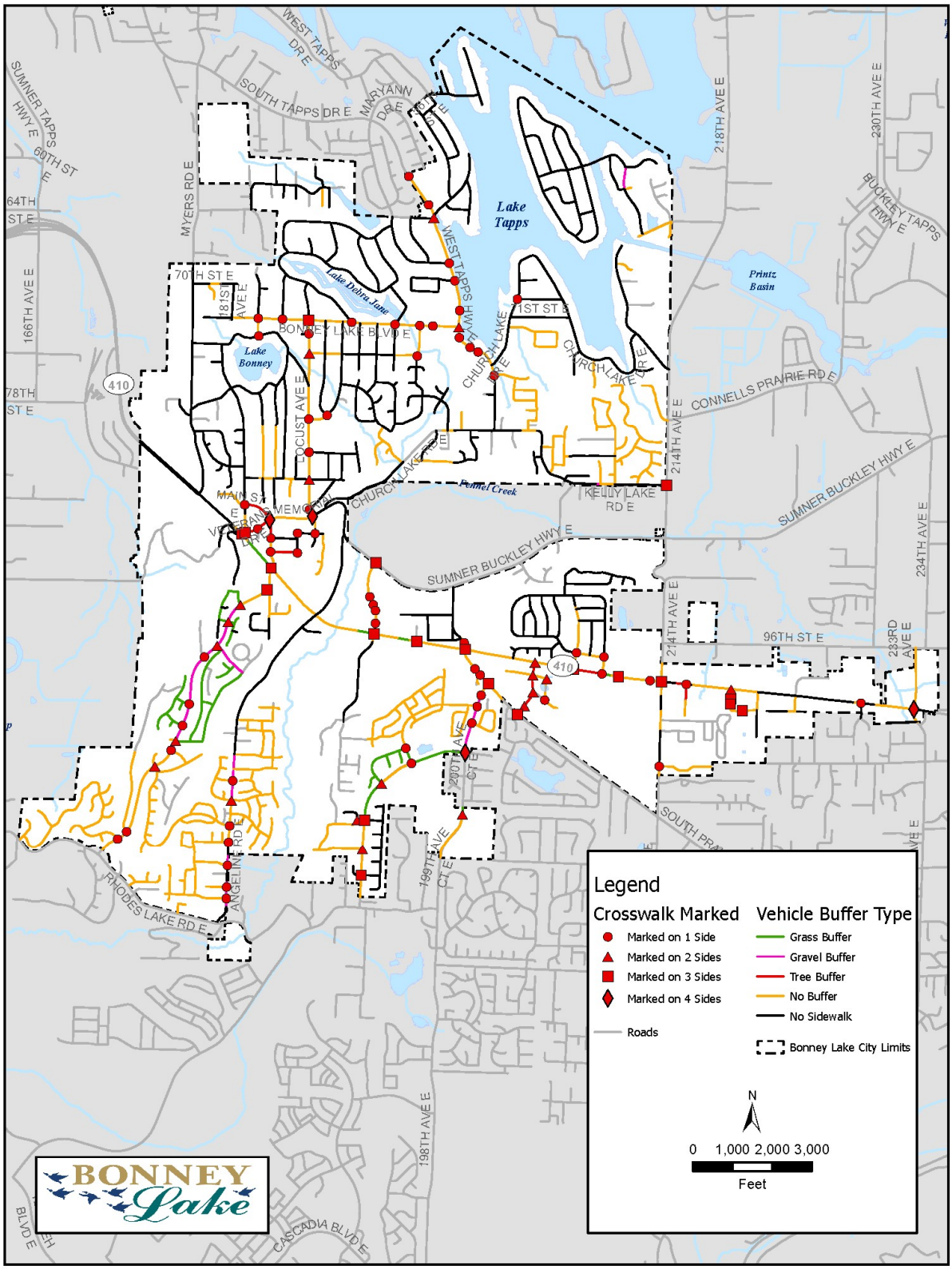
Exhibit 20 and **Exhibit 21** illustrate the existing sidewalk system in Bonney Lake.

Exhibit 20: Existing Pedestrian Facility Inventory Map, City of Bonney Lake, 2025



Envision BONNEY LAKE
Celebrating 100 Years

Exhibit 21: Existing Pedestrian Facility Buffer Types and Marked Crosswalks, City of Bonney Lake, 2025



Pedestrian Performance Measures

The evaluation of the City's existing pedestrian system was conducted based on a series of factors that describe how the City defines the quality of service provided by that system. These factors are summarized in **Exhibit 22,** which identifies the characteristics associated with Desirable MMLOS (green), Acceptable MMLOS (yellow, adopted MMLOS), and Unacceptable MMLOS (red).

Exhibit 22: Pedestrian Facility MMLOS Matrix

MMLOS Level	Description
Desirable MMLOS 🟢	
Facility	Continuous sidewalk on both sides of the road **or** trail/shared use path
Width	Sidewalk with five (5) feet or greater **or** shared use path 12 feet wide or greater
Buffer	Width greater than five (5) feet
Traffic Speed	Less than or equal to 25 MPH
ADA Compliance	No ADA Compliance issues
Traffic Control	Traffic signal with cross walk **or** all-way stop sign with crosswalks **or** every 300 feet where no intersection
Acceptable MMLOS 🟡	
Facility	Continuous sidewalks on one side of the road **or** sidewalks on both sides or one side with discontinuities that present no real obstacle to passage
Width	Sidewalk with five (5) feet
Buffer	Width greater of five (5) feet
Traffic Speed	Greater than 25 MPH, but less than or equal to 35 MPH
ADA Compliance	No ADA Compliance issues
Traffic Control	Two-way traffic control or traffic signal without crosswalk **or** all-way stop sign without crosswalks **or** every 600 feet without intersection
Unacceptable MMLOS 🔴	
Facility	No permanent pedestrian facilities – pedestrian walk on roadway/ shoulder or on dirt path
Width	Sidewalk less than five (5) feet wide **or** no permanent pedestrian facilities
Buffer	Width less than five feet **or** no buffer
Traffic Speed	Greater than 35 MPH
ADA Compliance	ADA Compliance issues
Traffic Control	Absent control and without crosswalks

Source: SCJ Alliance, 2025

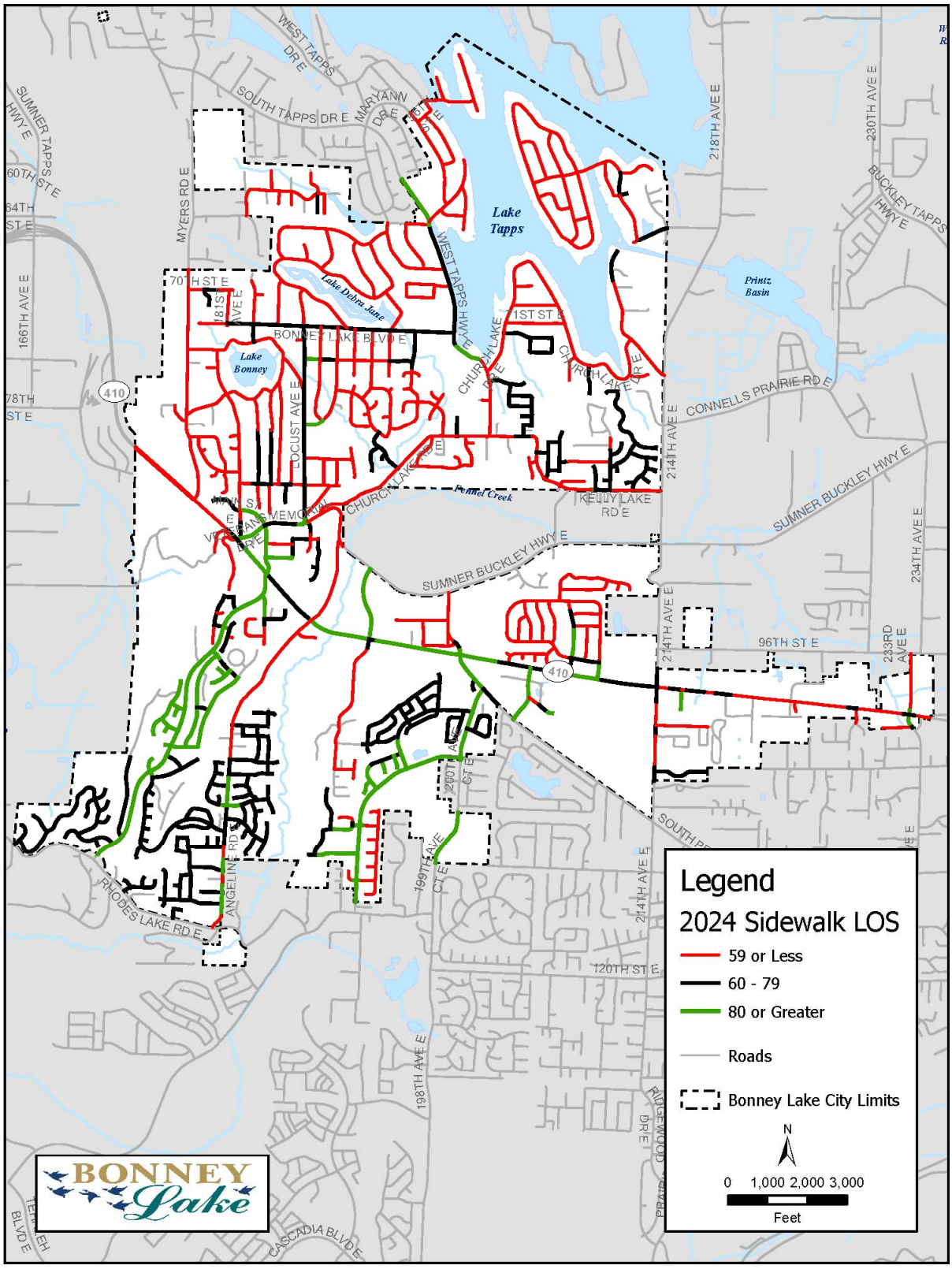
Pedestrian System Deficiencies

Scores were assigned to each MMLOS category with green receiving three (3) points, yellow receiving two (2) points and red receiving one (1) point. The City's mapped data for the sidewalk system was used to compare existing conditions with the criteria for each MMLOS category. This analysis process was used to determine which pedestrian facilities in the City operate acceptably and which do not.

The results of the pedestrian MMLOS analysis process are mapped in **Exhibit 23**. As shown in the graphic, a lot of the older neighborhoods lack adequate pedestrian facilities while they are more plentiful in the newer neighborhoods. Results of the pedestrian priority index scoring are included in **Appendix F**.

The primary focus of the City's sidewalk improvement plan is adding sidewalks in older neighborhoods to increase mobility options for these residents and to meet the priority needs identified in the City's ADA Transition Plan. Given the relative age of the City's sidewalks, about 32% of sidewalks on all public streets in the City (based on data in the ADA Transition Plan) require replacement due to poor pavement quality or significant heaving and cracking conditions.

Exhibit 23: Existing Pedestrian Facilities by MMLOS, City of Bonney Lake, 2025



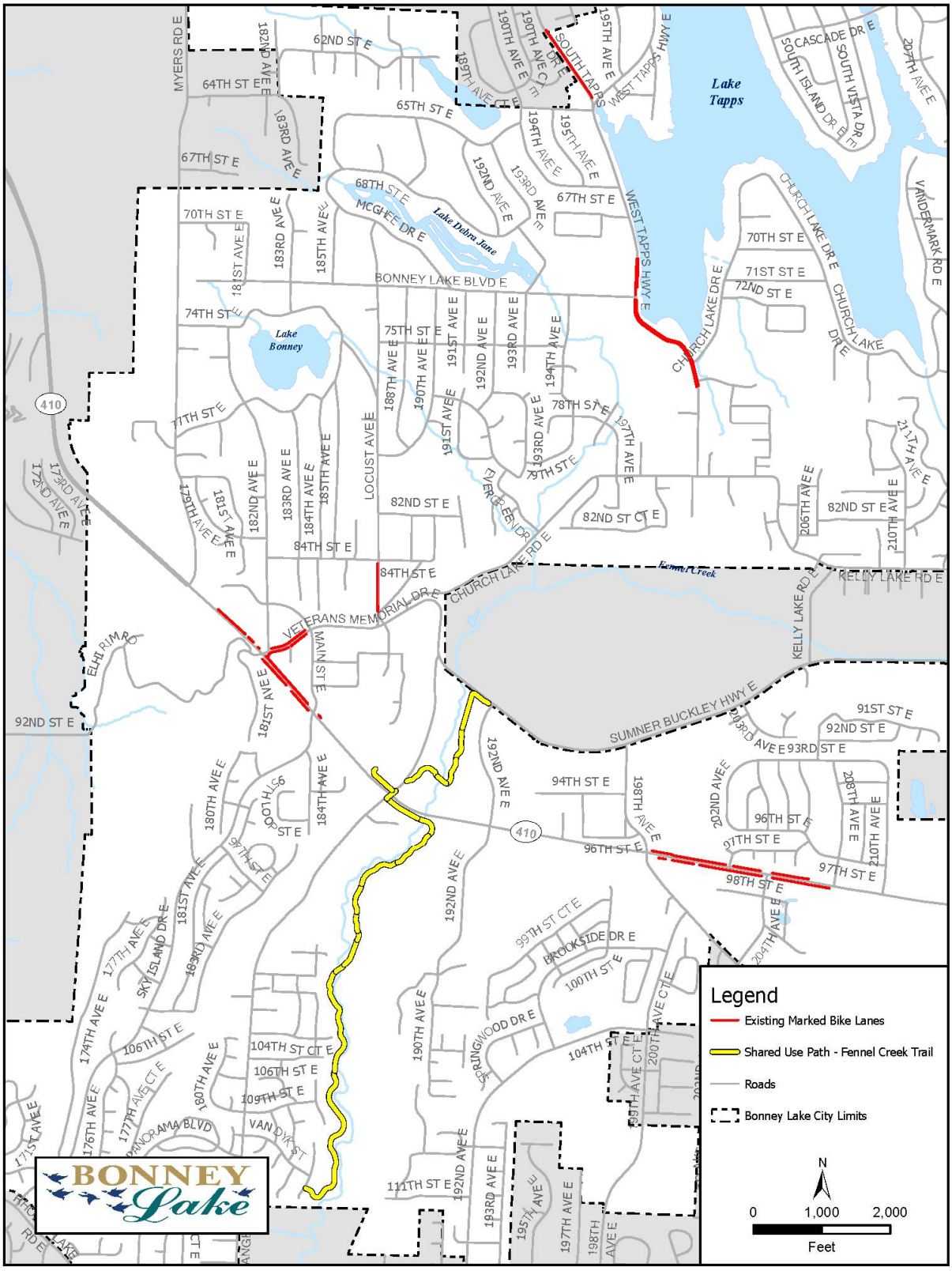
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3.4 BICYCLE FACILITIES

Existing Bicycle Facilities

Currently, the only bicycle facilities are a small segment on SR 410 between Veterans Memorial Dr E and Sky Island Dr E, and on Veterans Memorial Dr E. The City's only existing shared roadways are on Myers Rd E, Bonney Lake Blvd E, Angeline Rd E, 192nd Ave E, 104th St E and W Tapps Hwy E. There are also several streets that have sidewalks of at least 10 feet in width which can function as a joint pedestrian and bicycle pathway. **Exhibit 24** illustrates the location of these bicycle facilities and the location of Fennel Creek Trail, which is a shared use path.

Exhibit 24: Existing Marked Bicycle Lanes, City of Bonney Lake, 2025



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Bicycle Performance Measures

The *Manual of Uniform Traffic Control Devices* (MUTCD) identifies the following types of bicycle facilities:

- **Shared Use Path or Trail:** A shared-use path or trail physically separated from motorized vehicular traffic by an open space or barrier within the right-of-way or within an independent alignment. Shared-use paths and trails serve both bicyclists and pedestrians.
- **Bicycle Lane:** At a minimum, bicycle lanes are five (5) foot wide, one (1) way facilities located on both sides of a street, and they carry bicyclists in the same direction as adjacent motor vehicle traffic. Lane striping, pavement markings and signage further identify bicycle lanes.
- **Shared Roadway:** On shared roadways, bicyclists and motorists share the same travel lane. Shared roadway bicycle routes can be accommodated on streets with wide outside travel lanes, along streets with bicycle route signing, or along local streets where motorists move into the adjacent lane to safely pass a bicyclist.

The factors in **Exhibit 25** are evaluated for each segment of the City's future bicycle facilities, with Desirable MMLOS (green), Acceptable MMLOS (yellow, adopted MMLOS), and Unacceptable MMLOS (red).

Exhibit 25: Bicycle Facility MMLOS Matrix

MMLOS Level	Description
Desirable MMLOS 🟢	
MUTCD Facility Type	Shared use path **or** bicycle lanes in both directions
Pavement Condition	Smooth pavement and no manhole covers
Grade	Grade less than or equal to 3%
Stop Frequency	Stops less than one (1) stop per ¼ mile
Traffic Speed	Less than or equal to 25 MPH
Conflicts	No driveways or loading dock crossings
Visibility	High cyclist visibility
Traffic Control	Traffic signal with crosswalk **or** all-way stop signs with crosswalks
Parking	No on-street parking
Acceptable MMLOS 🟡	
MUTCD Facility Type	Shared roadway **or** bicycle lane in one direction

MMLOS Level	Description
Pavement Condition	Smooth pavement with manhole covers **or** some buckling and cracking present
Grade	Grade is 4-8%
Stop Frequency	Stops spaced at ⅛ – ¼ mile
Traffic Speed	Between 25 – 35 MPH
Conflicts	Some driveways or loading dock crossings
Visibility	Medium cyclist visibility
Traffic Control	Two-way traffic control **or** traffic signal without crosswalks **or** all-way stop signs without crosswalks
Parking	Some on-street parking **or** large amount of on-street parking with limited turnover
Unacceptable MMLOS 🔴	
MUTCD Facility Type	No bicycle facilities
Pavement Condition	Major pavement buckling and cracking **or** potholes **or** incomplete path
Grade	Grade is greater than 8%
Stop Frequency	More than one stop per ⅛ mile
Traffic Speed	Greater than 35 MPH
Conflicts	Many driveways or loading dock crossings
Visibility	Low cyclist visibility
Traffic Control	Absent control and without crosswalks
Parking	Large amount of on-street parking with high turnover

Source: SCJ Alliance, 2025

Bicycle System Deficiencies

No priorities for addressing improvements to the bicycle transportation system have been identified as part of this update. It is the City's intent to develop a *Bicycle Facility Master Plan* that will guide the development and expansion of bicycle facilities to serve this travel mode. The Bicycle Facility MMLOS will then be applied to the identified bicycle routes.

4. TRANSPORTATION SAFETY

4.1 TRANSPORTATION SYSTEM MAINTENANCE

Federal transportation law and state transportation policy emphasize that maintenance and preservation are the highest transportation priorities to ensure regional mobility into the future and to provide a reasonably safe transportation system for travelers of all modes. City maintenance promotes road safety, reduces the likelihood of collisions, and enhances the safety for pedestrians, transit, and bicyclists.

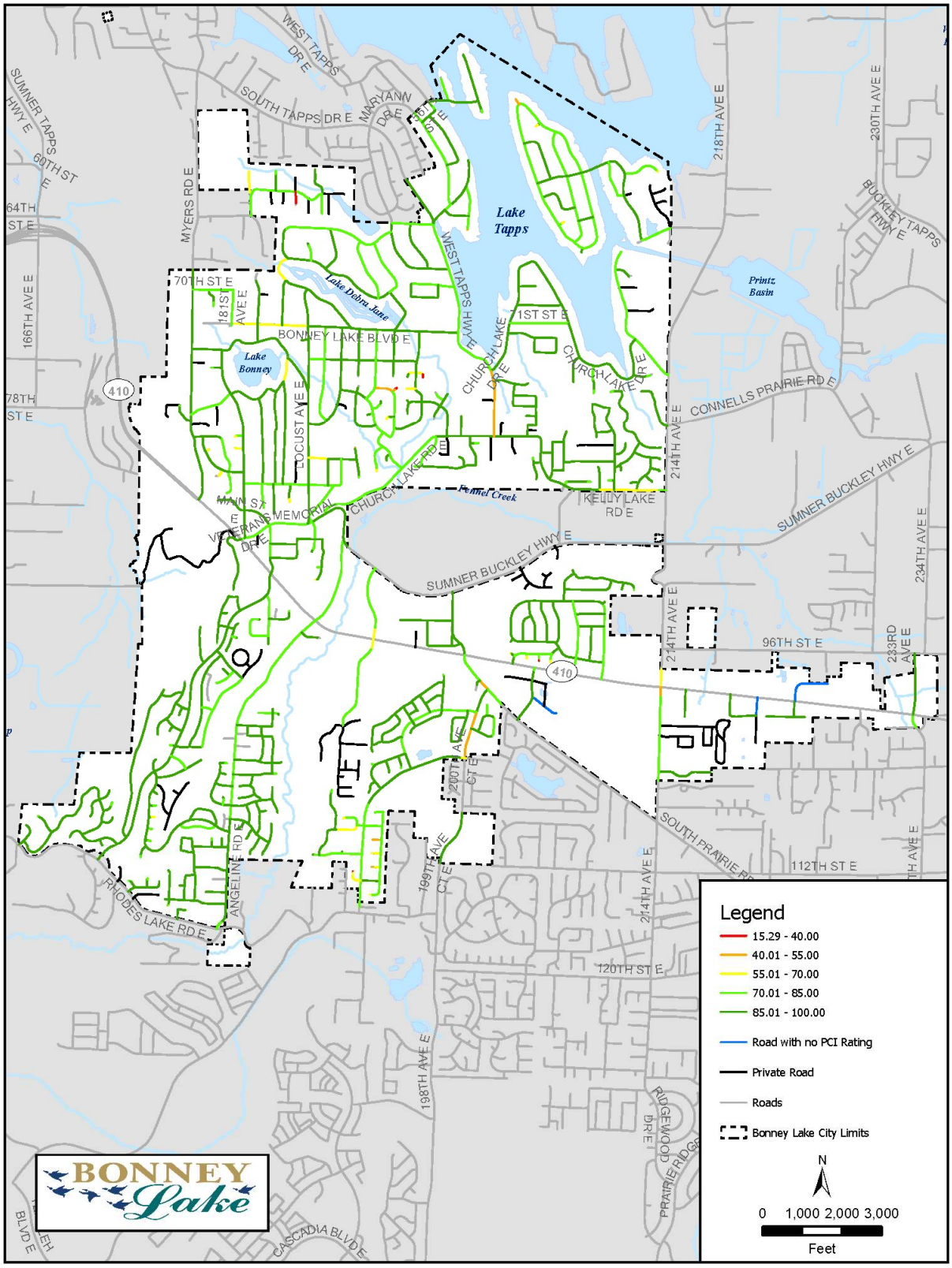
Additionally, the street system is one of the City's most expensive assets. Maintenance of the existing roadways can protect and preserve the surface condition, help maintain structural integrity, and restore texture and skid resistance to the roadway surface. With proper maintenance, asphalt pavement will last 20 to 25 years.

The City has implemented a Pavement Condition Program to preserve the community's investment in street system infrastructure and develop an efficient and effective program for pavement preservation and reconstruction. The City uses a Pavement Condition Inventory (PCI) to evaluate the condition of the pavement and provide an objective and rational basis for determining maintenance and repair priorities. PCI is a numerical indicator that rates the surface condition of pavement based on the level of distress observed on the surface of the pavement[20].

The status of the City's public streets is shown in **Exhibit 26**. Pavement preservation projects are then prioritized based on the financial consequences of delaying a project and on the condition of the pavement.

[20] ASTM Standard D6433-24 – Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys is available online at: https://store.astm.org/d6433-24.html

Exhibit 26: Street Pavement Condition Inventory, City of Bonney Lake, 2024



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4.2 CRASHES

The City collects and monitors collision data to identify roadway safety concerns and seeks to enhance these locations by implementing appropriate safety measures. Many of these crashes occur at or near intersections. Historical accident data for SR 410 and City arterials is summarized in **Exhibit 27**.

The crash data is split for each intersection to show:

- "Severe" crashes only, which includes both fatalities and serious injury collisions;
- "All injury and fatal crashes", which includes all crashes with a fatality or injury, regardless of severity; and
- "All crashes", which includes all fatality, injury, and property damage crashes.

The total number of crashes per year was also calculated.

Exhibit 27: Intersection Crashes by Severity, City of Bonney Lake, 2018 – 2022

Intersection Number (See Exhibit 12) and Name	Severe Crashes	All Fatal / Injury Crashes	All Crashes	Crashes / Year
1 Myers Rd E at 77th St E	0	1	4	0.8
2 Bonney Lake Blvd E at Locust Ave E	0	0	1	0.2
3 Bonney Lake Blvd E at West Tapps Hwy E	0	0	2	0.4
4 Church Lake Rd E at West Tapps Hwy E	0	3	6	1.2
5 214th Ave E at Connells Prairie Rd[21]	0	0	0	0
6 214th Ave E at Kelly Lake Rd E[21]	0	0	1	0.2
7 214th Ave E at Sumner-Buckley Hwy[22]	0	0	1	0.2
8 214th Ave E at 96th St[22]	0	0	1	0.2
9 214th Ave E at S Prairie Rd E[22]	0	1	1	0.2
10 SR 410 at Veterans Memorial Dr E/181st Ave E	0	**20**	67	**13.4**
11 Veteran Memorial Dr E at Main St E	0	3	14	2.8
12 Veteran Memorial Dr E at Locust Ave E/188th Ave E	0	1	12	2.4
13 SR 410 at Sky Island Dr E	0	**13**	39	7.8

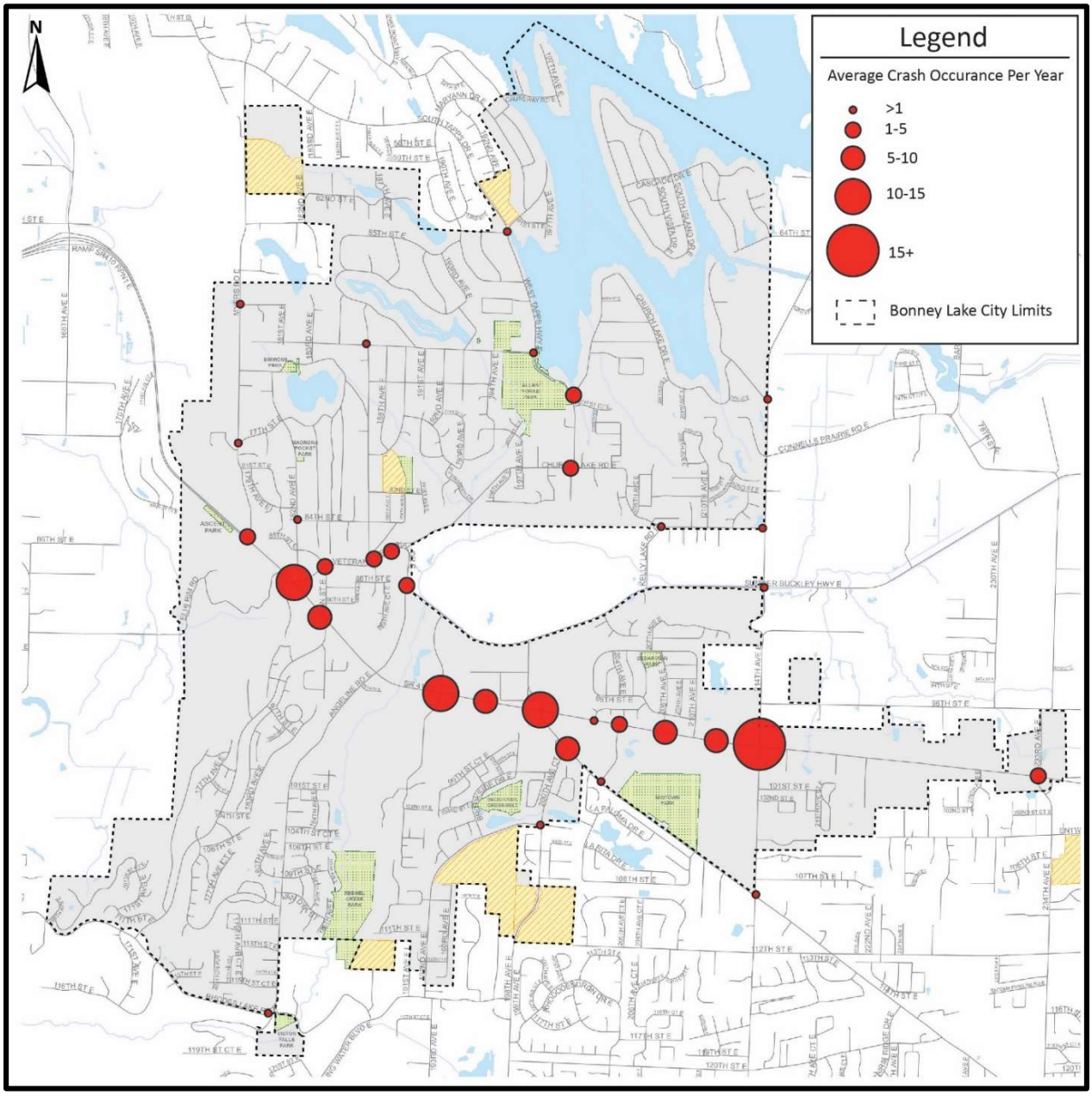
[21] Bonney Lake is responsible for one leg of this intersection; Pierce County is responsible for the remainder.
[22] Pierce County is responsible for this intersection. It is included due to its influence on City traffic patterns and intersections.

Intersection Number (See Exhibit 12) and Name	Severe Crashes	All Fatal / Injury Crashes	All Crashes	Crashes / Year
14 SR 410 at 192nd Ave E	0	**11**	75	**15.0**
15 SR 410 at 195th Ave E	**2**	8	32	6.4
16 SR 410 at 198th Ave/S Prairie Rd E	**1**	13	57	**11.4**
17 S Prairie Rd E at 200th Ave Ct E	0	5	27	5.4
18 SR 410 at 208th Ave E	0	9	32	6.4
19 SR 410 at 211th Ave E	0	**7**	27	5.4
20 SR 410 at 214th Ave E	**1**	32	107	**21.4**
21 SR 410 at 233rd Ave E	0	4	18	3.6
22 Rhodes Lake Rd E at Sky Island Dr E[22]	0	0	0	0
23 Rhodes Lake Rd E at Angeline Rd E[21]	0	1	2	0.4
24 Rhodes Lake Rd E at 192nd Ave E[22]	0	0	0	0
25 109th St E at 192nd Ave E	0	0	0	0
26 104th St E at 199th Ave E/200th Ave Ct E[21]	0	0	4	0.8
27 214th Ave E at 120th St E[22]	0	0	0	0
28 Church Lake Rd E at Kelly Lake Rd E[21]	0	1	1	0.2
29 Sumner-Buckley Hwy at Kelly Lake Rd E[22]	0	0	0	0
30 SR 410 at 204th Ave E	0	1	5	1.0
31 S Prairie Rd E at 204th Ave E[21]	0	0	1	0.2
32 Church Lake Dr E at W Tapps Hwy E	**1**	3	9	1.8
33 214th Ave E at Vandermark Rd E[21]	0	0	1	0.2
34 Myers Rd E at 70th St E	0	0	2	0.4
35 Myers Rd E at 81st St E	0	0	0	0
36 182nd Ave E at 84th St E	0	0	3	0.6
37 Church Lake Rd E at Veterans Memorial Dr E	0	3	14	2.8
38 Rhodes Lake Rd E at 198th Ave E[22]	0	0	0	0
39 SR 410 at Myers Rd E	**1**	**10**	21	4.2
40 S Tapps Dr E at W Tapps Hwy E	0	0	2	0.4
41 Veterans Memorial Dr E and Sumner-Buckley Hwy at Angeline Rd E	0	5	22	4.4
Total	**6**	***155***	***611***	***122.2***

Source: SCJ Alliance, 2025
Disclaimer: Under Section 409 of Title 23 of the United States Code, crash data is prohibited from use in any litigation against the state, tribal, or local government that involves location(s) mentioned in the crash data.

Exhibit 28 illustrates the location and magnitude of crash experience in the City.

Exhibit 28: Average Annual Crash Occurrences, City of Bonney Lake, 2018 – 2022



Source: SCJ Alliance, 2025

Severe crashes include fatalities and serious injury crashes, and are typically the focal point for identifying and implementing spot improvements to the transportation system. There were six (6) severe crashes in the City during the 2018 to 2022 analysis time period:

- One (1) intersection experienced a fatality, the intersection of SR 410 with 198th Ave E / S Prairie Rd E.
- Five (5) intersections experienced suspected serious injury, including:
  - Two (2) crashes at SR 410 at 195th Ave E;
  - One (1) crash at SR 410 at 214th Ave E;
  - One (1) crash at Church Lake Dr E at W Tapps Hwy E; and
  - One (1) crash at SR 410 at Myers Rd E.

Several intersections also experienced a high number of crashes over the five (5) year analysis period. These included:

- SR 410 at Veterans Memorial Dr E / 181st Ave E (13.4 crashes per year);
- SR 410 at 192nd Ave E (15 crashes per year);
- SR 410 at 198th Ave E / S Prairie Rd E (11.4 crashes per year); and
- SR 410 at 214th Ave E (21.4 crashes per year).

Exhibit 29 presents a summary of crashes by type for study area intersections. This data indicates that during the five (5) year analysis period the most common types of accidents were rear-end collisions (39%) and angle crashes (22%).

There were a few locations where certain types of crashes were unusually high in comparison with the averages experienced in the city:

- SR 410 at 198th Ave E / S Prairie Rd E had a high proportion of sideswipe crashes (28%) at or close to the intersection.
- SR 410 at 214th Ave E had a high number of turning crashes (36%), which predominately involved left turns.

Exhibit 29: Intersection Crashes by Severity, City of Bonney Lake, 2018 – 2022

Intersection	Rear End	Angle	Side Swipe	Turn	Ped / Bike	Other	Subtotal
Myers Road at 77th Street	1	2	0	0	0	1	*4*
Bonney Lake Blvd at Locust Avenue	0	1	0	0	0	0	*1*
Bonney Lake Blvd at West Tapps Hwy	1	0	0	0	0	1	*2*
Church Lake Road at West Tapps Hwy	4	0	0	0	0	2	*6*
214th Avenue at Connells Prairie Road	0	0	0	0	0	0	*0*
214th Avenue at Kelly Lake Road	1	0	0	0	0	0	*1*
214th Avenue at Sumner-Buckley Hwy	0	0	0	0	0	1	*1*
214th Avenue at 96th Street	1	0	0	0	0	0	*1*
214th Avenue at South Prairie Road	0	0	0	1	0	0	*1*

Intersection	Rear End	Angle	Side Swipe	Turn	Ped / Bike	Other	Subtotal
SR 410 at Veterans Memorial Drive/181st Avenue	27	25	4	7	1	3	*67*
Veteran Memorial Drive at Main Street	4	3	3	4	0	0	*14*
Veteran Memorial Drive at Locust Avenue/188th Avenue	7	3	1	0	0	1	*12*
SR 410 at Sky Island Drive East	24	6	4	1	1	3	*39*
SR 410 at 192nd Avenue	32	22	4	9	1	7	*75*
SR 410 at 195th Avenue	21	2	2	4	3		*32*
SR 410 at 198th Avenue/South Prairie Road	24	4	**16**	2	1	10	*57*
South Prairie Road at 200th Avenue Ct.	12	3	3	2	1	6	*27*
SR 410 at 208th Avenue	16	6	1	3	2	4	*32*
SR 410 at 211th Avenue	9	7	6	1	2	2	*27*
SR 410 at 214th Avenue	22	33	6	**39**	2	5	*107*
SR 410 at 233rd Avenue	9	1	3	3	0	2	*15*
Rhodes Lake Road at Sky Island Drive	0	0	0	0	0	0	*0*
Rhodes Lake Road at Angeline Road	0	0	0	0	0	2	*2*
Rhodes Lake Road at 192nd Avenue	0	0	0	0	0	0	*0*
109th Street at 192nd Avenue	0	0	0	0	0	0	*0*
104th Street at 199th Avenue/200th Avenue Ct.	1	0	0	2	0	1	*4*
214th Avenue at 120th Street E	0	0	0	0	0	0	*0*
Church Lake Road at Kelley Lake Road	0	0	0	0	0	1	*1*
Sumner-Buckley Highway at Kelley Lake Road	0	0	0	0	0	0	*0*
SR 410 at 204th Avenue	1	2	2	0	0	0	*5*
South Prairie Road at 204th Avenue	0	1	0	0	0	0	*1*
Church Lake Drive at W Tapps Hwy	2	3	0	0	0	4	*9*
214th Avenue at Vandermark Road	0	0	0	0	0	1	*1*
Myers Road at 70th Street	0	0	0	0	0	2	*2*
Myers Road at 81st Street	0	0	0	0	0		*0*
182nd Avenue at 84th Street	0	1	1	0	0	1	*3*
Church Lake Road at Veterans Memorial Drive	3	0	3	0	0	8	*14*
Rhodes Lake Road at 198th Avenue	0	0	0	0	0	0	*0*
SR 410 at Myers Road	9	2	2	5	1	2	*21*

Intersection	Rear End	Angle	Side Swipe	Turn	Ped / Bike	Other	Subtotal
S Tapps Drive at /W Tapps Hwy	0	0	0	0	0	2	2
Veterans Memorial Drive-Sumner/Buckley Highway at Angeline Road	6	7	3	1	0	5	22
Total	***235***	***136***	***64***	***84***	***15***	***77***	***611***
Percentage	***39%***	***22%***	***10%***	***14%***	***2%***	***13%***	***100%***

Source: SCJ Alliance, 2025
Disclaimer: Under Section 409 of Title 23 of the United States Code, crash data is prohibited from use in any litigation against the state, tribal, or local government that involves location(s) mentioned in the crash data.

The City is currently in the process of developing its Safety Action Plan.

4.3 ADA TRANSITION PLAN

The Federal Americans with Disabilities Act (ADA), enacted on July 26, 1990, provides comprehensive civil rights protections to persons with disabilities including access to transportation.

Title II of the ADA prohibits state and local governments from discriminating against persons with disabilities by requiring them to make all programs, services, and activities accessible to persons with disabilities, which includes the public roads and sidewalks within Bonney Lake. Title II requires that a public entity must evaluate its services, programs, policies, and practices to determine whether the entities comply with the nondiscrimination requirements of the ADA.

The City has completed an evaluation as required by the ADA. This evaluation is documented in the **ADA Transition Plan**, incorporated by reference, as amended. The **ADA Transition Plan** provides policies and best practices for implementing physical and programming access improvements to meet the requirements of the ADA.

Key recommendations of this plan focused on the identification of locations which do not currently meet ADA standards for mobility by all users, focusing on the proximity of a pedestrian facility to a series of desired destinations and the presence and severity of barriers experienced on the facility by those with mobility challenges.

- **Proximity** was measured using a scoping matrix in a process like that described above for pedestrian facilities in general. This index evaluated proximity to multimodal roadways, arterial or collector roadways, schools, walk to school routes, parks, transit stops, City centers, Fennel Creek trailhead or access

locations, and percentage of the nearby population with disabilities or aged 65 and older.

- **Severity** was measured in terms of sidewalk width, slope, cross slope, obstructions, vertical displacements in the sidewalk and presence of horizontal sidewalk gaps

Based on this analysis specific sidewalk locations and characteristics, as well as roadway crossings were evaluated, project needs were determined and improvements identified. ADA compliance was a key factor in the evaluation and prioritization process for pedestrian facilities to address the full scope of ADA needs, but does not call out ADA improvements specifically or separately.

5. FUTURE MULTIMODAL SYSTEM

Promote a balanced transportation system that will economically meet present and future needs of Bonney Lake.

Provide a circulation system that incorporates transportation methods and design and travel patterns that are convenient and safe for the public

- *Bonney Lake Comprehensive Plan (1985)*

The City's overall goal is to reduce dependency on single passenger automobiles as new development and population growth occurs over the next 25 years. This will occur through a combination of land use decisions (e.g. directing most new development to local centers at a density that can support transit), encouraging alternative commuting options (e.g. transit, vanpools, carpools, bicycling, and walking), and transportation investments (e.g. providing interconnected roads with sidewalk and bike lanes). Improvements to the roadway system will also be necessary, as the automobile will continue to be a dominant form of transportation and the most feasible means of long-distance travel in much of the City.

Over time, the City will seek to build out its system of multimodal connectivity by developing and prioritizing projects that address locations identified as providing failing levels of service, improve poor pedestrian conditions along local streets, and connect the existing and proposed trail system. The primary focus will be first on providing connections to activity generators such as schools, medical facilities, commercial districts, civic uses, and parks, with longer term plans to construct additional pedestrian amenities throughout the City.

5.1 FUTURE ROADWAY CAPACITY NEEDS

As new jobs and residents come to Bonney Lake, traffic growth is likely to follow. To plan for this growth, the City relied on forecasts of future traffic conditions based on a computerized traffic model maintained by Pierce County, adjusted for local conditions in Bonney lake.

Initial modelling considered the projected amount of job and household growth in various locations around the City between 2020 and 2049 based on the Preferred Land Use Alternative developed for the comprehensive plan update[23]. All analyses in this section are based on the City's preferred land use alternative as documented in the

[23] On April 23, 2024, City Council identified *Alternative 2: Bend the Trend*, as the Council's preferred growth alternative (Motion No. M24-33). The Growth Alternatives Memo is available in **Appendix C**.

Community Development Element, as documented in the **Transportation Analysis of Growth Alternatives** (see **Appendix G**).

Different land uses generate different amounts of traffic, enabling the model to test the impacts that growth may have on future traffic conditions. Future "trips" are added to the transportation network taking into consideration planned road improvements, new transit facilities, and other infrastructure changes. The model makes assumptions about:

- The directional flow of the added future trips;
- The percent of trips that will be made by car, bus, or other mode;
- Travel behavior for the area; and
- Development in nearby jurisdictions and unincorporated Pierce County that will affect local streets.

The traffic model identified expected growth trends that were applied to the 2023 traffic volume counts in **Section 2.3: Traffic Operations** to develop 2049 Daily and 2049 PM Peak Hour projections on key roadway segments and at 41 study area intersections in Bonney Lake. Based on these projections, an operations analysis was conducted to identify expected deficiencies, and to evaluate and recommend improvement options.

Daily Traffic Projections

Exhibit 30 presents a summary comparison of 2023 and projected 2049 daily traffic throughout the City. The 2049 Daily Traffic volumes are also illustrated in **Exhibit 31**. Most City streets that were surveyed are projected to carry less than 5,000 daily trips (the total of both directions), with the exception of:

- Angeline Rd E south of Veterans Memorial Dr E
- Kelly Lake Rd west of 214th Ave E
- Veterans Memorial Dr E west of Locust Ave E and south of Sumner-Buckley Hwy
- Sky Island Dr E
- 214th Ave E north of SR 410, S Prairie Rd E south of 204th Ave E
- 199th Ave E / 198th Ave E between Mountain View Middle School and Rhodes Lake R E

In 2049, SR 410 is expected to carry a substantially higher level of peak hour and daily traffic volumes than any City street, ranging from approximately 23,000 vehicles at the east end of the City to approximately 72,000 vehicles on the west end of the City. This represents an anticipated increase of 6.0% on the east end of the City and a 31.5% increase on the west end of the City.

Exhibit 30: Comparison of Existing and Projected Daily Traffic Volumes

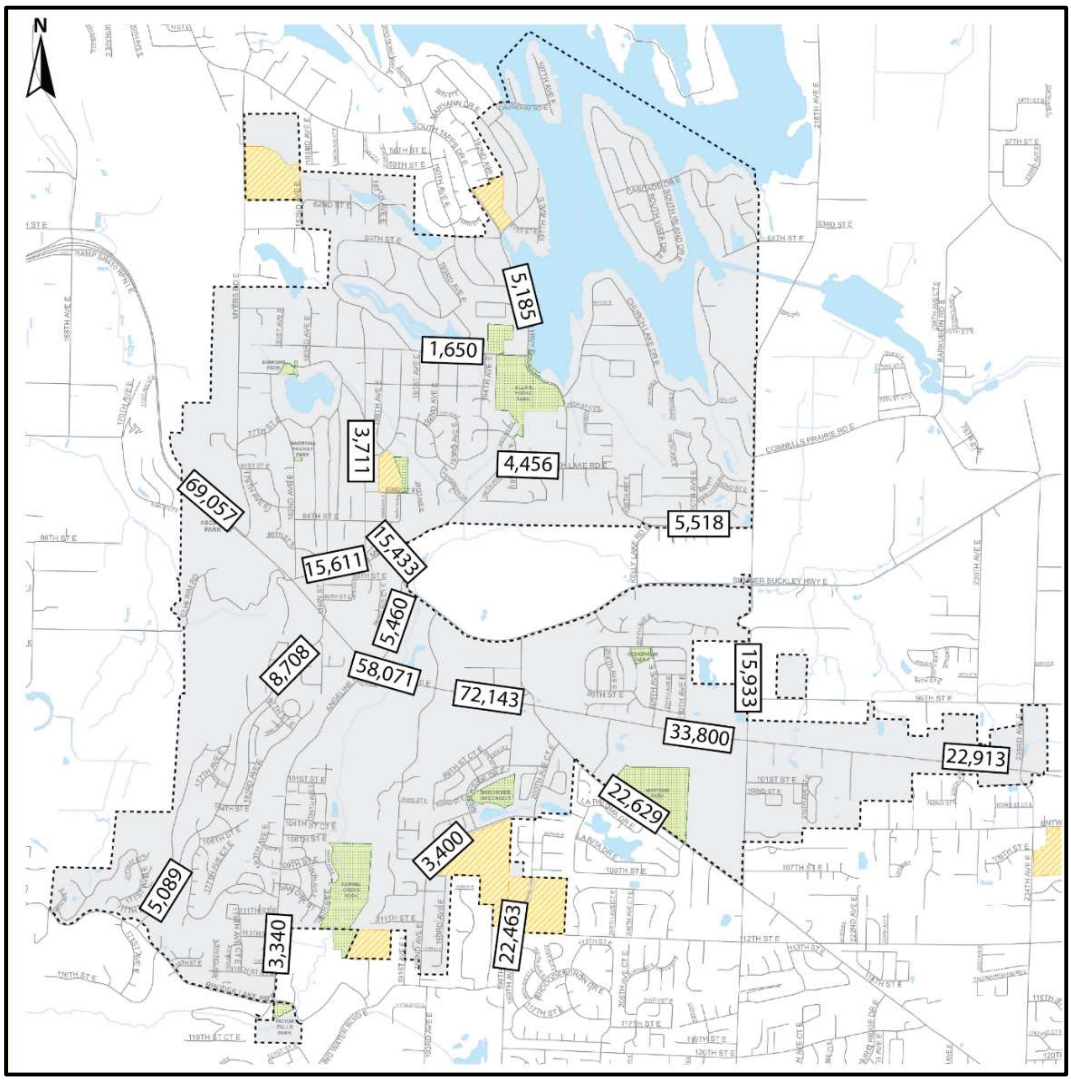
Road and Travel Direction	2023	2049
W Tapps Hwy E, North of Bonney Lake Blvd E		
Northbound	2,101	2,337
Southbound	2,560	2,848
Total	***4,661***	***5,185***
Bonney Lake Blvd E, West of W Tapps Hwy E		
Eastbound	573	716
Westbound	748	934
Total	***1,321***	***1,650***
Locust Ave E, North of 80th Ave E		
Northbound	1,204	1,628
Southbound	1,541	2,083
Total	***2,745***	***3,711***
Veterans Memorial Dr E, West of Locust Ave E		
Eastbound	6,785	7,483
Westbound	7,370	8,128
Total	***14,155***	***15,611***
Sky Island Dr E, West of 184th Ave E		
Eastbound	3,903	4,722
Westbound	3,294	3,986
Total	***7,197***	***8,708***
Sky Island Dr E, North of Rhodes Lake Rd E		
Northbound	2,065	2,978
Southbound	1,464	2,111
Total	***3,529***	***5,089***
Angeline Rd E, North of Rhodes Lake Rd E		
Northbound	1,046	1,749
Southbound	951	1,591
Total	***1,997***	***3,340***
SR 410, West of Myers Rd E		
Northbound	27,778	33,695
Southbound	29,152	35,362
Total	***56,930***	***69,057***

Road and Travel Direction	2023	2049
SR 410, West of 233rd Ave E / 234th Ave E		
Northbound	10,153	10,765
Southbound	11,458	12,148
Total	***21,611***	***22,913***
Church Lake Rd E, West of W Tapps Hwy E		
Northbound	1,528	2,109
Southbound	1,701	2,347
Total	***3,229***	***4,456***
Kelly Lake Rd E, West of 214th Ave E		
Northbound	1,816	2,662
Southbound	1,949	2,857
Total	***3,764***	***5,518***
SR 410, West of 192nd Ave E		
Northbound	25,154	29,119
Southbound	25,010	28,952
Total	***50,164***	***58,071***
SR 410, West of S Prairie Rd E		
Northbound	26,948	35,440
Southbound	27,908	36,703
Total	***54,856***	***72,143***
SR 410, West of 214th Ave E		
Northbound	16,786	18,524
Southbound	13,844	15,277
Total	***30,629***	***33,800***
214th Ave E, North of SR 410		
Northbound	6,367	8,076
Southbound	6,195	7,857
Total	***12,562***	***15,933***
S Prairie Rd E, North of SR 410		
Northbound	6,454	10,548
Southbound	7,392	12,081
Total	***13,846***	***22,629***
192nd Ave E / 104th St E, North of 109th St E		

Road and Travel Direction	2023	2049
Northbound	1,480	1,685
Southbound	1,507	1,715
Total	***2,987***	***3,400***
199th Ave Ct E / 198th Ave E, between Mountain View Middle School and Rhodes Lake Rd E		
Northbound	8,848	12,619
Southbound	6,902	9,844
Total	***15,750***	***22,463***
Veterans Memorial Dr E, North of Sumner-Buckley Hwy		
Northbound	6,700	7,803
Southbound	6,552	7,630
Total	***13,252***	***15,433***
Angeline Rd E, South of Veterans Memorial Dr E		
Eastbound	2,379	2,755
Westbound	2,335	2,705
Total	***4,714***	***5,460***

Source: SCJ Alliance, 2025
Note: 2049 daily volumes are for the preferred land use alternative.

Exhibit 31: Projected Daily Traffic Volumes, 2049



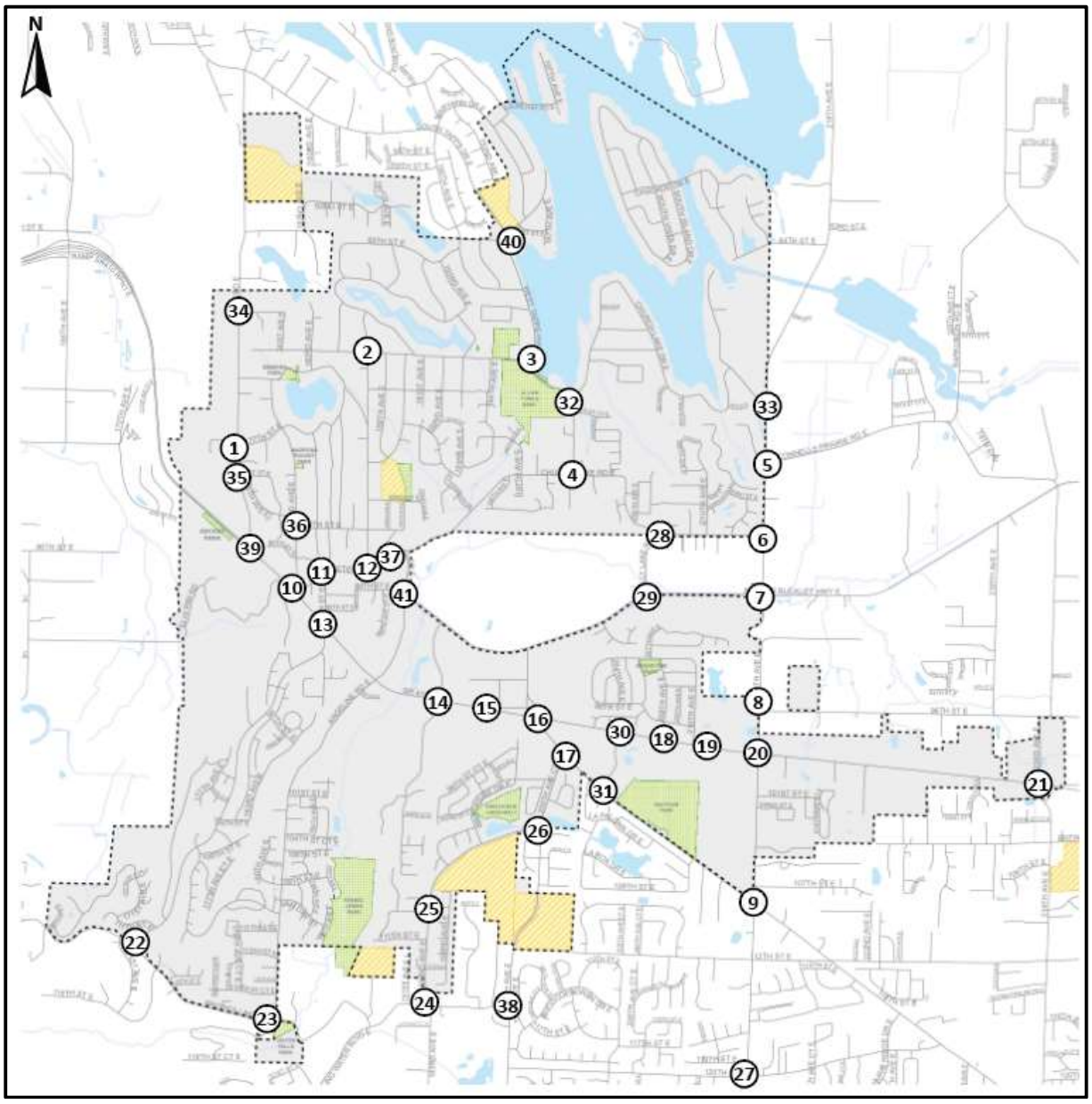
Source: SCJ Alliance, 2025

PM Peak Traffic Operations

The travel demand model was also used to develop PM Peak Hour traffic volume forecasts, building on the existing traffic counts collected for this update. Model data from PSRC/Pierce County was used to identify traffic volume growth rates and to calculate 2049 traffic projections for selected intersections in the City.

The locations and identifying numbers for the PM Peak Hour traffic volumes are presented in **Exhibit 32**.

Exhibit 32: Projected PM Peak Hour Intersection Operations Analysis Locations



Source: SCJ Alliance, 2025

Exhibit 33 presents the 2049 operations results without improvement to the transportation system, beyond currently planned improvements. Highlighted intersections indicate intersections that will not meet the ILOS in 2049.

Exhibit 33: Projected PM Peak Hour Intersection Operations Analysis, City of Bonney Lake, 2049, Without Improvements

Intersection Number (See Exhibit 32) and Name	Intersection Control Type	ILOS (Delay in Seconds)	Worst V/C
1 Myers Rd E at 77th St E	Stop Sign	B (10.3)	0.05
2 Bonney Lake Blvd E at Locust AveE	All Way Stop	A (8.4)	0.18
3 Bonney Lake Blvd E at West Tapps Hwy E	All Way Stop	B (13.1)	0.58
4 Church Lake Rd E at West Tapps Hwy E	Stop Sign	**E (41.7)**	0.88
5 214th Ave E at Connells Prairie Rd[24]	Stop Sign	**F (300+)**	**2.02**
6 214th Ave E at Kelly Lake Rd E[24]	Signal	D (40.8)	**1.01**
7 214th Ave E at Sumner-Buckley Hwy[25]	Signal	C (20.6)	0.85
8 214th Ave E at 96th St[25]	Signal	A (5.4)	0.53
9 214th Ave E at S Prairie Rd E[25]	Signal	D (46.3)	**1.15**
10 SR 410 at Veterans Memorial Dr E/181st Ave E	Signal	B (17.6)	0.80
11 Veteran Memorial Dr E at Main St E	Signal	B (14.2)	0.73
12 Veteran Memorial Dr E at Locust Ave E/188th Ave E	Signal	C (25.0)	0.88
13 SR 410 at Sky Island Dr E	Signal	C (25.0)	**1.02**
14 SR 410 at 192nd Ave E	Signal	C (29.9)	**0.92**
15 SR 410 at 195th Ave E	Signal	C (33.9)	**0.94**
16 SR 410 at 198th Ave/S Prairie Rd E	Signal	D (54.0)	**1.01**
17 S Prairie Rd E at 200th Ave Ct E	Signal	**E (69.5)**	**1.10**
18 SR 410 at 208th Ave E	Signal	C (26.1)	0.72
19 SR 410 at 211th Ave E	Signal	B (11.2)	0.87
20 SR 410 at 214th Ave E	Signal	D (49.0)	**0.93**
21 SR 410 at 233rd Ave E	Signal	B (12.4)	0.71
22 Rhodes Lake Rd E at Sky Island Dr E[25]	Stop Sign	**E (48.3)**	0.58
23 Rhodes Lake Rd E at Angeline Rd E[24]	Stop Sign	**E (35.3)**	0.37
24 Rhodes Lake Rd E at 192nd Ave E[25]	Stop Sign	C (23.0)	0.17
25 109th St E at 192nd Ave E	Stop Sign	A (9.9)	0.01
26 104th St E at 199th Ave E/200th Ave Ct E[24]	Signal	B (16.7)	**0.93**
27 214th Ave E at 120th St E[25]	Signal	A (9.0)	0.66
28 Church Lake Rd E at Kelly Lake Rd E[24]	Stop Sign	D (26.4)	0.60

[24] Bonney Lake is responsible for one leg of this intersection; Pierce County is responsible for the remainder.
[25] Pierce County is responsible for this intersection. It is included due to its influence on City traffic patterns and intersections.

Intersection Number (See Exhibit 32) and Name	Intersection Control Type	ILOS (Delay in Seconds)	Worst V/C
29 Sumner-Buckley Hwy at Kelly Lake Rd E[25]	Stop Sign	**F (61.6)**	0.86
30 SR 410 at 204th Ave E	Signal	C (20.9)	**0.95**
31 S Prairie Rd E at 204th Ave E[24]	Signal	B (12.3)	0.88
32 Church Lake Dr E at W Tapps Hwy E	Stop Sign	C (20.1)	0.36
33 214th Ave E at Vandermark Rd E[24]	Stop Sign	**E (49.5)**	0.55
34 Myers Rd E at 70th St E	Stop Sign	B (13.9)	0.13
35 Myers Rd E at 81st St E	All Way Stop	A (9.1)	0.30
36 182nd Ave E at 84th St E	Stop Sign	B (12.5)	0.12
37 Church Lake Rd E at Veterans Memorial Dr E	Stop Sign	**E (44.1)**	0.76
38 Rhodes Lake Rd E at 198th Ave E[25]	Signal	C (21.3)	0.89
39 SR 410 at Myers Rd E	Stop Sign	**E (40.8)**	0.58
40 S Tapps Dr E at W Tapps Hwy E	Stop Sign	B (13.0)	0.11
41 Veterans Memorial Dr E and Sumner-Buckley Hwy at Angeline Rd E	Stop Sign	**F (>200)**	**1.43**

Source: SCJ Alliance, 2025
Note: 2049 daily volumes are for the preferred land use alternative.

Of the intersections that are wholly the City's responsibility, the following are expected to exceed the adopted ILOS and would require improvement. These include:

- Church Lake Rd E at West Tapps Hwy E
- S Prairie Rd E at 200th Ave Ct E
- Church Lake Rd E at Veterans Memorial Dr E
- Veterans Memorial Dr E and Sumner-Buckley Hwy at Angeline Rd E

Intersections failing based on the City's adopted ILOS that lie partially within the unincorporated county include:

- 214th Ave E at Connells Prairie Rd
- 214th Ave E at Kelly Lake Rd E
- Rhodes Lake Rd E at Angeline Rd E
- 104th St E at 199th Ave E/200th Ave Ct E
- 214th Ave E at Vandermark Rd E

Intersections failing based on the City's adopted ILOS that lie wholly within the County include:

- 214th Ave E at S Prairie Rd E

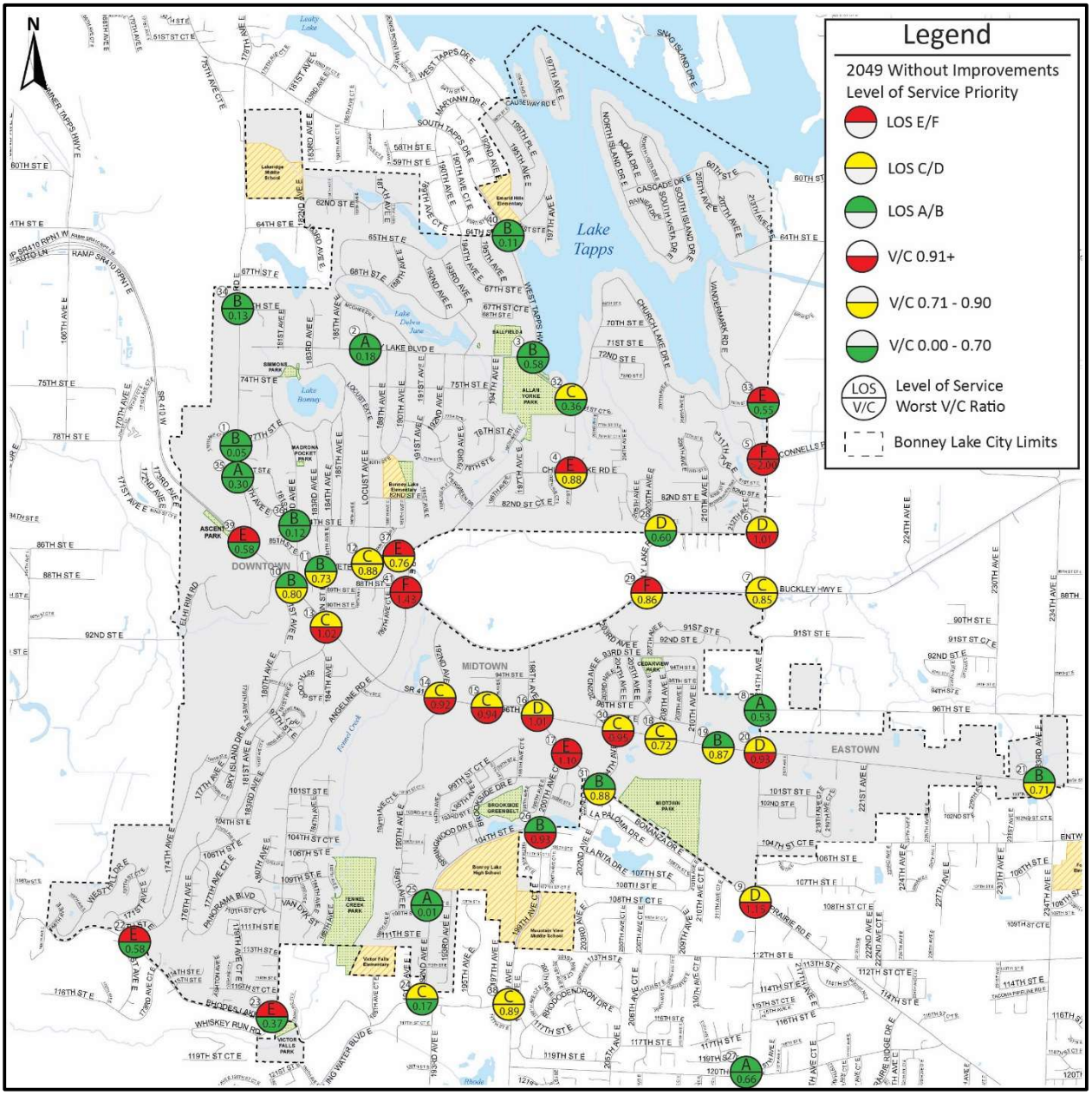
- Rhodes Lake Rd E at Sky Island Dr E
- Sumner-Buckley Hwy at Kelly Lake Rd E

Failing intersections under the jurisdiction of WSDOT include:

- SR 410 at Sky Island Dr E
- SR 410 at 192nd Ave E
- SR 410 at 195th Ave E
- SR 410 at 198th Ave/S Prairie Rd ESR 410 at 214th Ave E
- SR 410 at 204th Ave E
- SR 410 at Myers Rd E

Analysis results are also illustrated in **Exhibit 34**. The letter in the top half of the circles in this figure is the amount of delay represented by the ILOS and the number in the bottom half of the circle is the worst V/C ratio for that intersection. See **Exhibit 7** for a description of the delay associated with each ILOS. The future traffic operations analysis worksheets are included in **Appendix H**.

Exhibit 34: Projected PM Peak Hour ILOS, City of Bonney Lake, 2049 Without Improvements



Source: SCJ Alliance, 2025

Intersections recommended for improvement focus on those that lie entirely within the City, with some that are shared with the County. Other intersections will require future coordination with the County.

The WSDOT-controlled intersection of SR 410 with Myers Rd E will require coordination with the State to identify and implement optimal improvements.

PM Peak Corridor Analysis

To analyze the corridors within the City's roadway network for concurrency, the City has implemented a screen line assessment. A screen line is an imaginary line that bisects several parallel roads to measure the combined ability of the roads that serve a given sector or planning area. The screen lines identified and used in Bonney Lake are strategically located to ensure that the road system serving a specific area has sufficient capacity to accommodate the traffic generated by the forecasted population growth.

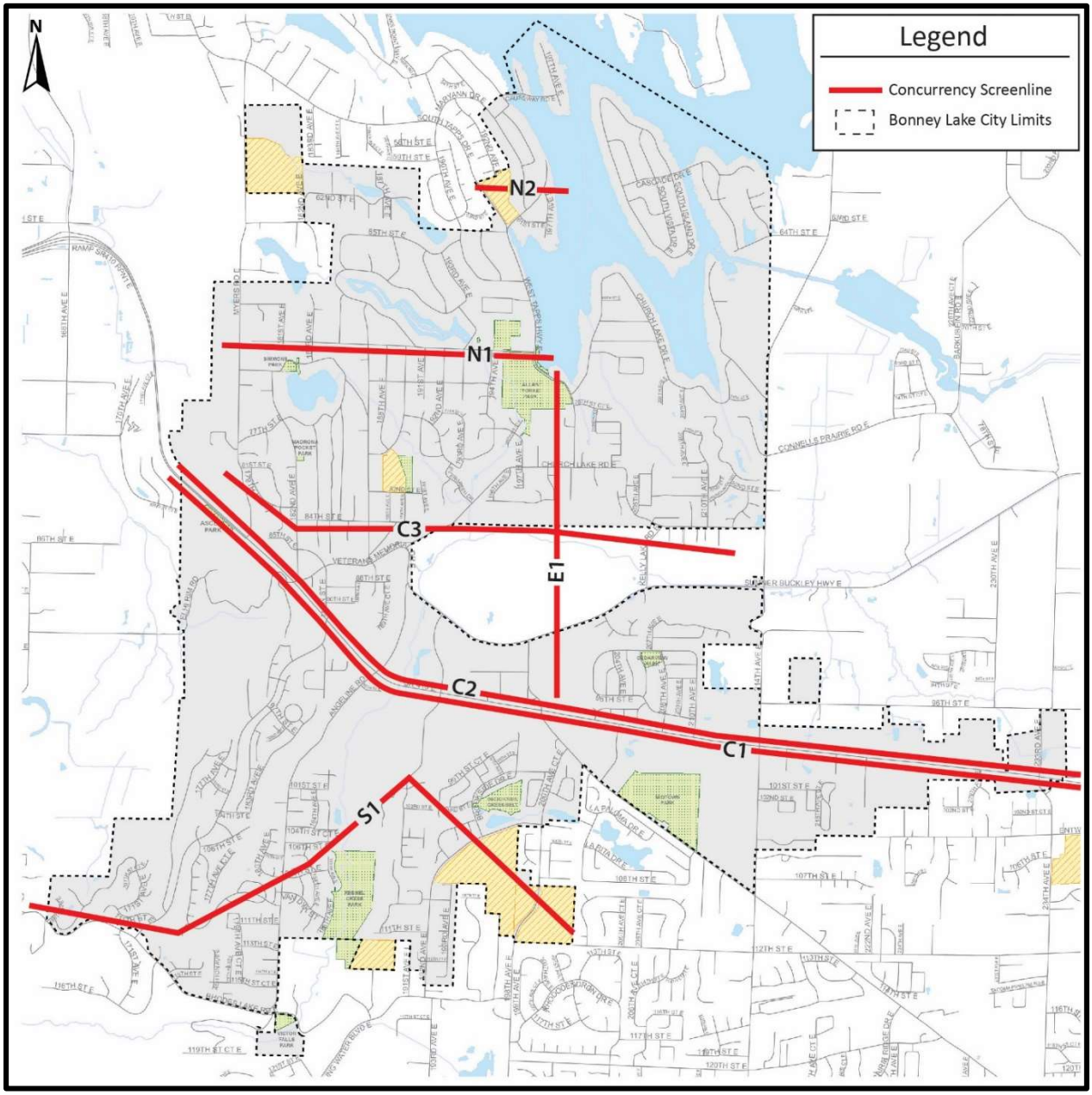
The discrete measure used to define the quality of traffic flow across the screen line is typically expressed in the form of a ratio that divides the existing or projected volume by the capacity of the roads bisecting a given screen line. This is commonly referred to as the volume-to-capacity or V/C ratio.

Traffic carried on each roadway analyzed in a screen line during the two (2) hour PM Peak period has been selected for this analysis, since use of a single peak hour during the day can skew the results of a traffic analysis to make conditions appear worse than what actually exists. The two (2) hour PM Peak period volume is also used to provide the City with a simple basis for regularly updating this Element and testing the impacts of new development.

The capacity of the roads is based on the ideal capacity of a single vehicular travel lane (expressed in vehicles per hour) and is refined to reflect the effects of the physical roadway, including the number of travel lanes, left turn channelization, and traffic control conditions at intersections. The total capacity of each of the roads cut by the screen line are added together to define the screen line capacity.

The City has adopted a screen line V/C ratio performance standard for road screen lines connecting to the SR 410 corridor of no more than 0.60. A V/C ratio of 0.50 is used to measure performance for all other roads. This means that across the bisected roads, the City is only expecting to use 50-60% of the capacity based on the location. The location of the City's screen lines are illustrated in **Exhibit 35**.

Exhibit 35: Roadway Screen Lines, City of Bonney Lake, 2023



Source: SCJ Alliance, 2025

To recognize that the screen lines bisect multiple roads, V/C ratios are substantially lower than the ILOS in order to provide some flexibility and help to ensure the quality of life for residential neighborhoods. **Exhibit 36** presents a summary of existing and projected future screen line V/C ratios in comparison to the V/C performance standards.

Exhibit 36: Roadway Screen Line V/C Ratios, City of Bonney Lake, 2025

Screen Line Number	2023 Roadway V/C	2049 Roadway V/C	Screenline LOS
S1	0.31	0.44	0.50
C1	0.54	**0.73**	0.60
C2	0.35	0.47	0.60
C3	0.24	0.38	0.50
N1	0.29	0.39	0.50
N2	0.16	0.21	0.50
E1	0.25	0.44	0.50

Source: SCJ Alliance, 2025

All corridor screen lines currently meet their expected screen line LOS. By 2049, it is expected that screen line C1 will exceed its V/C LOS of 0.60. This screen line includes all key streets approaching SR 410 from the south side of the highway. Major corridors of north/south connectivity in this area moving from west to east include Sky Island Dr E, S Prairie Rd E, 204th Ave E, 211th Ave E, 214th Ave E and 234th Ave E.

Out of all these corridors, the two (2) that are most significant in providing community-wide north/south connectivity are S Prairie Rd E and 214th Ave E through implementation of roadway widening projects in the future.

5.2 FUTURE PEDESTRIAN FACILITY NEEDS

Pedestrian facilities are a vital part of providing a multimodal transportation system that increases choice for residents, particularly non-drivers and children, and reduces reliance on motorized vehicles, facilitates environmental sustainability, and provides significant health benefits.

Based on the evaluation of needs as described in **3.3 Pedestrian System Deficiencies** and illustrated in **Exhibit 23**, future pedestrian improvement projects were identified. Prioritization of these improvements is important so that the City can effectively spend its limited resources to develop a more walkable community. To aid in the prioritization process, the City has established a Pedestrian Priority Index (PPI) to prioritize sidewalk improvements based on the measures described below in **Exhibit 37**.

In the PPI, various criteria were identified and assigned a point score based on the degree to which they differential among potential projects and help to determine those that would be the most effective in meeting City goals for enhanced community walkability.

The evaluation of each sidewalk in the City based on the PPI process relied heavily on data available in the City's GIS files and included the following considerations:

- **Public Road Classification:** Using the City's GIS road classification layer point values were given based on the road classification (see **Section 2.1** for descriptions).
- **ADA:** Manual check using results published in City's ADA Transition Plan to identify degree of compliance with ADA goals.
- **Crash Data:** Crash history for the 2019-2023 analysis period was provided by WSDOT with latitudinal and longitudinal points for locating each pedestrian or bicycle crash. These were incorporated into a GIS layer and overlaid onto a street map to identify segments with reported crashes.
- **Parks and Trailheads:** Using the City's GIS layer for parks and trailheads, distinct buffer areas were defined around each park and trailhead location for ⅛ and ¼ mile distances without overlap. Roadway segments that fell within one or the other of these buffers were identified and scored.
- **Local Centers:** Using the City's GIS layer of local centers distinct buffers for ⅛ and ¼ mile were identified. Roadway segments that fell within one or the other of these buffers were identified and scored.
- **Public Facilities:** Similar process was used to establish ⅛ and ¼ mile buffers around each public facility and applicable roadway segments were identified and scored. Public facilities included things like schools, senior centers, the Sound Transit park and ride lot, day care facilities, police and fire stations, libraries, hospitals and urgent care facilities, and other government offices.
- **Fills System Gaps:** Using the City's sidewalk GIS layer, locations where sidewalk gaps existed were identified. A score of 4 was given to areas where there is no existing sidewalk connection and a score of 2 was given where alternative routes were available on the other side of the road.
- **Sidewalk MMLOS:** Segments that were scored under earlier criteria as failing received a point value of 4.

On December 10, 2024, City Council identified the preferred weighting factors (Motion No. R24-116). These weight factors are included in **Exhibit 37**.

Exhibit 37: Pedestrian Priority Index (PPI) Scoring Matrix

Index Criteria Location Rating	Point Value	Council Weight Factor	Total Possible Score
Public Road Classification			
On a primary or secondary multimodal road	4	1	4
On a principal arterial, minor arterial, or collector	3	1	3
On a local street	1	1	1
Americans with Disabilities (ADA) Act Compliance			
High Priority Improvement in adopted ADA Plan	6	1	6
Medium Priority Improvement in adopted ADA Plan	3	1	3
Existing Crashes			
Pedestrian and/or Bicycle crashes, Prior 5 Years	6	5	30
Parks and Trailheads			
Part of Trail System (see PTROS Plan)	5	5	25
Within ⅛ mile of park or trail	3	5	15
Within ¼ mile of park or trail	2	5	10
Local Centers			
Within a local center	4	1	4
Within ⅛ mile of center	3	1	3
Within ¼ mile of center	2	1	2
Public Service Facility[26]			
Within ⅛ mile of a public service facility	4	5	20
Within ¼ mile of a public service facility	2	5	10
Fills a System Gap			
Fills a Priority Gap	4	5	20
Fills a Lower Priority Gap (alternatives are available)	2	5	10
Sidewalk Level of Service (LOS)			
Failing	4	2	8

[26] Public service facilities include city facilities, schools (pre-k and above), police and fire stations, post offices, emergency room and urgent care facilities, libraries, senior centers, and the park and rid

Point scores were then weighted by a factor approved by City Council that determined how important each criterion was in meeting City goals. A total possible score for each criterion was determined and the highest ranking priority projects identified.

The raw scores identified using the scoring factors in **Exhibit 37** were then converted to a percentage and multiplied by 100. The range of percent (or PPI) scores is presented in **Exhibit 38**.

Exhibit 38: PPI Scoring

Priority	PPI Score
Top	40 – 100
Moderate	20 – 39
Low	19 or less

PPI scores were grouped into Top, Medium and Low priority categories. Future pedestrian improvements are identified in **Exhibit 39** and illustrated in **Exhibit 40**. The cost to build all identified pedestrian improvements consistent with the current Americans with Disabilities Act Accessible Guidelines (ADAAG) for Top priority projects are listed in **Recommended Improvements** in **Section 5.6**.

In addition to the PPI Score, other factors influenced the selection projects, including:

- Relationship to mobility projects
- Special grant application projects
- Pending development projects
- Prevailing site conditions

Exhibit 39: Top Pedestrian Facility Improvements by PPI Score[27]

Segment ID	Street Name	From	To	Length (Feet)	PPI Score
P1	SR 410	216th Ave E	219th Ave Ct E	1,130	86
P2	SR 410	214th Ave E	216th Ave E	630	76
P3[28]	Veterans Memorial Dr E	188th Ave E	Church Lake Rd E	410	64
P4	96th St E	203rd Ave E	204th Ave E	300	63

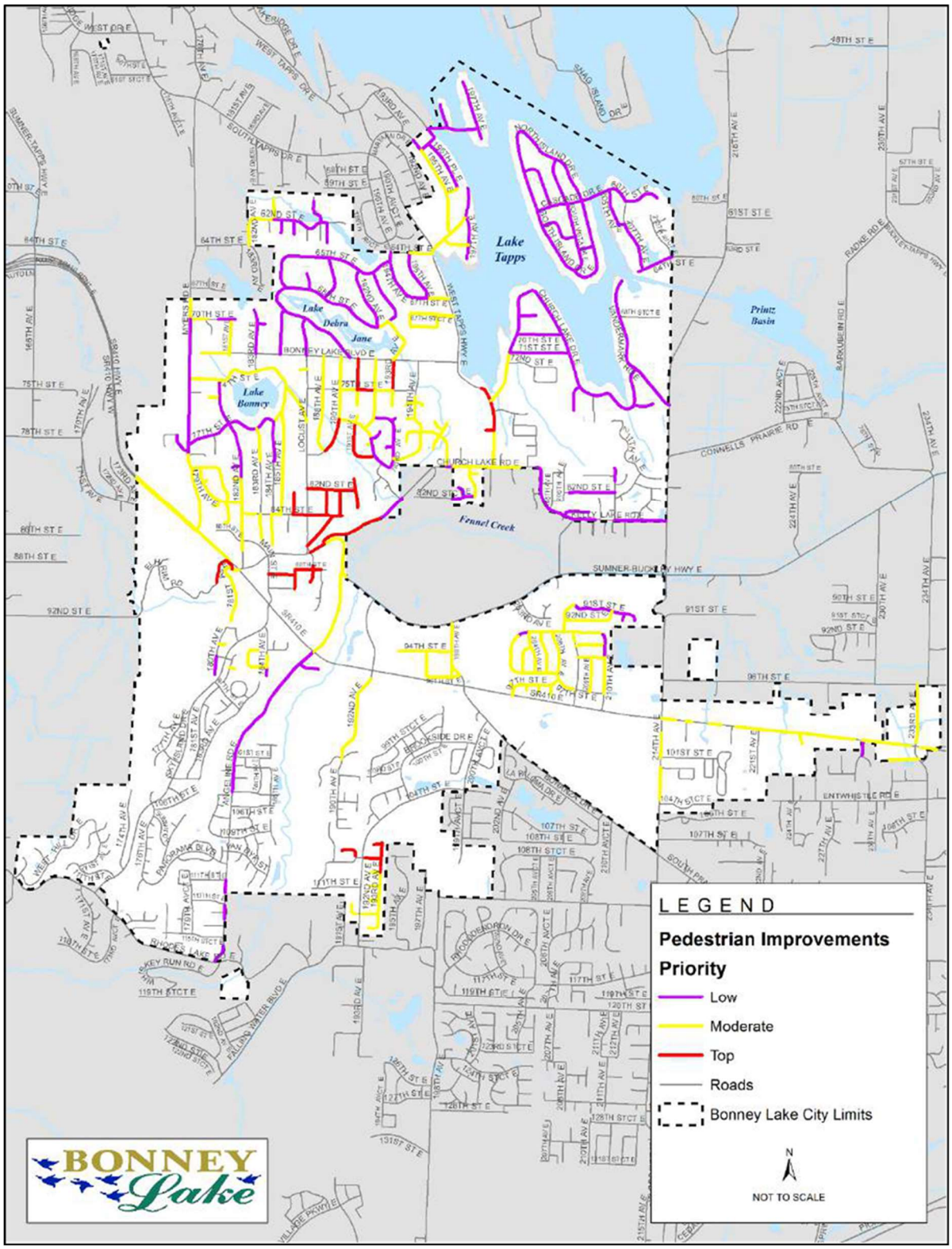
[27] A complete list of street segments and associated Top, Moderate, and Low PPI scores are available in **Appendix I**.

[28] Part of intersection and trail project I2.

Segment ID	Street Name	From	To	Length (Feet)	PPI Score
P5	SR 410	219th Ave Ct E	221st Ave E	565	56
P6[29]	214th Ave E	SR 410	101st St E	970	55
P7	88th St E	188th Ave E	189th Ave Ct E	120	53
P8	Angeline Rd E	95th St E	101st St E	2,900	53
P9	182nd Ave E	83rd St E	84th St E	960	52
P10	75th St E	192nd Ave E	193rd Ave E	440	49
P11[30]	W Tapps Hwy E	Bonney Lake Blvd E	Church Lake Dr E	1,380	46
P12	Church Lake Dr E	West Tapps Hwy E	71st St E	1,345	46
P13	198th Ave E	94th St E	198th Ave E	320	45
P14[29]	214th Ave E	102nd St E	104th St Ct E	900	45
P15[28]	Sumner-Buckley Hwy	Angeline Rd E	City Limits	180	44
P16	Church Lake Rd E	Evergreen Dr	Driveway south of Church Lake Rd E	680	43
P17	Church Lake Rd E	Driveway south of Church Lake Rd E	Veterans Memorial Dr	1,680	43
P18	89th St E	186th Ave E	Main St E	670	43
P19	198th Ave Pl E	198th Ave E	96th St E	320	43
P20	96th St E	198th Ave E	196th Ave E	620	43
P21[28]	188th Ave E / Locust Ave	Veterans Memorial Dr E	88th St E	1,565	43
P22	196th Ave E	94th St E	96th St E	620	43
P23[31]	84th St E	Locust Ave E	182nd Ave E	1,585	42
P24	W Tapps Hwy E	77th St Ct	Church Lake Rd E	920	41
P25[32]	Church Lake Rd E	197th Ave E	W Tapps Hwy E	1,100	41
P26	Angeline Rd	101st St E	104th St Ct E	875	41

[29] Part of road widening project R3.
[30] Part of road reconstruction project R9.
[31] Public interest.
[32] Fill in or partial sidewalk segments.

Exhibit 40: Pedestrian Facilities by PPI Score



Source: SCJ Alliance, 2025

5.3 FUTURE BICYCLE FACILITY NEEDS

A bicycle network benefits an entire community, including walkers, hikers, wheelchair users, and people of all ages and abilities by providing a low-cost, quiet, non-polluting, and healthy form of transportation ideal for many trips, including recreation, commuting, and running errands. However, planning for the integration of bicycle facilities on new streets and highways can be much easier than retrofitting existing facilities. Arterial and collector streets with limited width and higher traffic volumes are difficult to modify to add separate bicycle lanes in both directions unless part of a larger street widening or upgrade project.

A wide range of user groups will use the City's bikeways, streets, and sidewalks. Gaining an understanding of the reasons for which people travel by bike helps to identify common needs among the different user groups. In general, bicycle trips can be broken down into recreational (including all discretionary trips), commuter (whether to work or school), or shopping trips. The biggest difference between these groups is that while recreational riders may be interested in routes leading to parks or other areas of interest, commuters and shoppers are interested in the shortest and safest route between two points.

The City will pursue opportunities to implement projects through routine resurfacing, restriping, or development projects as they arise, regardless of a project's place in prioritization.

The City intends to develop a *Bicycle System Master Plan* to address the existing system deficiencies, identify future improvement needs, prioritization, education, and enforcement. The prioritization of the bicycle projects will be based on the following four criteria:

1. **Activity Centers**: The project is near existing and planned activity centers such as parks, schools, employment centers, and neighborhood and regional retail.
2. **Connectivity**: The project provides connections to existing bicycle facilities, activity centers, or closes a gap in the existing bikeway network.
3. **Regional Access**: The project provides access to regional trails, bikeways in adjacent cities, across highways, or to transit stops.
4. **Relative Ability to Implement**: The project can be implemented based on the amount of roadwork and coordination needed.

Attention will also be paid to the bicycle support facilities that cyclists use when they reach their destinations. They can include short and long-term bicycle parking, showers, lockers, restrooms, good lighting, bicycle repair facilities and even public phones. The

lack of bicycle facilities at the destination can be one of the largest deterrents to cycling for many riders.

The following will be included in the *Bicycle Master Plan* to increasing bicycling and improve safety:

- **Public Education:** This can include banners, websites, posters, and public service announcements. Education campaigns targeted at schoolchildren (e.g. model curriculum for inclusion in elementary school physical education programs) can be effective.
- **Encouragement:** This can include involving the community as part of any solution and programmed events like "Walk to School Day" and "Bike to Work Day."
- **Enforcement**: This can include special training for officers in pedestrian and bicycle collision analysis and red light running programs.
- **Engineering:** This can include improvements to signal timing and physical enhancements to the pedestrian travel way.

5.4 ADDITIONAL STUDIES

New roadways will provide most of the additional capacity required to accommodate the population and employment growth envisioned over the next 25 years and improved interconnectivity of the existing street grid. Since the adoption of the 2015 Mobility Plan, several planning studies have been conducted to address the needs of specific locations. These studies are identified below and have been incorporated into the **Recommended Improvements** in **Section 5.6**.

Focused planning studies that have been conducted in Bonney Lake include:

- *Traffic Impact Analysis: Allan Yorke Park* (October 2023) studied the realignment of W Tapps Hwy E around Allan Yorke Park (see **Appendix I**).
- *Intersection Control Evaluation: Angeline Road at Veterans Memorial Drive* (March 2024) studied improvement options at the intersection of Angeline Rd E with Veterans Memorial Dr E / Sumner-Buckley Hwy E (see **Appendix J**).
- *Intersection Control Evaluation: Church Lake Road East at West Tapps Highway* (May 2024) studied improvement options at the intersection of Church Lake Rd E with W Tapps Hwy E (see **Appendix K**).
- *192nd Avenue Extension and 100th Street Extension Evaluation Technical Memorandum* (April 2025) studied potential improvements intended to relieve congestion at key intersections along SR 410 and in the vicinity of the state highway. These include an extension of the 192nd Ave E corridor between SR 410 to 104th St E, plus a package of improvements to 101st St E and 211th Ave E (see **Appendix L**).

5.5 REGIONAL CONNECTIONS

The City recognizes the importance of coordinated and strong interjurisdictional action because transportation impacts do not stop at local boundaries. Amidst increasing congestion and limits on public resources, interjurisdictional coordination is necessary if the region is to achieve the shared land use and transportation vision depicted in PSRCs *VISION 2050*, *Regional Transportation Plan 2022-2050*, and the Pierce County CPPs.

The interface between the local transportation system and the regional system is particularly important. This applies not only to the relationship between state highways and local thoroughfares, but also to the connections between the Flume Trail, Foothills Trail, the Fennel Creek Trail, and other local bike trails and pathways. The City will continue to collaborate with state and regional agencies, transportation service providers, Pierce County, and nearby cities to ensure Bonney Lake's continued regional accessibility.

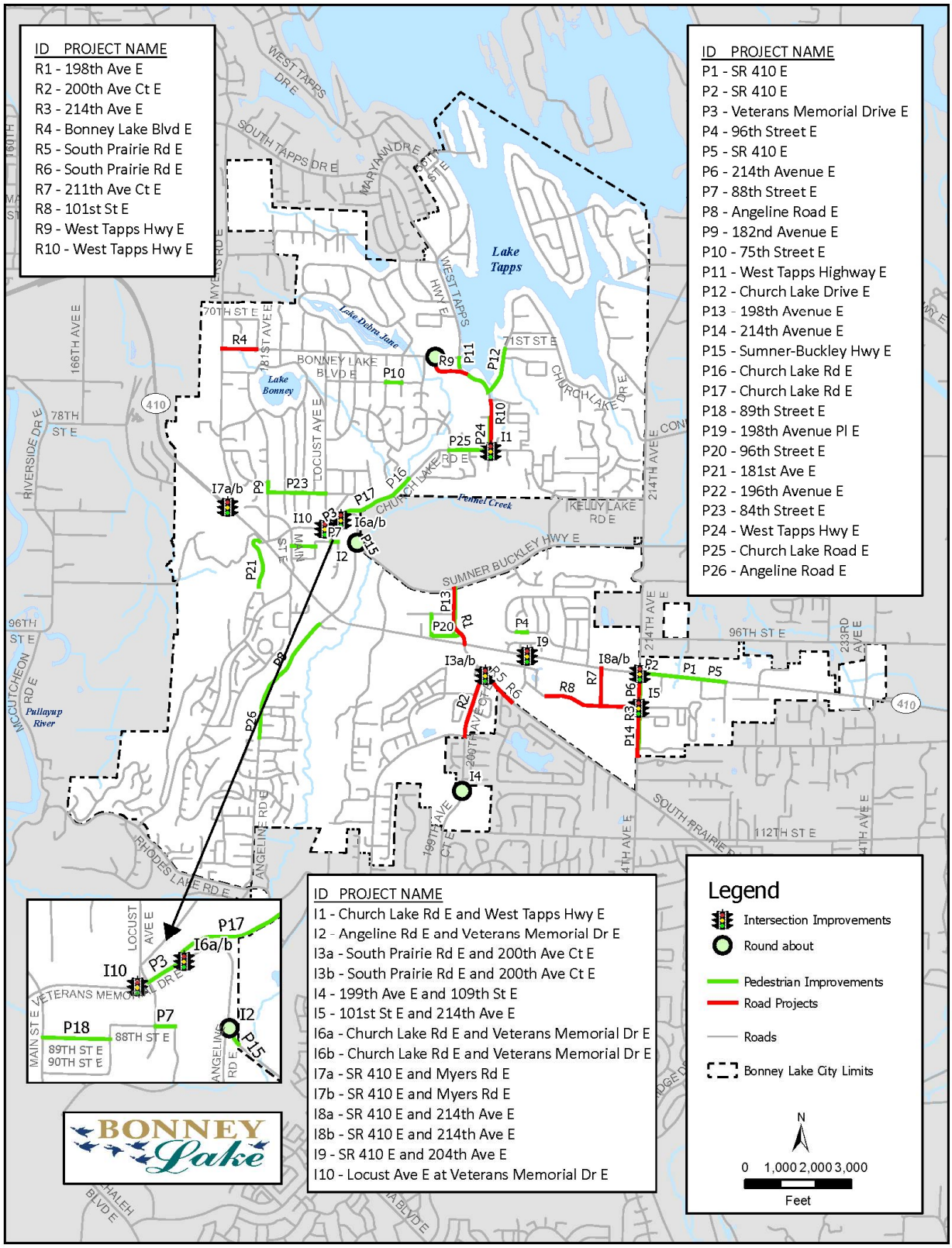
5.6 2025-2049 TRANSPORTATION IMPROVEMENT PROGRAM

A detailed list of deficiencies for roadways, intersections, and active transportation facilities has been identified based on the evaluation of 2049 PM Peak Hour operations and the focused transportation studies listed in **Section 5.4**.

Recommended Improvements

Recommended improvements to streets and intersections in Bonney Lake that respond to the identified deficiencies are illustrated in **Exhibit 41** and described in **Exhibit 42.** This table identifies each project by unique number, project name and limits, provides a description of the work to be done, a planning level cost estimate, and general timing or priority of the improvement.

Exhibit 41: 2025-2049 Recommended Transportation Improvements Map



Envision BONNEY LAKE
Celebrating 100 Years

Exhibit 42: 2025-2049 Recommended Transportation Improvements

Project ID	Project Name				Priority
2025-2049 Road (R) Projects					
R1	**198th Ave E**				**Low**
Project Limits:	Sumner-Buckley Hwy E to SR 410				
Description:	Construct roadway to minor arterial standard including 2 travel lanes, curb, gutter, sidewalk, bike lanes, and landscaping on both sides. Roadway will be realigned with the SR 410 intersection. Will require stormwater conveyance system with detention and water quality facilities.				
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$4,750,000	*TIF Share[33]:*	95%	
Comments:	Coordinate with intersection improvements to SR 410/198th Ave E & Sumner-Buckley Hwy/198th Ave E. (tie into Kelly Farm roundabout). Correlated to overall bike lane project map as basis for determining where these facilities should be included.				
R2	**200th Ave Ct E**				**High**
Project Limits:	S Prairie Rd E to 104th St E				
Description:	Widen the roadway up to 5 lanes with curb, gutter, sidewalk, bike lanes, landscaping, and stormwater facilities.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$5,750,000	*TIF Share:*	67%	
Comments:	Repaved summer of 2023. Reassess after Tehaleh in six years. Coordinate with intersection improvements at So Prairie/200th (I3a and I3b). Correlated to overall bike lane project map as basis for determining where these facilities should be included.				

[33] Traffic Impact Fee (TIF) Share refers to the portion of the project can be paid for with traffic impact fees collected pursuant to RCW 82.02.050 et. seq., which authorizes the collection of fees to pay for development's proportional impact on streets and roads. The fees must be used for "system improvements" that provide service and benefit to the entire community not individual developers. For more information, see the **Capital Facilities & Services Element**.

Project ID	Project Name				Priority
R3	**214th Ave E**				**Medium**
Project Limits:	SR 410 to Southern City Limits				
Description:	Widen existing street to provide five travel lanes, curb, gutter, sidewalk, landscaping, and stormwater facilities. Purchase 20 feet of ROW from SR 410 to Southern City Limits. Will require stormwater conveyance system with detention and water quality facilities.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$11,100,000	*TIF Share:*	45%	
Comments:	Coordinate with County on transition between 5-lane cross-section in the city and county's preferred 3-lane cross-section.				
R4	**Bonney Lake Blvd E (Myers Rd E Connection)**				**Low**
Project Limits:	Myers Rd to 181st Ave E				
Description:	Construct new road with two 11 foot wide travel lanes, a sidewalk on the north side of the road, curb, and gutter on both sides of the road, and a bioswale on the south side of the road.				
Project Data:	*Functional Classification:*	Collector	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$3,150,000	*TIF Share:*	95%	
Comments:	Myers Rd improvement is intended to reduce traffic on Locust and Veterans Memorial Drive. Will avoid turning constraint on 70th Street.				
R5	**S Prairie Rd E (Phase 1)**				**High**
Project Limits:	200th Ave E to 202nd Ave E				
Description:	Reconstruct and widen roadway to include 5-lanes with curb, gutter, sidewalks, and bike lanes. Will require stormwater conveyance system with detention and water quality facilities.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$3,150,000	*TIF Share:*	45%	
Comments:	Coordinate with intersection projects I3a and I3b. Correlated to overall bike lane project map as basis for determining where these facilities should be included.				
R6	**S Prairie Rd E (Phase 2)**				**Low**
Project Limits:	202nd Ave E to 204th Ave E				
Description:	Reconstruct and widen roadway to include 5-lanes with curb, gutter, sidewalks, and bike lanes. Will require stormwater conveyance system with detention and water quality facilities.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$3,150,000	*TIF Share:*	45%	
Comments:	Ph 2 lower priority based on annexation within next 20 years. Need overall bike lane project map as basis for where these facilities should be included.				

Project ID	Project Name				Priority
R7	**211th Ave Ct E**				**Medium**
Project Limits:	Sr 410 to 101st St E				
Description:	Acquire existing private two lane road; add sidewalks with curb, gutter, and landscaping to the east side of the road; and extend road on to WSU property with sidewalk and landscaping strip on one side of the road, curb, and gutter on both sides of the road, and bioswale on one side opposite the sidewalk.				
Project Data:	*Functional Classification:*	Commercial Access	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$3,500,000	*TIF Share:*	95%	
Comments:	Contingent on extension of 101st Avenue.				
R8	**101st St E**				**Medium**
Project Limits:	Current Western Terminus to 214th Ave E				
Description:	Construct new road with two travel lanes and intersection improvements at 214th Avenue E.				
Project Data:	*Functional Classification:*	Commercial Access	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$3,800,000	*TIF Share:*	95%	
Comments:	None.				
R9	**W Tapps Hwy E (New Segment)**				**High**
Project Limits:	Bonney Lake Blvd E to New Connection South of Allan Yorke Park				
Description:	Construct new road with two travel lanes, shared use path on east and north side of road with intersection at the south end of Allan Yorke Park. Road to be built within existing park right of way and will connect with new roundabout on Bonney Lake Drive. Reconfigure existing intersection of Bonney Lake with existing W Tapps Hwy to accommodate relocation of W Tapps Hwy alignment.				
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$5,250,000	*TIF Share:*	67%	
Comments:	Coordinate with park improvements. Cost estimate from Allan Yorke Park study.				
R10	**W Tapps Hwy E (Upgrade)**				**High**
Project Limits:	76th St Ct E to Church Lake Rd E				
Description:	Upgrade roadway to include curb and gutter on both sides of the street and a multi-use path on the west side of the street.				
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Road	
	Estimated Cost (2025 Dollars):	$9,498,000	*TIF Share:*	67%	
Comments:	Based on preliminary design estimate.				

Project ID	Project Name	Priority
2025-2049 Intersection (I) Projects		
I1	**Church Lake Rd E and W Tapps Hwy E**	**High**
Project Limits:	Intersection	
Description:	Install new signal. Includes $130,000 for stormwater management and $533,700 to modify vertical curve to the east of the intersection and improve sight distance per intersection study.	
Project Data:	*Functional Classification:* Minor Arterial; *Type:* Intersection; *Estimated Cost (2025 Dollars):* $1,600,000; *TIF Share:* 67%	
Comments:	Interim improvement could include the vertical curve modification and all-way stop control when warranted.	
I2	**Angeline Rd E and Veterans Memorial Dr E**	**High**
Project Limits:	Intersection	
Description:	Install roundabout and add shared use path from 192nd Avenue to Locust.	
Project Data:	*Functional Classification:* Principal Arterial; *Type:* Intersection; *Estimated Cost (2025 Dollars):* $6,200,000; *TIF Share:* 95%	
Comments:	Based on intersection-specific study.	
I3a	**S Prairie Rd E and 200th Ave Ct E (Phase 1)**	**High**
Project Limits:	Intersection	
Description:	Conduct an Intersection Control Evaluation (ICE) to determine appropriate channelization and/or control improvements.	
Project Data:	*Functional Classification:* Principal Arterial; *Type:* Intersection; *Estimated Cost (2025 Dollars):* $60,000; *TIF Share:* 67%	
Comments:	Traffic volumes impacted by 101st Street E and 211th Ave extensions.	
I3b	**S Prairie Rd E and 200th Ave Ct E (Phase 2)**	**High**
Project Limits:	Intersection	
Description:	Add new southbound through lane and widen approaches as needed.	
Project Data:	*Functional Classification:* Principal Arterial; *Type:* Intersection; *Estimated Cost (2025 Dollars):* $2,200,000; *TIF Share:* 67%	
Comments:	Assumed improvement. Maybe modified by findings of ICE in I3a. Coordinate with road project R5.	

Project ID	Project Name				Priority
I4	**199th Ave E and 109th St E**				**Medium**
Project Limits:	Intersection				
Description:	Install new roundabout.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$3,500,000	*TIF Share:*	67%	
Comments:	Located at the entrance to Bonney Lake High School and Mountain View Middle School.				
I5	**101st St E and 214th Ave E**				**Medium**
Project Limits:	Intersection				
Description:	Install new signal and additional turn lanes as part of 101st Street Extension.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$2,500,000	*TIF Share:*	95%	
Comments:	Coordinate with road projects R7 and R8.				
I6a	**Church Lake Rd E and Veterans Memorial Dr E (Phase 1)**				**Low**
Project Limits:	Intersection				
Description:	Signalize intersection and coordinate with adjacent intersections.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$50,000	*TIF Share:*	67%	
Comments:	Conduct intersection study to determine whether to build a signal or a roundabout. Evaluate when signal warrants met.				
I6b	**Church Lake Rd E and Veterans Memorial Dr E (Phase 2)**				**Low**
Project Limits:	Intersection				
Description:	Improve intersection and coordinate with adjacent intersections.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$700,000	*TIF Share:*	67%	
Comments:	Implement improvement recommended in I6a study.				

Project ID	Project Name				Priority
I7a	**SR 410 and Myers Rd E (Phase 1)**				**Low**
Project Limits:	Intersection				
Description:	Prepare Intersection Control Evaluation (ICE) with WSDOT to determine appropriate solution.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$50,000	*TIF Share:*	67%	
Comments:					
I7b	**SR 410 and Myers Rd E (Phase 2)**				**Low**
Project Limits:	Intersection				
Description:	Consider adding southbound-to-westbound acceleration lane.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$2,000,000	*TIF Share:*	67%	
Comments:	Acceleration lane improvement identified as basis for cost estimate. Final improvement to be determined based on outcome of study.				
I8a	**SR 410 and 214th Ave E (Phase 1)**				**Medium**
Project Limits:	Intersection				
Description:	Conduct planning study to identify optimal configuration.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$50,000	*TIF Share:*	45%	
Comments:	Update earlier Intersection Control Evaluation (ICE) to reflect land use changes from prior plan.				
I8b	**SR 410 and 214th Ave E (Phase 2)**				**Medium**
Project Limits:	Intersection				
Description:	Convert right turn drop lane to through lane and add new right turn drop lane.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$470,000	*TIF Share:*	45%	
Comments:	Improvement contingent on road widening to the south (see R3). Final improvement to be determined based on outcome of study.				

Project ID	Project Name				Priority
I9	**SR 410 and 204th Ave E**				**High**
Project Limits:	Intersection				
Description:	Remove landscaped island and restripe to lengthen left turn pocket.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$150,000	*TIF Share:*	67%	
Comments:					
I10	**Locust Ave and E Veterans Memorial Dr E**				**Low**
Project Limits:	Intersection				
Description:	Conduct planning study to identify optimal configuration.				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Intersection	
	Estimated Cost (2025 Dollars):	$50,000	*TIF Share:*	67%	
Comments:	Conduct intersection study to determine whether to build a signal or a roundabout.				
2025-2049 Pedestrian (P) Projects					
P1	**SR 410 E**				
Project Limits:	216th Ave E to 219th Ave Ct E				
Description:	Install 1,130 linear feet of sidewalk on north side and 400 linear feet on south side of existing highway.				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	$1,808,000	*Part Of:*	N/A	
P2	**SR 410 E**				
Project Limits:	214th Ave E to 216th Ave E				
Description:	Install 630 linear feet of sidewalk on north side and 300 linear feet on south side of existing highway				
Project Data:	*Functional Classification:*	State Highway	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	$2,016,000	*Part Of:*	N/A	
P3	**Veterans Memorial Dr E**				
Project Limits:	188th Ave E to Church Lake Rd E				
Description:	Install 410 linear feet of multi-use path on one side of existing road				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	N/A	*Part Of:*	I2	

Project ID	Project Name			Priority
P4	**96th St E**			
Project Limits:	203rd Ave E to 204th Ave E			
Description:	Install 300 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$480,000	*Part Of:*	N/A
P5	**SR 410 E**			
Project Limits:	219th Ave Ct E to 221st Ave E			
Description:	Install 656 linear feet of sidewalk on north side of existing road			
Project Data:	*Functional Classification:*	State Highway	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$904,000	*Part Of:*	N/A
P6	**214th Ave E**			
Project Limits:	SR 410 to 101st St E			
Description:	Install 970 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	N/A	*Part Of:*	R3
P7	**88th St E**			
Project Limits:	188th Ave E to 189th Ave Ct E			
Description:	Complete 120 linear feet of sidewalk on north side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$192,000	*Part Of:*	N/A
P8	**Angeline Rd E**			
Project Limits:	95th St E to 101st St E			
Description:	Install 2,900 linear feet of sidewalk on east side of existing road			
Project Data:	*Functional Classification:*	Collector	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$4,640,000	*Part Of:*	N/A
P9	**182nd Ave E**			
Project Limits:	83rd St E to Main St E			
Description:	Install 960 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,536,000	*Part Of:*	N/A

Project ID	Project Name				Priority
P10	**75th St E**				
Project Limits:	192nd Ave E to 193rd Ave E				
Description:	Install 440 linear feet of sidewalk on south side of existing road				
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	$704,000	*Part Of:*	N/A	
P11	**W Tapps Hwy E**				
Project Limits:	Bonney Lake Blvd E to Church Lake Dr E				
Description:	Install 1,380 linear feet of sidewalk on one side of existing road				
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	N/A	*Part Of:*	R9	
P12	**Church Lake Dr E**				
Project Limits:	W Tapps Hwy E to 71st St E				
Description:	Install 1,345 linear feet of sidewalk on one side of existing road				
Project Data:	*Functional Classification:*	Collector	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	$2,152,000	*Part Of:*	N/A	
P13	**198th Ave E**				
Project Limits:	94th St E to 198th Ave E				
Description:	Install 320 linear feet of sidewalk on one side of existing road				
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	$512,000	*Part Of:*	N/A	
P14	**214th Ave E**				
Project Limits:	102nd St E to 104th St Ct E				
Description:	Install 900 linear feet of sidewalk on east side of existing road				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	N/A	*Part Of:*	R3	
P15	**Sumner-Buckley Hwy E**				
Project Limits:	Angeline Rd to city limits				
Description:	Install 180 linear feet of multi-use path on one side of existing road				
Project Data:	*Functional Classification:*	Principal Arterial	*Type:*	Pedestrian	
	Estimated Cost (2025 Dollars):	N/A	*Part Of:*	I2	

Project ID	Project Name			Priority
P16	**Church Lake Rd E**			
Project Limits:	Evergreen Dr to 200 ft south of driveway at 19217 Church Lake Rd E			
Description:	Install 680 linear feet of sidewalk on north side of existing road			
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,088,000	*Part Of:*	N/A
P17	**Church Lake Rd E**			
Project Limits:	200 ft south of driveway at 19217 Church Lake Rd E to Veterans Memorial Dr E			
Description:	Install 1,680 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$2,688,000	*Part Of:*	N/A
P18	**89th St E**			
Project Limits:	186th Ave E to Main St E			
Description:	Install 670 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,072,000	*Part Of:*	N/A
P19	**198th Ave Pl E**			
Project Limits:	198th Ave E to 96th St E			
Description:	Install 320 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$512,000	*Part Of:*	N/A
P20	**96th St E**			
Project Limits:	198th Ave E to 196th Ave E			
Description:	Install 620 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$992,000	*Part Of:*	N/A
P21	**181st Ave E**			
Project Limits:	Elhi Rim Rd E to southern end of Elhi Rim Rd E			
Description:	Install 1,565 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Collector	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$2,503,000	*Part Of:*	N/A

Project ID	Project Name			Priority
P22	**196th Ave E**			
Project Limits:	94th St E to 96th St E			
Description:	Install 620 linear feet of sidewalk on one side of existing road			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$992,000	*Part Of:*	N/A
P23	**84th St E**			
Project Limits:	Locust Ave E to 182nd Ave E			
Description:	Install 1,585 linear feet of sidewalk on one side of existing road[34].			
Project Data:	*Functional Classification:*	Local Street	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$2,536,000	*Part Of:*	N/A
P24	**W Tapps Hwy E**			
Project Limits:	77th St Ct E to Church Lake Rd E			
Description:	Install 920 linear feet of sidewalk on one side of existing road.			
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,472,000	*Part Of:*	N/A
P25	**Church Lake Rd E**			
Project Limits:	197th Ave E to W Tapps Hwy E			
Description:	Install 1,100 linear feet of sidewalk on one side of existing road, including some partial sidewalk segments.			
Project Data:	*Functional Classification:*	Minor Arterial	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,840,000	*Part Of:*	N/A
P26	**Angeline Rd E**			
Project Limits:	101st St E to 104th St Ct E			
Description:	Install 875 linear feet of sidewalk on one side of existing road.			
Project Data:	*Functional Classification:*	Collector	*Type:*	Pedestrian
	Estimated Cost (2025 Dollars):	$1,400,000	*Part Of:*	N/A

[34] Concern raised by community members near Locust Ave E.

Project ID	Project Name	Priority
2025-2049 Programmatic Maintenance (PM) Projects		
PM1	**Street Reconstruction Program**	**N/A**
Project Limits:	Citywide	
Description:	Annual program to address miscellaneous capital improvements to City streets.	
Project Data:	*Functional Classification:* Various; *Type:* Programmatic; *Estimated Cost (2025 Dollars):* $14,856,000; *TIF Share:* 0%	
Comments:	20-year total based on 2025-2026 CIP value of $350,000 as starting point.	
PM2	**Street Overlay and Chip Seal Programs**	**High**
Project Limits:	Citywide	
Description:	Annual program to maintain the City's transportation infrastructure.	
Project Data:	*Functional Classification:* Various; *Type:* Programmatic; *Estimated Cost (2025 Dollars):* $24,407,000; *TIF Share:* 0%	
Comments:	20-year total based on 2025-2026 CIP value of $575,000 for both as starting point.	
PM3	**ADA Program**	**N/A**
Project Limits:	Citywide	
Description:	Annual program to implement priority ADA improvements based on ADA Transition Plan recommendations	
Project Data:	*Functional Classification:* Various; *Type:* Programmatic; *Estimated Cost (2025 Dollars):* $11,673,000; *TIF Share:* 0%	
Comments:	20-year total based on 2025-2026 CIP value of $275,000 as starting point.	
PM4	**Safety Improvements Program**	**N/A**
Project Limits:	Citywide	
Description:	Annual program to address sight distance, street striping, new or altered signage, or speeding concerns.	
Project Data:	*Functional Classification:* Various; *Type:* Programmatic; *Estimated Cost (2025 Dollars):* $1,000,000; *TIF Share:* 0%	
Comments:	20-year total based on up to $50,000 per year.	

Project ID	Project Name				Priority
PM5	**Annual Sign Maintenance Program**				**N/A**
Project Limits:	Citywide				
Description:	Annual program to maintain and replace warning, regulatory, street identification, and informational traffic signs.				
Project Data:	*Functional Classification:*	Various	*Type:*	Programmatic	
	Estimated Cost (2025 Dollars):	$300,000	*TIF Share:*	0%	
Comments:	20-year total based on up to $15,000 per year.				

PM Peak Hour Traffic Operations with Improvements

The capacity of the City's transportation system is integral to the success of and is shaped by the City's land use plan documented in the Community Development Element of this Comprehensive Plan. While the City's land use plan envisions that the City will remain primarily a single-family home community, pockets of high density and mixed-use developments are planned along the SR 410 corridor, which will have densities able to support transit consistent with *VISION 2050*.

Exhibit 43 presents the results of the operations analysis results following the completion of the projects described in **Exhibit 42** and illustrated on **Exhibit 41**. Operational reports are included in **Appendix M**.

Exhibit 43: Projected PM Peak Hour Intersection Operations Analysis, 2049 With Improvements

Proposed Control	LOS (Delay in Seconds)	Worst V/C	Improvement Description
Project ID: I1	**Intersection No: 4**		**Church Lake Road E / W Tapps Hwy E**
Signal	A (9.4)	0.79	Install new signal. Interim improvement could include the vertical curve modification and all-way stop control when warranted.
Project ID: I2	**Intersection No: 41**		**Angeline Rd E / Veterans Memorial Dr E / Sumner-Buckley Hwy E**
Roundabout	A (8.1)	0.84	Install roundabout and add shared use path from Angeline to Locust.
Project ID: I3a	**Intersection No: 17**		**S Prairie Rd E / 200th Ave Ct E**
To be determined after study.			Conduct intersection control study to determine appropriate options for improvement.

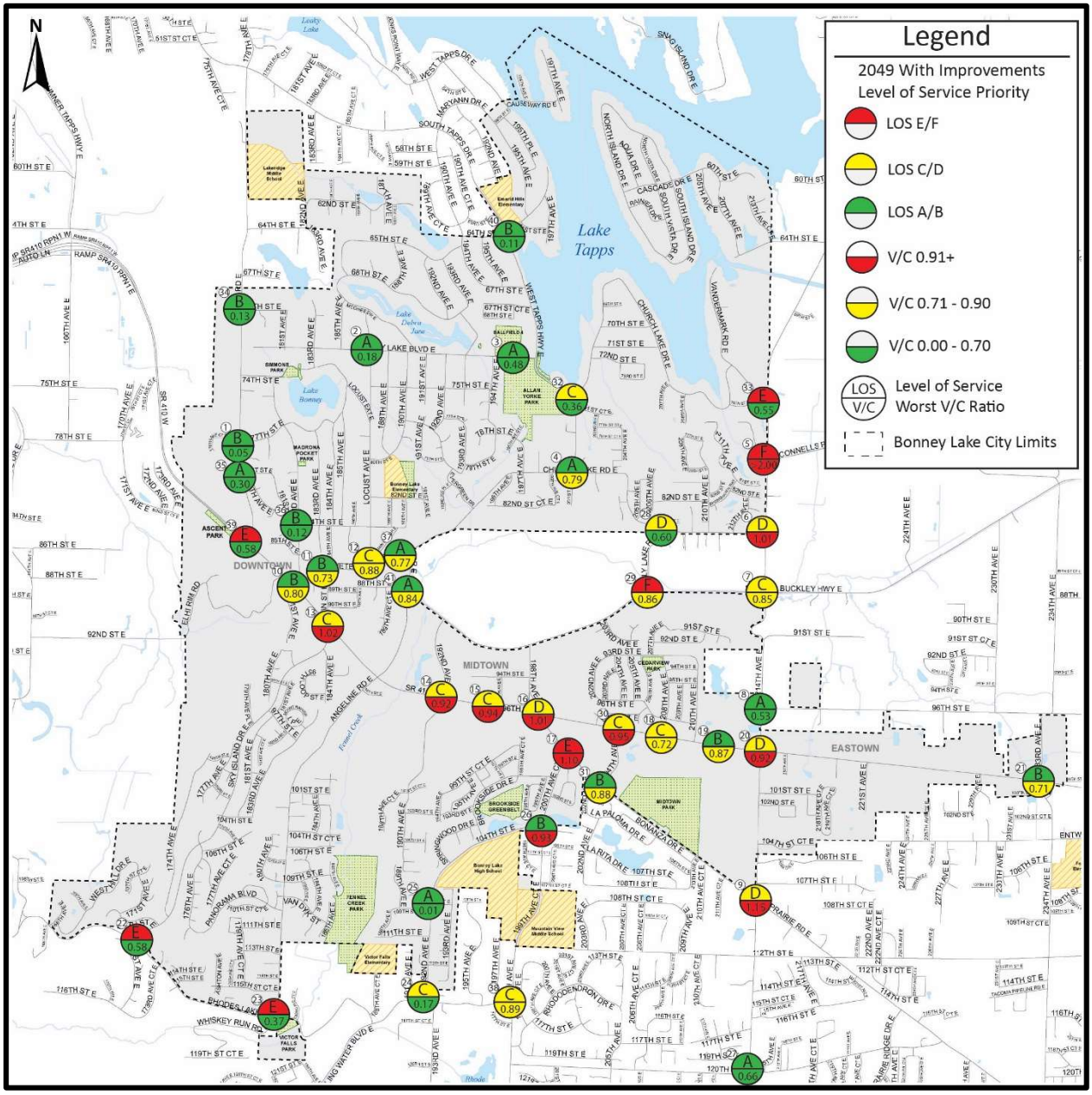
Proposed Control	LOS (Delay in Seconds)	Worst V/C	Improvement Description
Project ID: I4	**Intersection No: N/A**		**199th Ave E and 109th St E**
Roundabout	--	--	Roundabout to be constructed for increased safety by school due to proximity to High and Middle Schools.
Project ID: I5	**Intersection No: N/A**		**101st St E and 214th Ave E**
Signal	--	--	Install new signal and additional turn lanes as part of 101st Street Extension.
Project ID: I6a	**Intersection No: 37**		**Church Lake Rd E / Veterans Memorial Dr E**
Signal	A (5.3)	0.77	Signalize intersection and coordinate with adjacent intersections.
Project ID: I7a	**Intersection No: 39**		**SR 410 / Myers Rd**
Stop Sign	To be determined after study.		Prepare Intersection Control Evaluation with WSDOT to determine appropriate solution. Consider adding southbound to westbound acceleration lane.
Project ID: I8b	**Intersection No: 20**		**SR 410 / 214th Ave E**
Signal	D (43.9)	0.92	Update earlier Intersection Control Evaluation to reflect land use changes from prior plan. Assume convert right turn drop lane to through lane and add new right turn drop lane.
Project ID: R9	**Intersection No: N/A**		**Bonney Lake Blvd E / W Tapps Hwy E (New Location)**
Roundabout	A (7.7)	0.48	Install roundabout at new intersection of Bonney Lake Blvd with realigned W Tapps Hwy.
Project ID: R9	**Intersection No: 3**		**Bonney Lake Blvd E / W Tapps Hwy E (Old Location)**
Stop Sign	C (16.7)	0.71	Reconfigure intersection to accommodate relocation of W Tapps Hwy alignment.

Source: SCJ Alliance, 2025

Exhibit 44 provides a visual illustration of the information included in **Exhibit 43**. This map shows that all intersections with proposed improvements would see acceptable levels of traffic performance in the 2049 PM Peak hour. The two (2) intersections continue to show an unimproved condition in the map and are identified for further study to determine an appropriate solution:

- S Prairie Rd E at 200th Ave Ct E
- SR 410 at Myers Rd

Exhibit 44: Projected PM Peak Hour ILOS, City of Bonney Lake, 2049 With Improvements



Source: SCJ Alliance, 2025

5.7 FINANCES

In emphasizing multiple travel modes, resources must be spread and balanced among all modes. As additional demands are placed on the transportation system, funding should become available to finance needed improvements. The improvements should be paid for by those who benefit from them, in proportion to the level of use or benefit derived. Thus, since the system serves multiple users, it has multiple funding sources:

- Existing businesses and residents (the City's general fund and local business taxes);
- Real estate excise taxes (REET);
- Pass-through users (gas and motor vehicle taxes); and
- New development (impact fees).

Identification of transportation system needs to serve the City and surrounding region is a key product of the Community Mobility Element. To successfully meet the identified transportation demands, the City must be able to fund and implement the projects and programs.

The GMA requires that the City's Comprehensive Plan include a multi-year financing program based on the needs identified in this Element. The financing program and transportation system needs are then used by the City to prepare annual updates to the 6-Year Capital Improvement Program (CIP). The GMA also requires this Element to include a "reassessment strategy" if the identified funding program does not meet identified needs.

The current 6-Year CIP, financial plan, and "reassessment strategy" are available in the **Community Services and Facilities Element**.

6. FUTURE COMMUNITY MOBILITY GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CM-1:	**Increase mobility and transportation options by encouraging the expansion of public transit, vanpools, and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.**	
Policies:	**CM-1.1**	Encourage the expansion of public transit and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.
	CM-1.2	Encourage greater use of vanpools to decrease the number of single-occupancy work commuting trips.
	CM-1.3	Encourage land use choices that create areas within Bonney Lake that have sufficient densities to support public transportation and the colocation for public services adjacent to transit routes and centers.
Goal CM-2:	**Increase mobility and transportation options by constructing a network of non-motorized transportation facilities to provide convenient and affordable transportation alternatives for individuals of all ages and abilities to support healthy lifestyle chooses.**	
Policies:	**CM-2.1**	Design major streets to balance the needs of automobiles with the needs of pedestrians, bicyclists, and transit users. Over time, key Bonney Lake's corridors should evolve into multimodal streets that offer safe and attractive choices among different travel modes.
	CM-2.2	Recognize the importance of a walkable and bicycle friendly City to overall public health and wellness.
	CM-2.3	Provide a multimodal transportation network to facilitate walking and bicycling as a means of general transportation as well as recreational activity within the City and the region.
	CM-2.4	Improve the safety of pedestrians and bicyclists throughout Bonney Lake through design, signage, capital projects, pavement maintenance, street sweeping, pavement striping, and public education.

	CM-2.5	Require the provision of sidewalks in all new development, including infill development and redevelopment, to complete the City's sidewalk network. Sidewalks shall be required on both sides of all public streets, except in hillside areas where a single sidewalk may be adequate. Sidewalks and direct pedestrian connections between uses should also be provided in parking lots.
	CM-2.6	Recognize the mobility needs of the underserved populations and work to improve transportation choices in low-income and older neighborhoods.
Goal CM-3:	**Ensure the safe, efficient movement of goods to support the local and the regional economy, with minimal impacts on residential neighborhoods and local traffic patterns.**	
Policies:	**CM-3.1**	Support local and regional transportation improvements that facilitate the timely movement and security of goods and meet the needs of local business and industry as long as improvements do not negatively affect the environment.
	CM-3.2	Protect residential neighborhoods from intrusion of truck traffic by maintaining and enforcing an efficient system of designated truck routes.
	CM-3.3	Generally, discourage the location of businesses generating large amounts of truck traffic in areas where residential streets or land uses would be negatively impacted. In mixed-use areas where businesses and residences are in close proximity, ingress and egress for truck traffic should be designed to minimize the potential for impacts on residences and neighborhood streets.
Goal CM-4:	**Maintain and preserve the City's existing transportation system in order to provide a safe multimodal system, protect the investment in the existing system, and lower overall life-cycle costs.**	
Policies:	**CM-4.1**	Provide adequate funding to maintain roads, sidewalks, bike paths, and other transportation facilities in good operating condition.
	CM-4.2	Utilize the Pavement Condition Index (PCI) to determine maintenance and rehabilitation requirements, conduct long-term planning and, most importantly, establish priorities that maximize the City's limited financial resources.

	CM-4.3	Work with Pierce County to have streets within annexation areas constructed to City standards and in good repair. Require a funding and implementation program for their reconstruction as a condition of annexation if the streets in an annexation area are substandard.
	CM-4.4	Minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions. New development should be reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards.
	CM-4.5	Maintain the data needed to assess roadway safety and performance, including the safety of bicyclists and pedestrians as well as motorists.

Goal CM-5:	**Strive to minimize impact on the environment created by transportation projects through context sensitive design strategies and to reduce congestion, air pollution, and fuel consumption through Transportation Demand Management (TDM) and Commute Trip Reduction (CTR) programs.**	
Policies:	**CM-5.1**	Design and construct roads and other transportation facilities to minimize adverse impacts upon noise levels, air quality, surface water runoff, drainage patterns, and environmentally critical areas and fit the character of the neighborhoods through which they pass.
	CM-5.2	Where determined necessary, incorporate sound absorption devices, landscaping, earthen berms and other natural or artificial features that help mitigate adverse noise, light and glare impacts generated by surface transportation facilities.
	CM-5.3	Participate in efforts by county, regional and state agencies to reduce stormwater contamination.
	CM-5.4	Use transportation demand management (TDM) strategies to reduce single-occupant vehicle travel and encourage alternative modes of travel. These strategies include parking management, individualized marketing, ridesharing, and support of non-motorized travel.
	CM-5.5	When required by law, develop a Commute Trip Reduction ordinance to minimize peak hour commuting using strategies such as flextime, telecommuting working, and other alternatives to driving alone.

	CM-5.6	Encourage residents who commute on SR 410 to carpool, ride the bus, work on off-peak hours, or telecommute. Encourage plateau residents generally to consolidate trips and avoid peak hour traffic.
	CM-5.7	Encourage mixed land use patterns in which people live close to jobs and services, allowing shorter and fewer vehicle trips.
	CM-5.8	Provide public forums to encourage public participation in transportation-related decisions.
Goal CM-6:	**Provide parking that meets the needs of residents, workers, visitors, and shoppers in a way that is consistent with broader goals related to sustainability and community character.**	
Policies:	**CM-6.1**	Apply parking requirements and standards for residential and commercial development, which adequately respond to demand and minimize adverse effects on neighboring properties.
	CM-6.2	Strongly encourage the concept of shared parking (and shared parking agreements) for land uses where the peak parking demand occurs at different times of the day, thereby reducing the aggregate number of spaces required.
	CM-6.3	Encourage the development of secured bicycle parking at (or near) educational and recreational facilities, transit centers, and commercial areas. In commercial areas, bicycle parking may be consolidated in racks serving multiple businesses to create a cleaner and more attractive street appearance.
Goal CM-7:	**Provide the capacity required to serve the development envisioned in the Community Development and Economic Development Elements of the Comprehensive Plan by improving connections to the regional transportation system, increasing interconnectivity of the existing street grid, and providing multimodal facilities.**	
Policies:	**CM-7.1**	Promote connectivity in the street network. Except where necessitated by topography, the use of dead-ends and cul-de-sacs shall be minimized, and the extension or preservation of a grid street pattern shall be encouraged. Additional street network connectivity (i.e., a "grid pattern") should be created and existing gaps in the road, bike, and pedestrian networks should be closed.
	CM-7.2	Ensure that the design and scale of streets are sensitive to the context of surrounding neighborhoods.

	CM-7.3	Design and construct a transportation system to serve the land use pattern set forth by the Community Development Element of the Comprehensive Plan.
	CM-7.4	Establish an integrated transportation system with connectivity to the regional transportation system and to the local street networks in adjacent communities, which safely and conveniently accommodates all users: motorists, pedestrians, bicyclists, and transit riders.
	CM-7.5	Use Intelligent Transportation System (ITS) strategies to optimize the existing street network.
	CM-7.6	Design and construct transportation facilities that prevent or minimize impacts to residential areas, while maintaining the street grid for access and circulation.
	CM-7.7	Manage traffic on arterials and collectors to reduce unnecessary travel delays and maintain efficient vehicle flow. However, auto speed and convenience may be diminished in some locations in order to achieve a livable, walkable, and attractive community.
	CM-7.8	Require new development to mitigate its impacts on mobility conditions through traffic impact fees, street and intersection improvements, transportation demand management programs, and other measures.
Goal CM-8:	**Bonney Lake becomes a more prominent regional transportation hub and is seamlessly connected to locations throughout the Puget Sound Region and state.**	
Policies:	**CM-8.1**	Participate in regional transportation and land use planning efforts, including programs to balance jobs and housing, manage congestion, address auto-related emissions and greenhouse gases, and reduce the share of the region's trips made by single occupant vehicles.
	CM-8.2	Promote and coordinate the planning of pedestrian and bicycle trail systems with Pierce County, Buckley, Puyallup, Sumner, and other jurisdictions and organizations.
	CM-8.3	Support improved regional commuter bus service connecting Bonney Lake to commuter rail access and to employment centers elsewhere in the region.

	CM-8.4	Coordinate with Pierce County, Buckley, Puyallup, Sumner, and other nearby jurisdictions and local public agencies to ensure compatible plans and road development standards and to coordinate major transportation investments. This should include coordination with both the Sumner-Bonney Lake and White River School Districts on the provision of school bus service and school-related traffic issues.
	CM-8.5	Coordinate with regional, state, and federal agencies to develop and maintain contingency plans and emergency response plans in the event that road or transit service is disrupted by natural or manmade disaster.
Goal CM-9:	**Provide sufficient funding to construct a multimodal transportation system and assure that the beneficiaries of the system bear the costs in a proportionate manner.**	
Policies:	**CM-9.1**	Maintain a transportation impact fee system that equitably and proportionately charges new development for identified growth related improvements to the transportation system.
	CM-9.2	Ensure that new development pays its proportionate share of the costs of needed transportation facilities through SEPA mitigation, traffic impact fees, frontage improvements, and local improvement districts.
	CM-9.3	Partner with WSDOT, Pierce County, and local agencies to fund improvement projects and programs.
	CM-9.4	Maintain the Six-Year Transportation Improvement Program so it leverages available City funds while remaining financially feasible and consistent with this Plan.
	CM-9.5	Allocate resources to the Capital Improvement Plan (CIP) and Six-Year Transportation Improvement Plan (TIP) in the following ranked priority: 1. Projects that address existing/future transportation safety issues; 2. Projects that address existing capacity, operational, or maintenance issues; 3. Projects that provide capacity or operational enhancement to meet the long-term level of service; 4. Projects that support economic development and enhances City appearance; 5. Projects that promote multi-mode travel; and

6. Projects that promote connectivity and community circulation.

Goal CM-10:	Maintain and improve transportation safety for all users and modes of travel.	
Policies:	**CM-10.1**	Reduce frequency of crashes and strive to eliminate serious injury and fatal crashes.
	CM-10.2	Improve areas where prioritized crash risk factors are present.
	CM-10.3	Design, construct and maintain all transportation facilities to ensure the safety of all transportation system users – motorists, bicyclists, pedestrians, freight, transit users and all others.
	CM-10.4	Periodically review crash data to assess system safety and performance.
	CM-10.5	Implement the City's Traffic Safety Action Plan.

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printing purposes.

Capital Facilities & Services Element

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1. INTRODUCTION

> *The City of Bonney Lake acknowledges the complex relationship between land use and the provision of public services and facilities. The plan attempts to point out that in order to have healthy growth and development; public utilities, services and facilities must be planned and installed to accommodate it.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

Under the Growth Management Act (GMA), jurisdictions plan to ensure that adequate facilities and services are available to serve existing residents and businesses, as well as future growth anticipated in the **Community Development Element**.

Capital facilities generally have a long, useful life and include systems owned by the City as well as those owned by other public agencies or private companies. Capital facilities are significant projects for jurisdictions to fund, building, and maintain. The sooner a jurisdiction plans for its needs, the better prepared it can be to meet its needs. Local governments planning under the GMA must include a capital facilities component in the comprehensive plan that is coordinated with the larger land use planning process.

This element establishes Level of Service (LOS) standards and policies to ensure adequate public facilities are available to serve existing and future development in the city in an efficient, effective, and equitable manner. The policies are written to guide the actions of public agencies to support the adopted LOS, as well as decisions related to individual developments to support anticipated growth.

Once a LOS standard has been established, the adequacy of a governmental facility or service can be measured against the standard. A public facility or service operating at or above the established LOS indicates no need for improvements or new facilities. A facility or service operating below the established LOS is an indication that there may be a need for improvements, or new facilities, or re-evaluation of the LOS. Additionally, if funding is not available to bring the service back to the desired level, then the LOS may need to be re-examined to determine if it is adequate, raise impact or mitigation fees, or reduce the demand on that governmental facility or service by limiting development.

1.1 REGULATORY CONTEXT

Growth Management Act

This Capital Facilities & Services Element was developed in compliance with the GMA. While all elements of the Comprehensive Plan have equal weight under the GMA

(Chapter 36.70A of the Revised Code of Washington (RCW)), seven (7) of the 15 goals of the GMA specifically pertain to the development of capital facilities in Bonney Lake:

- **Urban Growth**: Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
- **Transportation**: Encourage efficient multimodal transportation systems that will reduce greenhouse gas emissions and per capita vehicle miles traveled, and are based on regional priorities and coordinated with county and city comprehensive plans.
- **Economic Development:** Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.
- **Property Rights:** Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
- **Open Space and Recreation:** Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, and increase access to natural resource lands and waters.
- **Public Facilities and Services:** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.
- **Climate Change and Resiliency:** Ensure that comprehensive plans and development regulations support reductions in greenhouse gas emissions and per capita vehicle miles traveled; foster resiliency to natural hazards; and protect and enhance environmental, economic, and human health and safety[1].

Policies in this element provide a process for requirements to be met in the respective functional plans, such as the City's Water Comprehensive Plan or the Parks, Trails, Recreation & Open Space Plan.

[1] In 2023, the Washington State Legislature passed major updates to environmental goals (RCW 36.70A.020) and mandatory element requirements (RCW 36.70A.070) in the Growth Management Act (GMA), adding a climate change and resiliency element. The requirement for a climate change and resiliency element is conditioned on the availability of state funds (RCW 36.70A.070(10)). This component is due in 2029, if funding is provided.

Multi-County Planning Policies (MPPs)

The Puget Sound Regional Council (PSRC) adopted MPPs in VISION 2050[2]. These policies require local jurisdictions to adopt coordinated strategies, policies, and actions to ensure the region's needs are met. This Element was prepared to be consistent with VISION 2050 in the following areas:

- **Regional Collaboration**: Coordinating planning efforts across jurisdictions to address regional, special purpose, and local public services.
- **Environment**: Considering the impacts to the environment and the public from location and operation of public facilities.
- **Improve Access**: Improve access to public services, especially in underserved areas.
- **Supporting Growth Through Provision of Public Services:** Ensure adequate services are available at the right time at the right place to serve growth.
- **System Resilience:** Work towards an affordable, safe, and efficient public services that can adapt to changing community needs.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated Countywide Planning Policies (CPPs) in 2022[3] that establish a countywide framework for coordinating comprehensive plans of jurisdictions in Pierce County through better integration of land use and transportation planning. The City also works in collaboration with other governmental and non-governmental organizations, which include Pierce County; Pierce County Regional Council; and the Cities of Buckley, Sumner, Puyallup, and Enumclaw. This Element was prepared to be consistent with the CPPs in the following areas:

- **Regional Coordination:** Work across jurisdictions to support the Regional Growth Strategy for provision of public services within the Urban Growth Area.
- **Ensure Adequacy of Public Services:** Have policies and regulations to support the provision of adequate public services phased with growth and development.
- **Phase Out On-Site and Community Sewage Systems:** Work towards the goal of eliminating new on-site and community sewage systems, and connecting existing on-site and community sewage systems to municipal sewage systems when appropriate.

[2] Available online at: https://www.psrc.org/planning-2050/vision-2050
[3] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29

1.2 ORGANIZATION

This Element contains both the capital facilities components in RCW 36.70A.070(3) and the utilities element components in RCW 36.70A.070(4), whether addressed herein or in other related plans adopted by reference:

- An inventory of existing public facilities;
- A forecast of future needs;
- Maintenance, repair, and replacement of existing City facilities and capital improvements;
- The potential location of new public facilities;
- A financing plan and sources of funding; and
- A process by which to achieve balance among needed facilities, appropriate levels of service, and financial capability.

This Community Services and Facilities Element incorporates and serves as a reference to all the various capital facility plans adopted by the City and our partners, comprehensive plans, the City's capital improvement and investment programs, capital budgets, inventories, and studies that together represent the planning and financing mechanisms required to serve the needs of Bonney Lake.

This Element is divided into the following sections:

- **Section 2: Inventory of City-Managed Capital Facilities** provides an overview of the capital facilities and services operated and maintained by the City.
- **Section 3: Inventory of Utilities and Services Managed By Others** provides an overview of the capital facilities and services operated and maintained by other public entities and private companies.
- **Section 4: Essential Public Facilities (EPFs)** describes what EPFs are and the City's process for identifying, mitigating, and siting EPFs.
- **Section 5: Capital Improvement Plan** provides the City's 6-Year Capital Improvement Plan, a description of revenue sources, and a reassessment strategy.
- **Section 6: Future Capital Facilities & Services Goals and Policies** contains goals and policies meant to guide day-to-day City decisions on capital facilities and services.

2. INVENTORY OF CITY-MANAGED CAPITAL FACILITIES, SERVICES, AND UTILITIES

2.1 SUMMARY OF CITY CAPITAL FACILITIES

The City owns and operates a variety of capital facilities and services required to support growth, including city general offices and maintenance shop facilities, parks, police, sewer, stormwater, transportation, and water

Exhibit 1 summarizes Bonney Lake's capital facilities and applicable plans. **The applicable plans listed in Exhibit 1 are incorporated by reference, as existing or as amended.**

Exhibit 1: City of Bonney Lake Capital Facilities and Guiding Applicable Plans

Facility / Service Type	Description	Applicable Plans
City General Offices	Public buildings providing general City services.	• Biennial Budget
City Maintenance Facilities	Maintenance and fleet storage for City services.	• Biennial Budget
Parks & Recreation *Including the Senior Center*	Parks, trails, recreation and open space facilities. The Senior Center provides a gathering place for seniors and disabled adults of all ages for socialization, education, and recreation.	• Parks, Trails, Recreation & Open Space Plan • Biennial Budget
Police Protection	Law enforcement services, including emergency response, patrol, investigative, and special operations.	• Biennial Budget
Sewer (Wastewater) Collection	Domestic and commercial wastewater collection system.	• City of Bonney Lake General Sewer System Plan
Stormwater (Surface Water) Management	Manages water quality and flood risks to reduce flooding, improve water quality, and preserve natural resources.	• Watershed Protection Plan • Stormwater Management Action Plan • Stormwater Management Program
Transportation	Streets, traffic controls, and street lighting as well as sidewalk, bike, and other non-motorized and human-powered transportation facilities.	• 6-Year Transportation Improvement Program • Safety Action Plan • ADA Transition Plan
Water Supply, Storage, & Distribution	Infrastructure for providing drinking water and water for fire suppression.	• City of Bonney Lake Water System Plan

2.2 CITY GENERAL GOVERNMENT FACILITIES

Current Facilities

The Justice and Municipal Center (JMC) located at 9002 Main St E functions as Bonney Lake's City Hall. It houses the municipal court, council chambers, and offices for the Executive, Administrative Services, Finance, and Judicial departments. The location of the JMC is shown on **Exhibit 2**.

General Government Facility Level of Service (LOS)

There is no quantifiable Level of Service standard for general government facilities. The facility needs to be adequate to meet community and administrative needs.

Challenges, Opportunities, and Future Needs

The JMC accommodates current staffing levels. Expansion or replacement is not anticipated in the 25-year planning period.

2.3 CITY MAINTENANCE FACILITIES

Current Facilities

The Public Services Center (PSC) consists of an administrative building, a fleet maintenance building, and a maintenance yard with additional support structures. This facility houses the Public Services Department, which provides engineering, development, and public works services (water utility, stormwater utility, sewer utility, parks, streets, facility maintenance, fleet management, and administration). The PSC serves as an alternate EOC when needed, depending on the type of incident. The location of the PSC is shown on **Exhibit 2**.

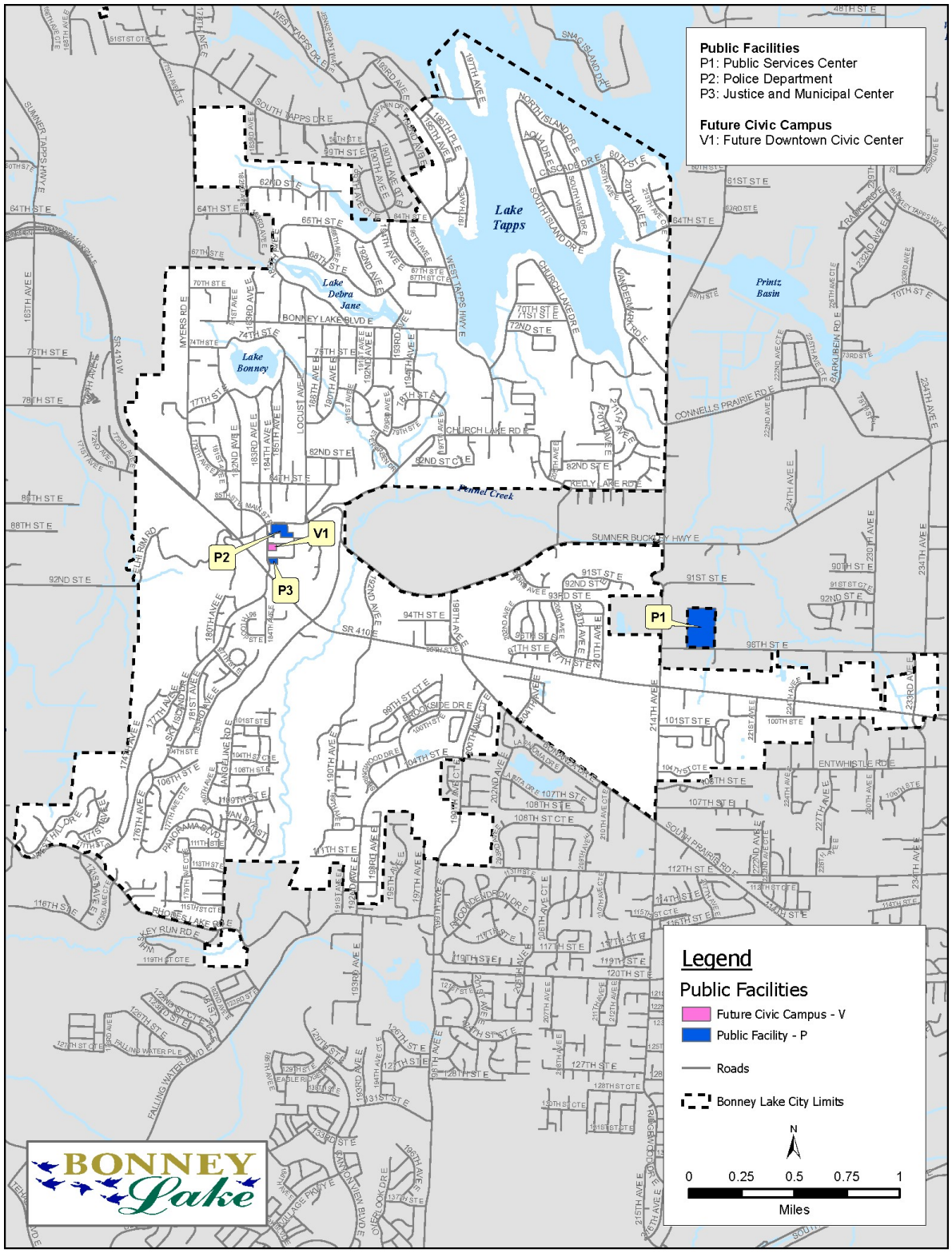
City Maintenance Facility Level of Service (LOS)

There is no quantifiable Level of Service standard for city maintenance facilities. The facility needs to be adequate to meet administrative requirements and space for fleet and equipment storage and maintenance.

Challenges, Opportunities, and Future Needs

The PSC accommodates current staffing levels, fleet, and equipment. Expansion or replacement is not anticipated in the 25-year planning period.

Exhibit 2: City of Bonney Lake General Office, Maintenance, and Police Protection Facilities, 2025



2.4 PARKS & RECREATION

> *Town, County, and State park systems should be developed around Lake Tapps and within Bonney Lake to take advantage of the many amenities of Lake Tapps. Recreation may become an important economic resource of the community. Early planning for parks would provide economic and recreational benefits for the community.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

Current Facilities

Sustainable communities include parks, recreational facilities, and open spaces. These amenities are a significant feature of a community's quality of life and contribute to the physical and mental wellbeing of City residents by providing spaces for active play and exercise or places for quiet reflection. Parks are gathering places where people engage in shared interests and activities, connect with nature, learn about local history, or gather with neighbors fostering a sense of connectedness within the community increasing the social capital of the residents. Acquisition and development of parks can protect significant environmental features, preserve wildlife habitat, and create open space corridors for both people and wildlife.

The City is served by a variety of parks in six (6) classifications:

- Community Parks
- Neighborhood Parks
- Mini Parks
- Open Space
- Special Use Areas
- Trails / Linear Parks

Exhibit 3 provides an summary inventory of existing parks by classification.

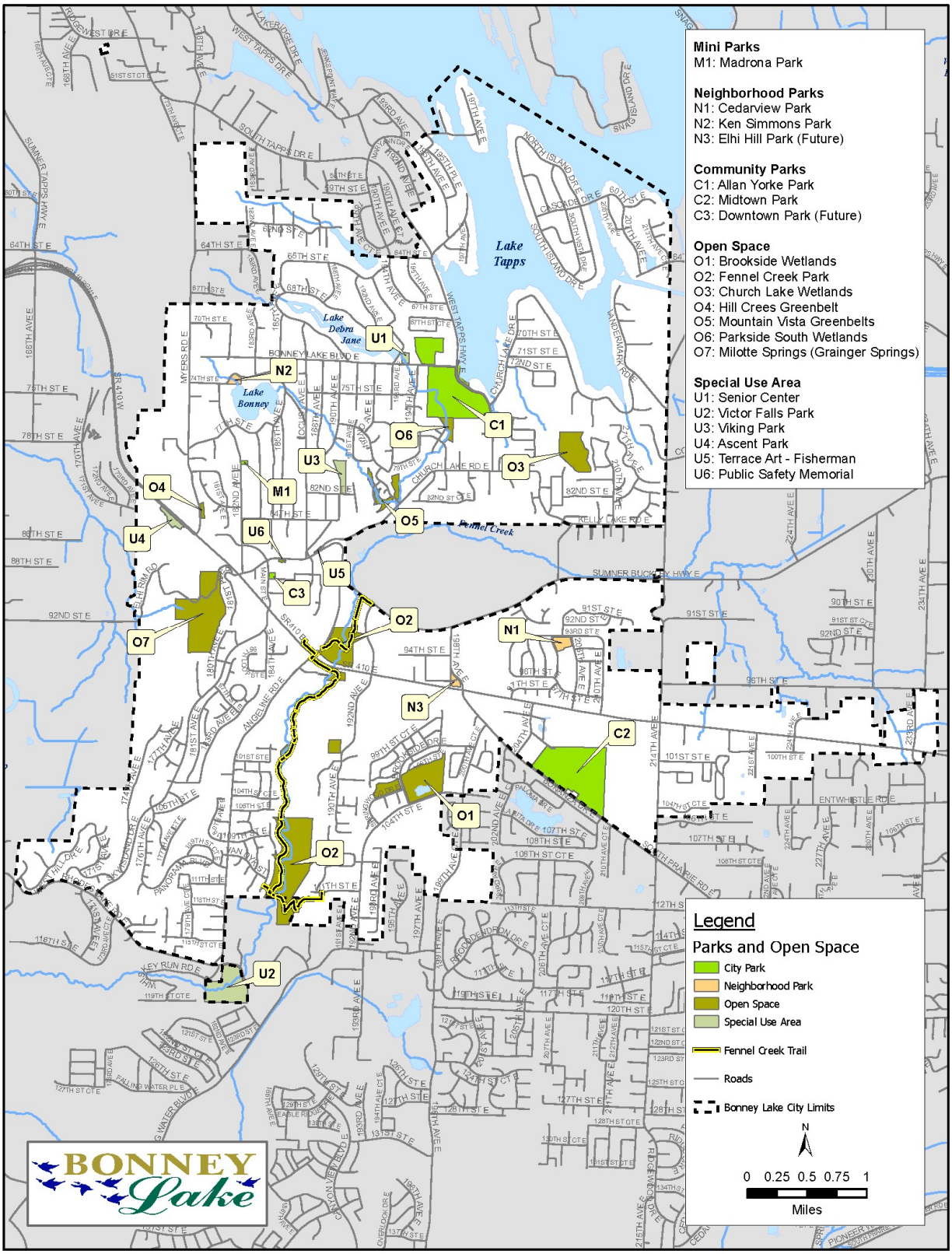
A complete inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Parks, Trails, Recreation & Open Space Plan** (2024).

Exhibit 3: Bonney Lake Park System Inventory, 2025

Facility Name	Classification	Status	Size
Allan Yorke Park	Community Park	Developed	49.6 Acres
Bonney Lake Sports Complex (Midtown Park)	Community Park	Undeveloped	45.5 Acres
Downtown Park	Community Park	Undeveloped	5.1 Acres
Cedarview Park	Neighborhood Park	Developed	2.9 Acres
Ken Simmons Park	Neighborhood Park	Developed	2.0 Acres
Madrona Park	Mini Park	Developed	0.4 Acres
Ascent Park	Special Use	Developed	0.5 Acres
Public Safety Memorial Park	Special Use	Developed	0.2 Acres
Senior Center	Special Use	Developed	4,100 Square Feet
Terrace Art Park	Special Use	Developed	0.5 Acres
Victor Falls Park	Special Use	Partially Developed	22.2 Acres
Viking Park	Special Use	Developed	3.7 Acres
Brookside Wetlands	Open Space	Undeveloped	23.0 Acres
Church Lake Wetlands	Open Space	Undeveloped	14.1 Acres
Fennel Creek Open Space	Open Space	Partially Developed	84.9 Acres
Milotte Springs (Grainger Springs) Open Space	Open Space	Undeveloped	36.4 Acres
Miscellaneous Open Space	Open Space	Undeveloped	4.0 Acres
		Subtotal City Parks	***315.0 Acres***
Reed Property	Community Park	Undeveloped	20.1 Acres
Private HOA Parks	Mini Parks	Partially Developed	23.7 Acres
Private HOA Open Space	Open Space	Undeveloped	548.0 Acres
		Subtotal Private Parks	***591.8 Acres***
		Total Park Acreage	***906.8 Acres***

Exhibit 4 shows the location of existing and proposed City park facilities by classification.

Exhibit 4: City of Bonney Lake Park Facilities



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Parks Level of Service (LOS)

The National Recreation and Park Association (NRPA) recommends that Park Level of Service (PLOS) standards be tailored to meet the needs of the local community. PLOS provides a guide for estimating the number of acres and types of facilities required to meet current and future park needs for the City's current and future residents.

The City hereby adopts a LOS standard for parks facilities as follows:

Exhibit 5: Parks Level of Service (LOS) Standard

Facility or Measurement	Park Level of Service (FLOS)
Community Park	• 6.5 Acres per 1,000 Population
Developed Parks (Community, Neighborhood, and Mini Parks)	• 2.5 Acres per 1,000 Population
Open Space	• 7.5 Acres per 1,000 Population
Special Use – Senior Center	• 1 Facility per 20,000 Population
Special Use – Youth Center	• 1 Facility per 20,000 Population
Trails / Linear Parks	• 0.5 Miles per 1,000 Population • 30.0% or More of the City has Access to a Trail Access Point Within 0.5 Miles
Baseball / Softball Fields	• 1 per 1,500 Population
Football / Soccer Fields	• 1 per 3,000 Population
Tennis / Pickleball Courts	• 1 per 3,000 Population
Basketball Courts (Two Half Courts or Two Hoops is Equivalent to One Court)	• 1 per 3,000 Population
Full-Time Equivalent Employees (FTEs)	• 1 per 15.0 Acres of Developed Park

Compliance with the Parks LOS is not subject to the City's concurrency requirements.

The City has established Park Impact Fees to mitigate the impacts of new development in the Bonney Lake Municipal Code.

Challenges, Opportunities, and Future Needs

It is important that the City plan now for the preservation and development of public parks and open spaces. Once land is developed, it is extremely difficult and generally more costly to acquire it for public purposes such as a park. The **Parks, Trails, Recreation & Open Space Plan** was updated in 2024, which included a Capital Improvement Plan

that reflected significant public input to prioritize future needs. Overall, future needs are focused on:

- Park development and enhancements to existing facilities;
- Trail connections, including sidewalk and bicycle lane improvements;
- Recreation facilities and programs;
- ADA and other accessibility enhancements;
- Filling park system gaps; and
- Improving wayfinding and signage.

2.5 POLICE PROTECTION

Current Facilities

The City of Bonney Lake operates its own police force that provides twenty-four-hour police protection services within city limits. The City's Police Department provides law enforcement services from a dedicated facility located at 18421 Veterans Memorial Dr E. This building serves as the City's Emergency Operations Center (EOC), when needed. The location of the Public Safety / Police Building is shown on **Exhibit 2**.

Current Service

Between 2013 and 2023, the Police Department averaged 19,501 calls for service per year. These calls involved property crimes, traffic management, and miscellaneous calls. In addition to the calls, the Department also was involved in arrests, processing activities, (e.g., record checks, licenses, and incident and/or case reports) and preparing cases for prosecution. **Exhibit 6** shows calls per year by population and commissioned officers.

Exhibit 6: Police Calls per Year by Population and Commissioned Officers, 2013 – 2023

Year	Total Calls for Service	Population[4]	Commissioned Officers	Calls per 1,000 Population	Calls per Commissioned Officer
2013	20,939	18,010	27	1,163	776
2014	19,428	18,520	29	1,049	670
2015	19,720	19,490	29	1,012	680
2016	19,858	20,000	27	993	735
2017	22,027	20,500	27	1,074	816
2018	19,998	20,940	28	955	714
2019	19,275	21,060	29	915	665
2020	15,800	21,390	30	739	527
2021	17,167	23,510	31	730	554
2022	21,638	22,990	31	941	698
2023	18,664	23,250	33	803	566

The City's contracts for animal control services with Metro Animal Control, which is a cooperative service fiscally controlled by the City of Sumner with its office and kennels

[4] Based on Washington Office of Financial Management annual estimated populations for Bonney Lake.

located in the City of Puyallup serving nearby cities. Dispatch services (911) are contracted through a multi-year agreement with the South Sound 911. The City of Bonney Lake contracts with several local jails.

Police Level of Service (LOS)

The City hereby adopts a Police Level of Service as follows:

Exhibit 7: Police Level of Service (LOS) Standard

Facility or Measurement	Police Level of Service (LOS)
Police Station	• 0.93 Square Feet per Population
Commissioned Officers	• 1.5 per 1,000 Population

Compliance with the Police LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

Based on the adopted Police LOS, an approximately 25,000 square foot facility is needed to house 40 commissioned officers in 2049. The Public Safety / Police Building can accommodate this staffing level, and expansion or replacement is not anticipated in the 25-year planning period.

A secure police impound and storage yard is a current need to store impounded vehicles, large pieces of evidence, etc. The Police Department has recently installed a secure search warrant facility inside the Police Department Apparatus Bay for short term impound needs. With the relocation of the East Pierce Fire & Rescue Headquarters from the Public Safety / Police Building to a new headquarters, the City can now fully plan for and construct needed improvements to serve Police Department functions.

2.6 SEWER (WASTEWATER) COLLECTION

Current Facilities

The City's wastewater service area extends beyond the City's corporate limits, encompassing approximately 14 square miles (not including water bodies). The City is responsible for providing public sewer service, utility management and system development within its sewer service area. In 2024, the City provided sewer service to approximately 6,500 customer accounts.

Flows from the City's service area are predominantly residential in character with peak flows in the morning hours followed by a somewhat higher flow peak in the evening hours. As of 2024, the wastewater collection system consists of:

- 26 sewer lift stations;
- 87 grinder pumps; and
- Approximately 100 miles of wastewater pipe.

The location of major City-managed wastewater collection facilities is shown on **Exhibit 9**. There are no reclaimed water facilities serving the City of Bonney Lake.

A complete inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **General Sewer System Plan** (2019).

Sewer Level of Service (LOS)

The City hereby adopts a Sewer Level of Service as follows:

Exhibit 8: Sewer Level of Service (LOS) Standard

Facility or Measurement	Sewer Level of Service (LOS)
Sewer (Wastewater) Collection	• Comply with the adopted Wastewater Comprehensive Plan, as amended. • Comply with Washington State Department of Ecology criteria for sewer works design.

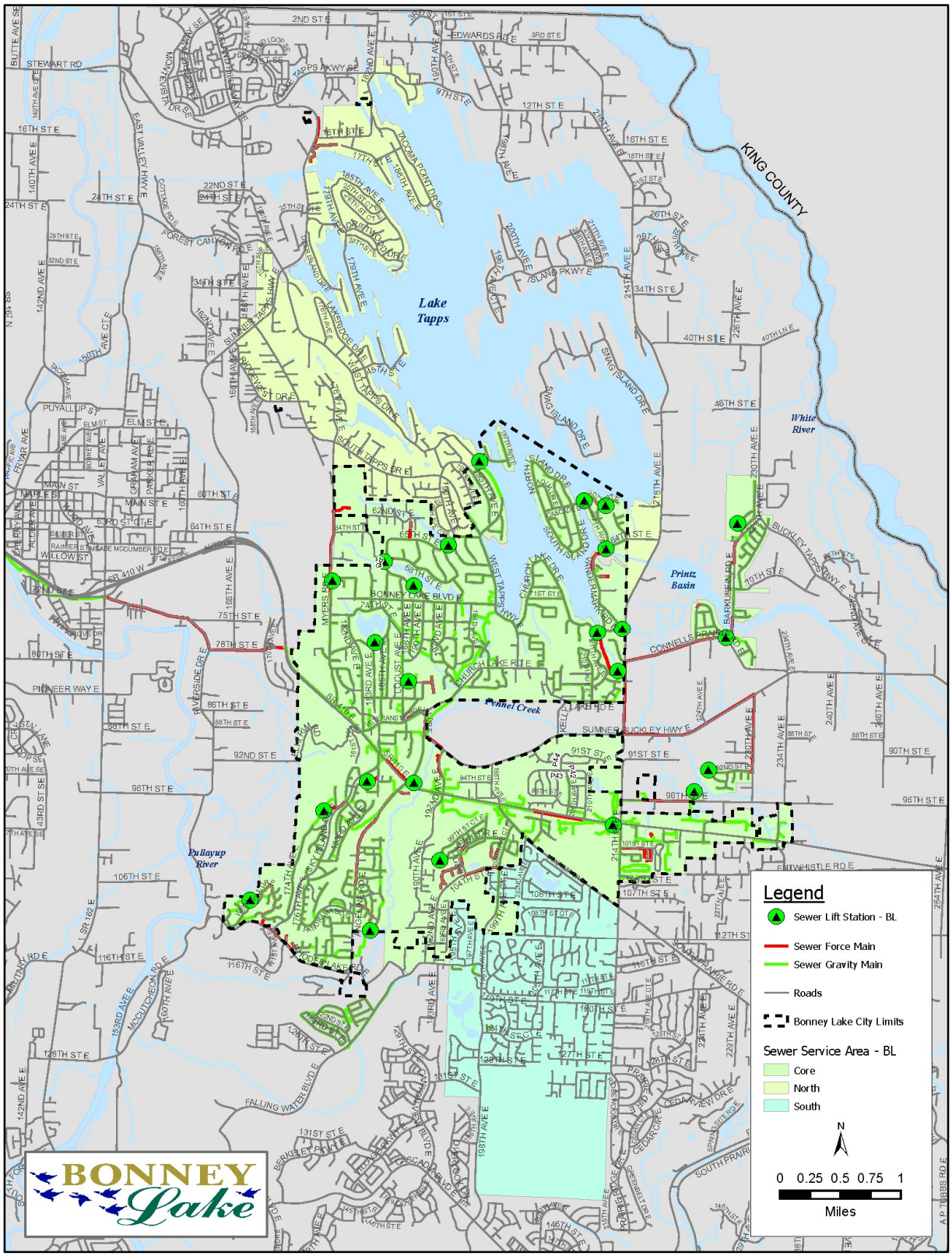
Compliance with the Sewer LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City of Bonney Lake **General Sewer System Plan** (2019) presents a description of the existing sewer system and service area, a forecast of future sewer demands, policies and design criteria for sewer system operation and improvements, the operations and maintenance program, staffing requirements, a schedule of improvements, and a financial plan to accomplish the improvements.

The City has reviewed the **General Sewer System Plan** and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in **Community Development Element**.

Exhibit 9: City of Bonney Lake Sewer Infrastructure, 2025



2.7 STORMWATER (SURFACE WATER) MANAGEMENT

Current Facilities

Stormwater that moves across the urban landscape picks up trash, sediment, chemicals (automotive fluids and fertilizers) and other pollutants from parking lots, yards, streets and roofs. These pollutants can eventually enter downstream natural waterways if not addressed effectively. The City of Bonney Lake works to protect stormwater quality in our lakes, streams and the Puget Sound by complying with state and federal water quality regulations.

The location of the major drainage basins in the City is shown on **Exhibit 11** and the location of major stormwater facilities is shown on **Exhibit 12**.

A complete inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Watershed Protection Plan** (2018).

Issued to the City by the State of Washington Department of Ecology (Ecology), a National Pollutant Discharge Elimination System (NPDES) permit authorizes discharges into and out of Bonney Lake's municipal storm sewer system. Part of the City's work involves the development and implementation of a comprehensive Stormwater Management Program (SWMP) to meet permit requirements. SWMP actions and coordinated activities include the following elements:

- Stormwater planning
- Public education and outreach
- Public involvement and participation
- Stormwater system mapping and documentation
- Illicit discharge detection and elimination
- Prevention and control of stormwater runoff impacts from new development, redevelopment and construction activities
- Stormwater system operations and maintenance
- Source control program for existing development
- Water quality monitoring

The SWMP Plan is updated annually to provide written summaries of each permit program component. The document is designed to inform the public regarding how we implement stormwater management activities scheduled each calendar year. A permit-required Annual Report is also generated and submitted to Ecology pertaining to each year. The online report itemizes specific SWMP information, tracking data, documents and programmatic statements.

Stormwater Level of Service (LOS)

The City has adopted the current Pierce County Stormwater Management and Site Development Manual. The standards and requirements of the Pierce County Stormwater Management and Site Development Manual are intended to ensure that peak storm water flows from new development are equivalent to or less than pre-development conditions, and that new development does not have a degrading effect on ambient water quality.

The City hereby adopts a Stormwater Level of Service as follows:

Exhibit 10: Stormwater Level of Service (LOS) Standard

Facility or Measurement	Stormwater Level of Service (LOS)
Design Event Storm Frequency	• Standard in the Pierce County Stormwater Management and Site Development Manual • City of Bonney Lake Development Policies & Public Works Design Standards
Equivalent Service Unit	• 2,600 Square Feet of Impermeable Surface

Compliance with the Stormwater LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City of Bonney Lake **Watershed Protection Plan** describes how to preserve, protect, and mitigate impacts to water resources in Bonney Lake by:

- Ensuring compatibility between the goals of the Washington State Growth Management Act (GMA) and the plan.
- Identifying regional and sub-regional stormwater control plans, when appropriate.
- Prioritizing retrofitting and neighborhood redevelopment plans; and
- Establishing site stormwater development standards for different parts of the City based on each area's unique environmental conditions.

The City's existing decant facility is in the in the process of being replaced. The City has reviewed the **Watershed Protection Plan** and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in **Community Development Element**.

Exhibit 11: City of Bonney Lake Drainage Basins, 2025

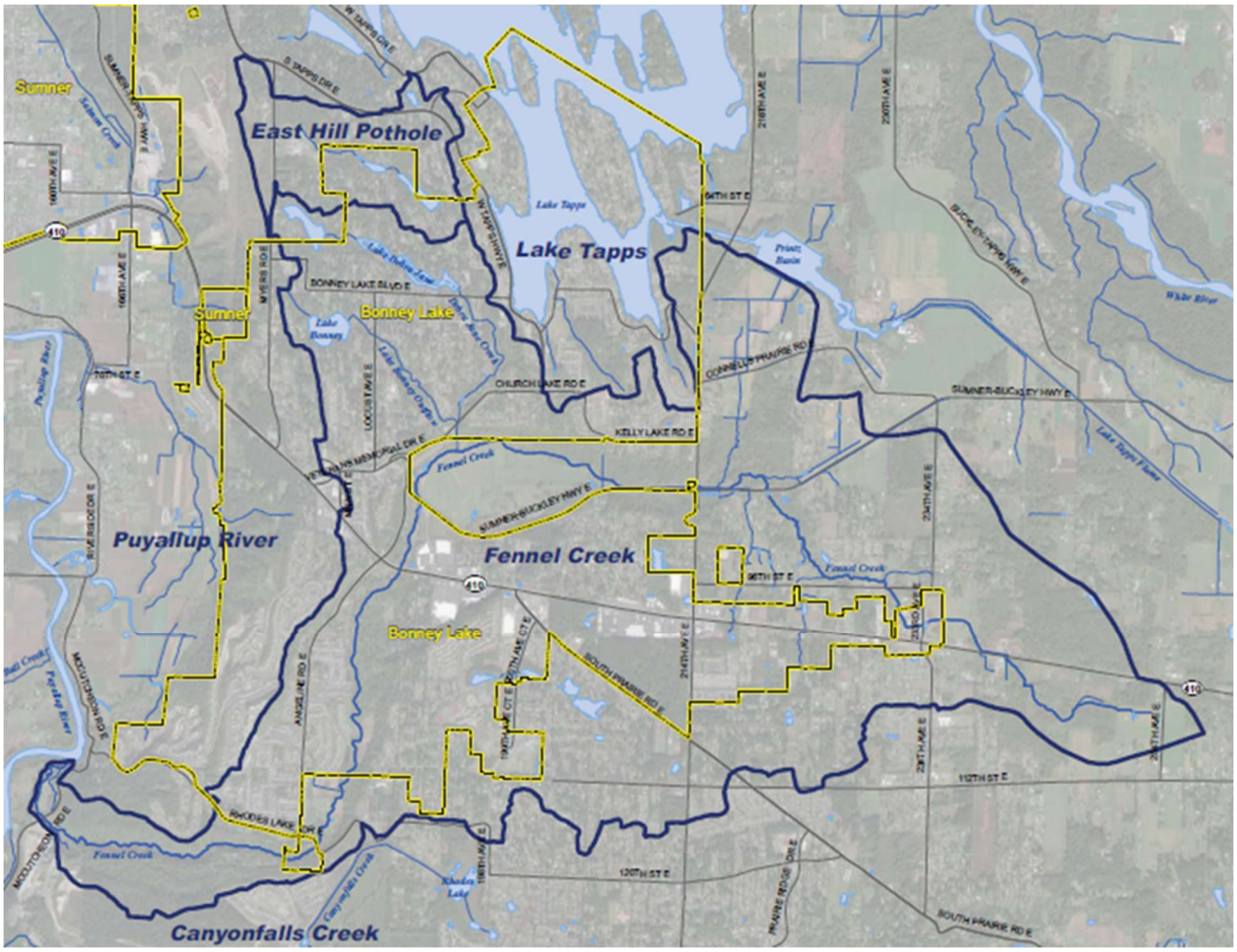
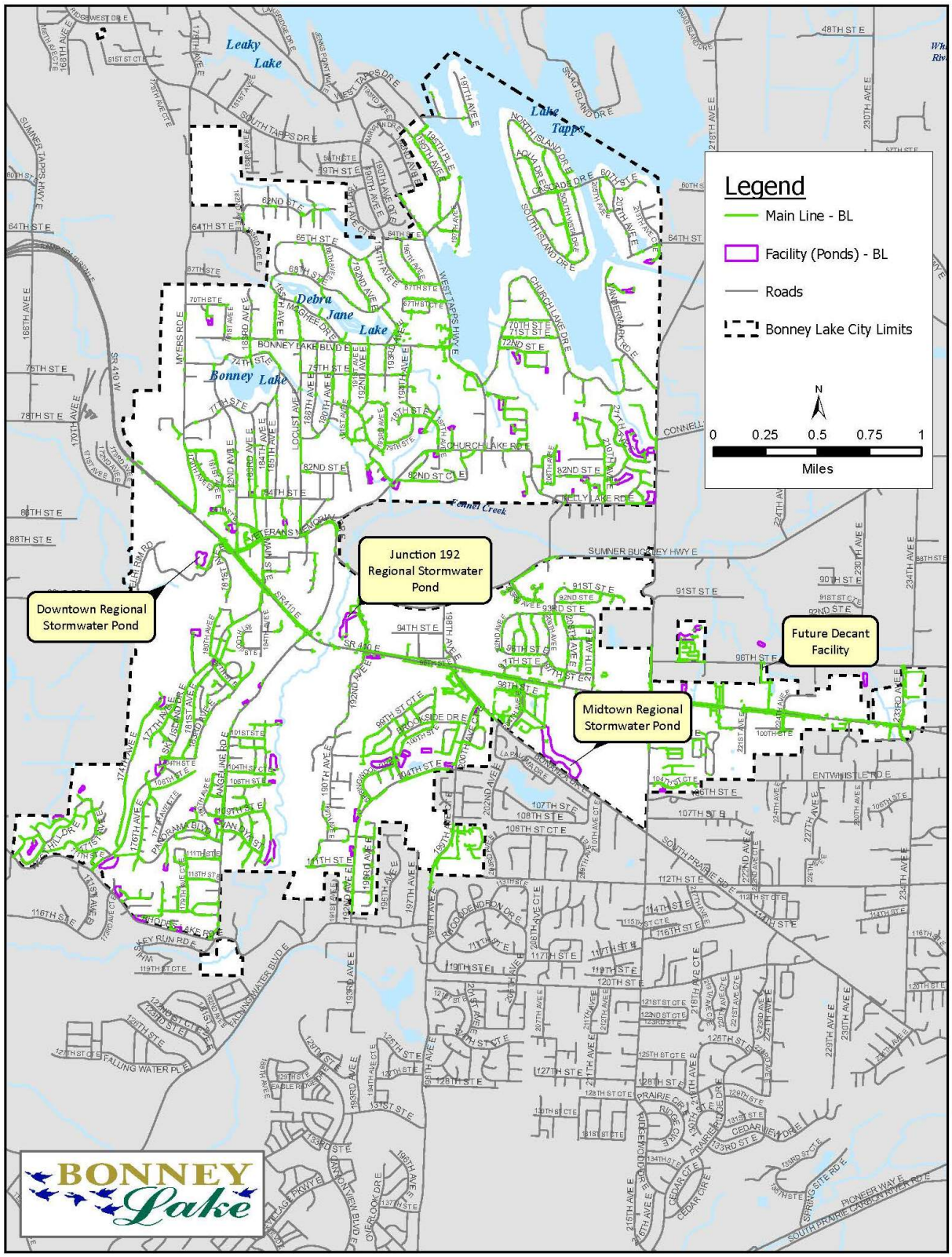


Exhibit 12: City of Bonney Lake Stormwater Facilities, 2025



2.8 TRANSPORTATION

Current Facilities

The City is served by State Route 410 and the City's road system, consisting of roads in seven (7) functional classifications:

- State Highway
- Principal (Major) Arterials
- Minor Arterials
- Collector Arterials
- Commercial Access
- Local Roads
- Private Streets

Exhibit 13 shows the City's road system by functional classification.

A complete inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Community Mobility Element**.

Transportation Level of Service (LOS)

The City has adopted the following LOS for transportation facilities:

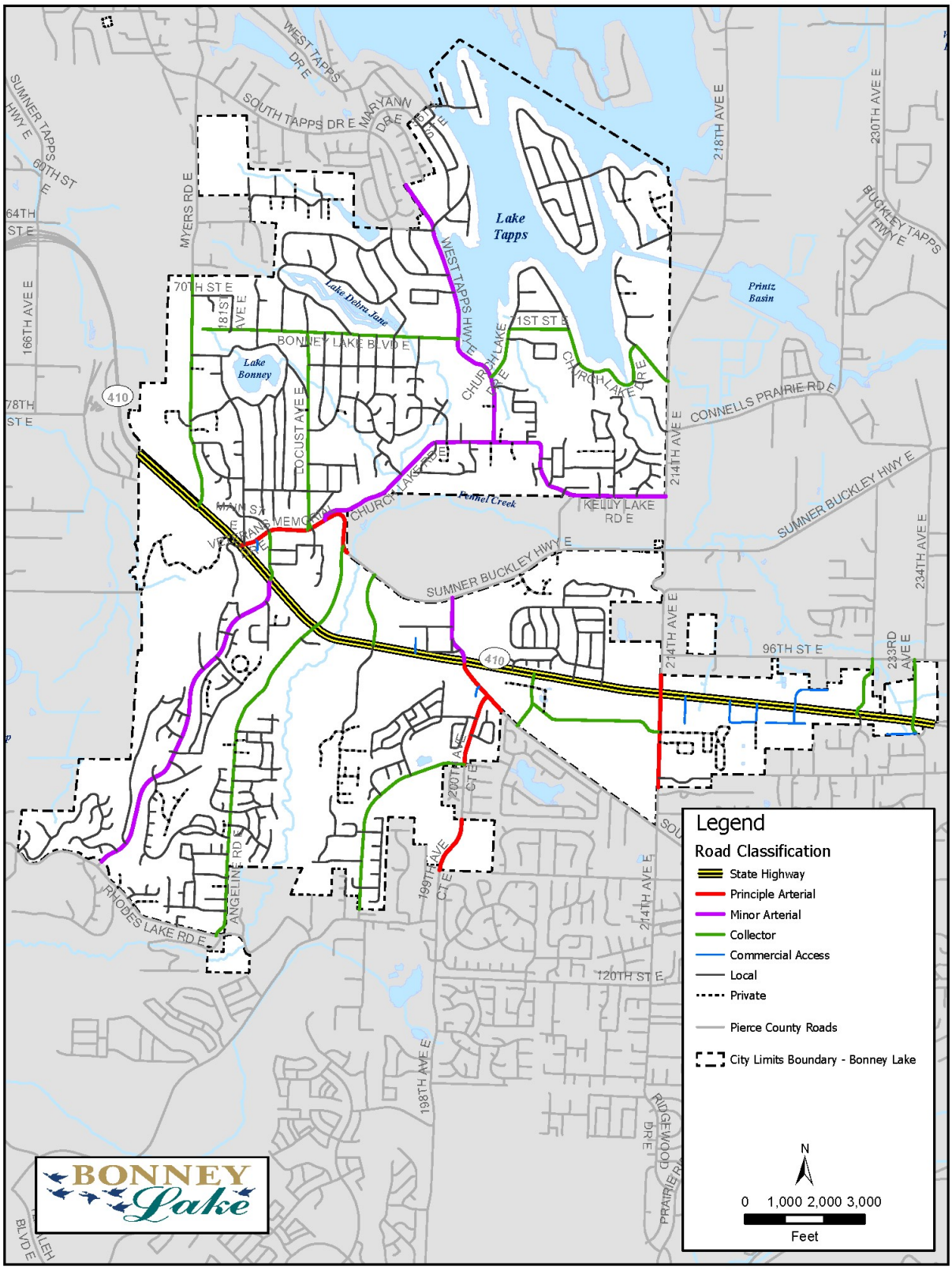
- For all City intersections except along SR 410, the City has adopted an Intersection LOS (ILOS) of D with a minimum volume to capacity (V/C) ratio of 0.90 or less for all legs of the intersection.
- For pedestrian and bicycle facilities, the City has adopted a Yellow Multi-Modal LOS (MMLOS).

An explanation of how the ILOS and the MMLOS were developed is available in the **Community Mobility Element**.

Transportation is subject to the City's concurrency requirements. Concurrency means that adequate facilities are available at the time of development or within a reasonable time following development. Adequate facilities are facilities with the capacity to serve development without decreasing levels of service below locally established minimums (WAC 365-196-210). Transportation is the only area of concurrency that requires denial of a proposed development if the impacts to the local transportation system would result in LOS dropping below adopted standards[5]. The City has established Transportation Impact Fees to mitigate the impacts of new development in the Bonney Lake Municipal Code.

[5] The GMA does not require denial when facilities other than transportation facilities are inadequate, though the subdivision statute and other local laws may require those improvements (RCW 58.17.110).

Exhibit 13: Street Functional Classifications, 2025



Challenges, Opportunities, and Future Needs

Exhibit 14 identifies the system improvements needed to accommodate the projected growth discussed in the **Community Development Element** and identifies the projects for which the City is collecting transportation impact fees as required by RCW 82.02.050(5).

Exhibit 14: Traffic Impact Fee-Eligible Transportation Improvements, 2025-2049

Project ID and Project Name Description	TIF Share[6]
2025-2049 Road (R) Projects	
R1 198th Ave E from Sumner-Buckley Hwy E to SR 410 Construct roadway to minor arterial standard including 2 travel lanes, curb, gutter, sidewalk, bike lanes, and landscaping on both sides. Roadway will be realigned with the SR 410 intersection. Will require stormwater conveyance system with detention and water quality facilities.	**95%**
R2 200th Ave Ct E from S Prairie Rd E to 104th St E Widen the roadway up to 5 lanes with curb, gutter, sidewalk, bike lanes, landscaping, and stormwater facilities.	**67%**
R3 214th Ave E from SR 410 to Southern City Limits Widen existing street to provide five travel lanes, curb, gutter, sidewalk, landscaping, and stormwater facilities. Purchase 20 feet of ROW from SR 410 to Southern City Limits. Will require stormwater conveyance system with detention and water quality facilities.	**45%**
R4 Bonney Lake Blvd E (Myers Rd E Connection) from Myers Rd to 181st Ave E Construct new road with two 11 foot wide travel lanes, a sidewalk on the north side of the road, curb, and gutter on both sides of the road, and a bioswale on the south side of the road.	**95%**
R5 S Prairie Rd E (Phase 1) from 200th Ave E to 202nd Ave E Reconstruct and widen roadway to include 5-lanes with curb, gutter, sidewalks, and bike lanes. Will require stormwater conveyance system with detention and water quality facilities.	**45%**
R6 S Prairie Rd E (Phase 2) from 202nd Ave E to 204th Ave E Reconstruct and widen roadway to include 5-lanes with curb, gutter, sidewalks, and bike lanes. Will require stormwater conveyance system with detention and water quality facilities.	**45%**
R7 211th Ave Ct E from SR 410 to 101st St E Acquire existing private two lane road; add sidewalks with curb, gutter, and landscaping to the east side of the road; and extend road on to WSU property with sidewalk and landscaping strip on one side of the road, curb, and gutter on both sides of the road, and bioswale on one side opposite the sidewalk.	**95%**
R8 101st St E from Current Western Terminus to 214th Ave E Construct new road with two travel lanes and intersection improvements at 214th Avenue E.	**95%**

[6] Traffic Impact Fee (TIF) Share refers to the portion of the project can be paid for with traffic impact fees collected pursuant to RCW 82.02.050 et. seq., which authorizes the collection of fees to pay for development's proportional impact on streets and roads. The fees must be used for "system improvements" that provide service and benefit to the entire community not individual developers. For more information, see the **Community Mobility Element**.

Project ID and Project Name Description	TIF Share[6]
R9 W Tapps Hwy E (New Segment) from Bonney Lake Blvd E to New Connection South of Allan Yorke Park Construct new road with two travel lanes, shared use path on east and north side of road with intersection at the south end of Alan Yorke Park. Road to be built within existing park right of way and will connect with new roundabout on Bonney Lake Drive. Reconfigure existing intersection of Bonney Lake with existing W Tapps Hwy to accommodate relocation of W Tapps Hwy alignment.	67%
R10 W Tapps Hwy E (Upgrade) from 76th St Ct E to Church Lake Rd E Upgrade roadway to include curb and gutter on both sides of the street and a multi-use path on the west side of the street.	67%
2025-2049 Intersection (I) Projects	
I1 Intersection of Church Lake Rd E and W Tapps Hwy E Install new signal. Includes $130,000 for stormwater management and $533,700 to modify vertical curve to the east of the intersection and improve sight distance per intersection study.	67%
I2 Intersection of Angeline Rd E and Veterans Memorial Dr E Install roundabout and add shared use path from 192nd Avenue to Locust.	95%
I3a Intersection of S Prairie Rd E and 200th Ave Ct E (Phase 1) Conduct an Intersection Control Evaluation (ICE) to determine appropriate channelization and/or control improvements.	67%
I3b Intersection of S Prairie Rd E and 200th Ave Ct E (Phase 2) Add new southbound through lane and widen approaches as needed.	67%
I4 Intersection of Intersection of 199th Ave E and 109th St E Install new roundabout.	67%
I5 Intersection of 101st St E and 214th Ave E Install new signal and additional turn lanes as part of 101st Street Extension.	95%
I6a Intersection of Church Lake Rd E and Veterans Memorial Dr E (Phase 1) Signalize intersection and coordinate with adjacent intersections.	67%
I6b Intersection of Church Lake Rd E and Veterans Memorial Dr E (Phase 2) Improve intersection and coordinate with adjacent intersections.	67%
I7a Intersection of SR 410 and Myers Rd E (Phase 1) Prepare Intersection Control Evaluation (ICE) with WSDOT to determine appropriate solution.	67%
I7b Intersection of SR 410 and Myers Rd E (Phase 2) Consider adding southbound-to-westbound acceleration lane.	67%
I8a Intersection of SR 410 and 214th Ave E (Phase 1) Conduct planning study to identify optimal configuration.	45%
I8b Intersection of SR 410 and 214th Ave E (Phase 2) Convert right turn drop lane to through lane and add new right turn drop lane.	45%
I9 Intersection of SR 410 and 204th Ave E Remove landscaped island and restripe to lengthen left turn pocket.	67%
I10 Intersection of Locust Ave and E Veterans Memorial Dr E Conduct planning study to identify optimal configuration.	67%

2.9 WATER SUPPLY, STORAGE, & DISTRIBUTION

Current Facilities

The City's water service area extends well beyond the City's corporate limits, encompassing approximately 21 square miles (not including water bodies) that make up most of the Lake Tapps Plateau. The City is responsible for providing public water service, utility management and system development within its water service area.

The water service area is clearly defined by means of an Interlocal Agreement between the City and Pierce County as part of the State-mandated coordinated water system process. The Washington State Department of Health classifies the system as a Type Group A – Community Public Water System.

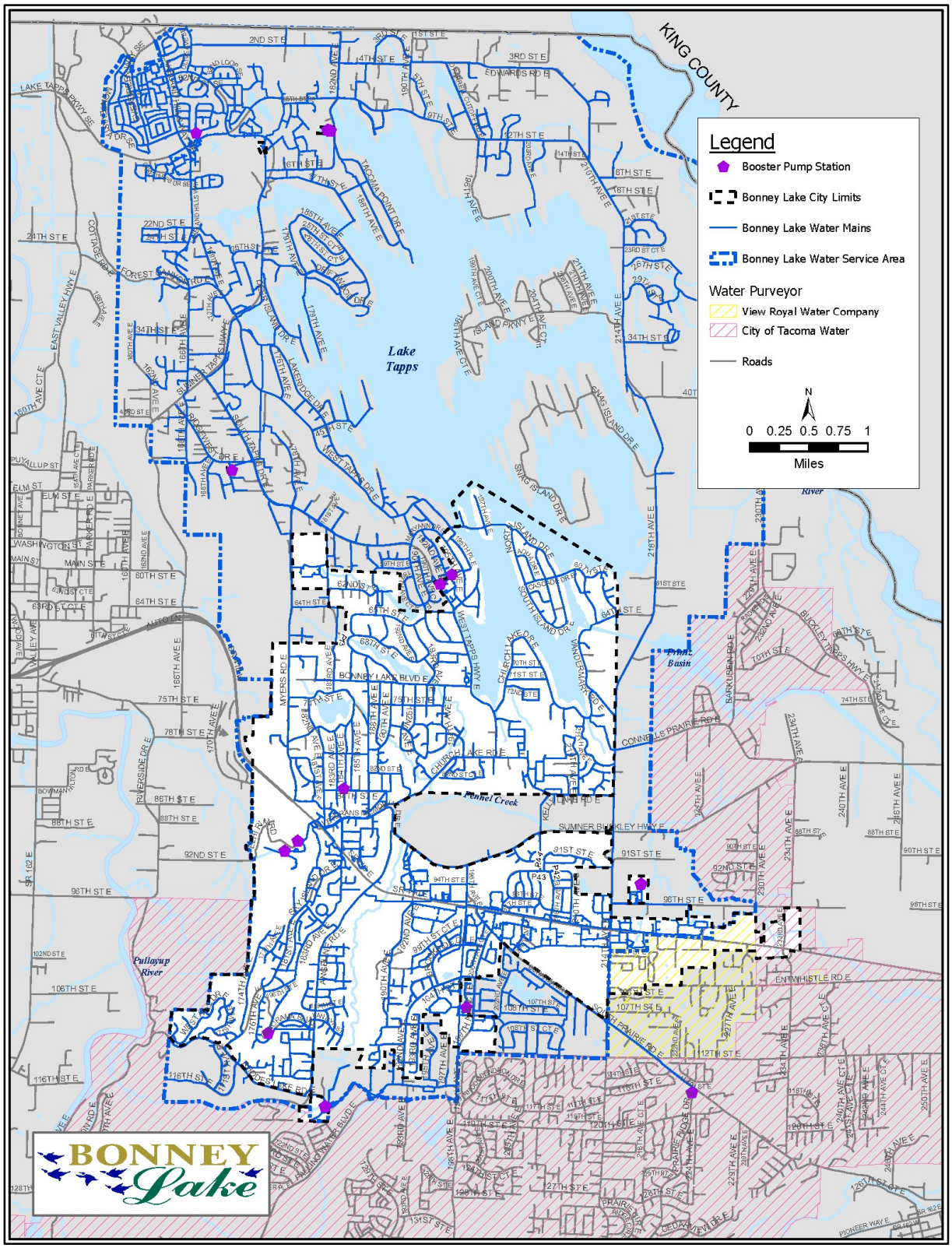
In 2024, the City provided water service to approximately 13,950 customer accounts. As of 2024, the water system consists of:

- 5 Reservoirs with 23.35 million gallons of storage capacity;
- 5 Chlorination (disinfection) Systems;
- 7 Booster Stations;
- 32 Pressure Reducing Valve (PRV) Stations; and
- 220 miles of transmission and distribution pipes.

The location of major City-managed water facilities is shown on **Exhibit 15**. There are no reclaimed water facilities serving the City of Bonney Lake.

A complete inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Water System Plan** (2020).

Exhibit 15: City of Bonney Lake Water Infrastructure



Water Level of Service (LOS)

The City hereby adopts a Water Level of Service as follows:

Exhibit 16: Water Level of Service (LOS) Standard

Facility or Measurement	Water Level of Service (LOS)
Potable Water Supply	• Comply with Washington State Department of Health (DOH) requirements concerning provision for peak day demands and maintenance of drinking water quality.
Potable Water Storage	• Comply with DOH requirements for operational, equalizing, standby, fire suppression, and dead storage.
Potable Water Distribution	• Comply with DOH requirements concerning minimum system pressure and fire flow.

Compliance with the Water LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City of Bonney Lake **Water System Plan** (2020) presents a description of the existing water system and service area, a forecast of future water demands, policies and design criteria for water system operation and improvements, the operations and maintenance program, staffing requirements, a schedule of improvements, and a financial plan to accomplish the improvements. The Plan also includes several ancillary elements, which include a water conservation plan, a water quality-monitoring plan, a wellhead protection plan, and an emergency response plan.

The City has reviewed the **Water System Plan** and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in **Community Development Element**.

3. INVENTORY OF UTILITIES AND SERVICES MANAGED BY OTHERS

3.1 SUMMARY OF CAPITAL FACILITIES MANAGED BY OTHERS

The City reviews adequacy for services provided by other providers that are considered essential to serve growth, including energy, fire protection, the library, schools, solid waste, state transportation facilities, telecommunications, water, and wastewater treatment.

Exhibit 17 summarizes the types of facilities, providers, and applicable plans addressed in this element. **The applicable plans listed in Exhibit 17 are incorporated by reference, as existing or as amended.** The adoption by reference of other agencies' CFPs is not intended to control or direct the City of Bonney Lake's land use planning. The goals, policies, and implementing actions in this comprehensive plan shall prevail, subject to the extent of the City's statutory authority, if the CFPs of other agencies conflict.

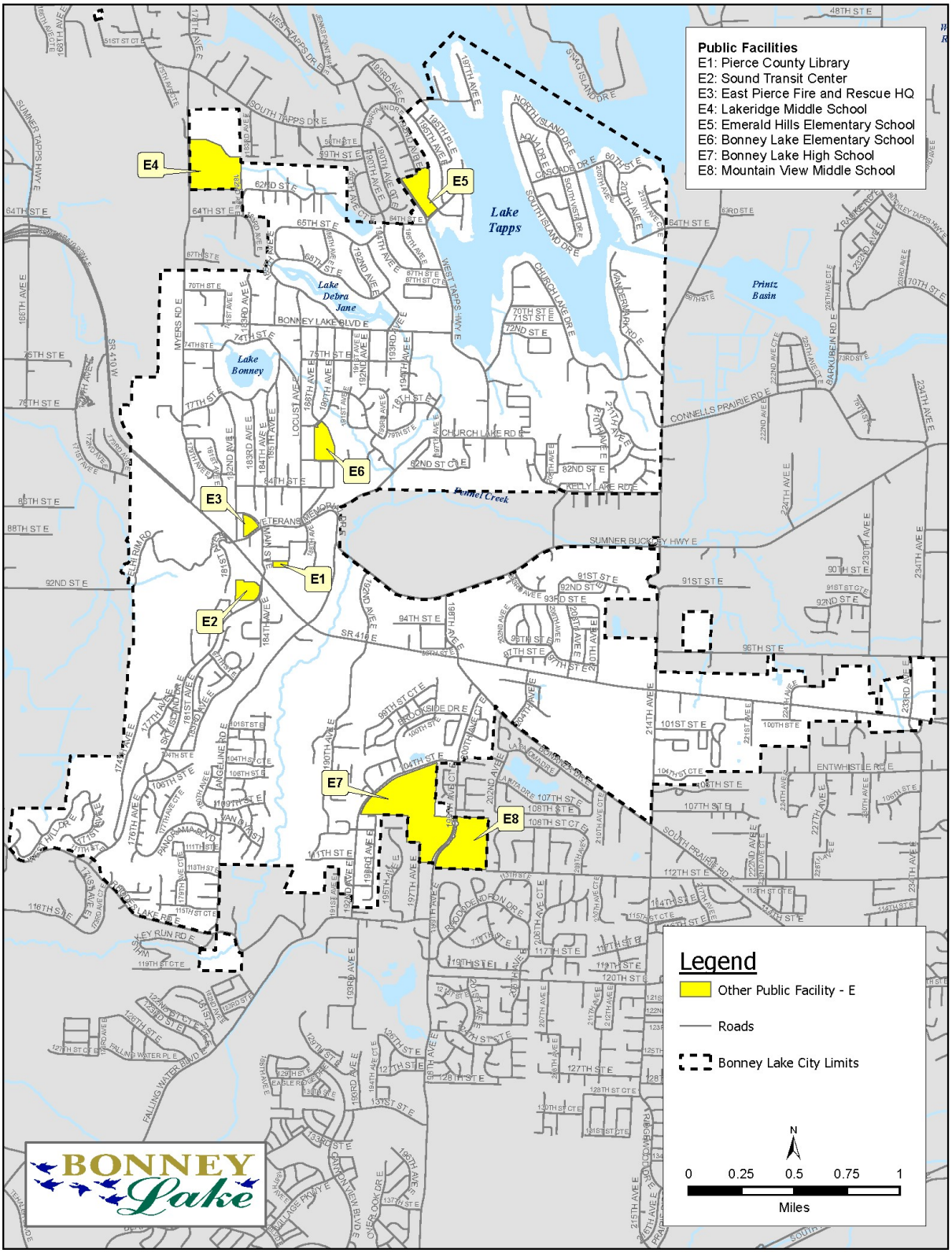
Exhibit 17: Capital Facility Providers and Guiding Applicable Plans Managed by Others

Facility / Service Type	Providers	Description	Applicable Plans
Energy (Electric Power and Natural Gas)	• Puget Sound Energy	Provision of electric and natural gas energy services.	• Puget Sound Integrated Resource Plan
Fire & EMS Protection	• East Pierce Fire & Rescue	Fire suppression and emergency medical response, including technical and special operations.	• East Pierce Fire & Rescue Capital Facilities Plan • East Pierce Fire & Rescue Standard of Cover
Library	• Pierce County Library System	Provides access to books, movies, and music, and other community services like internet access and public meeting space.	• Pierce County Library System Facilities Master Plan • Pierce County Library System Strategic Plan
Public Schools	• Sumner-City of Bonney Lake School District • White River School District	Provides facilities for instruction for students in Bonney Lake.	• Sumner-City of Bonney Lake School District Capital Facilities Plan • White River School District Capital Facilities Plan
Solid Waste	• Pierce County	Regional solid waste facilities for processing and disposal of residential, commercial, and industrial	• Pierce County Capital Facilities Plan • Pierce County Solid and Hazardous Waste Management Plan

Facility / Service Type	Providers	Description	Applicable Plans
		waste, recyclables, and hazardous materials.	
Sewer (Wastewater) Treatment	• City of Sumner • Tacoma-Pierce County Health District	Domestic and commercial wastewater treatment systems using a combination of a municipal wastewater treatment facility and onsite wastewater disposal.	• City of Sumner Capital Facilities Plan • City of Sumner General Sewer Plan • Pierce County Capital Facilities Plan
Telecommunications	• Private companies	Provision of fixed and mobile cable, cellular, internet, telephone, and television services.	• N/A
Transit	• Sound Transit	Transit service to and from the Bonney Lake Park and Ride.	• Sound Transit Service Standards and Performance Measures • Sound Transit Transit Development Plan
Water Supply, Storage, & Distribution	• Tacoma Public Utilities • Valley Water District	Infrastructure for providing drinking water and water for fire suppression.	• Tacoma Public Utilities Water System Plan • Valley Water District Water Comprehensive Plan

The location of major capital facilities operated by entities other than the City is shown in **Exhibit 18**.

Exhibit 18: Major Capital Facilities Managed by Others, 2025



3.2 ENERGY (ELECTRIC POWER AND NATURAL GAS)

Current Facilities

Puget Sound Energy (PSE) provides electricity and natural gas to the Bonney Lake area. In addition to local distribution lines, regional transmission lines, and gas lines pass through the Bonney Lake area. Puget Sound Energy has ceased operation of the White River Hydroelectric generating plant that used Lake Tapps as water storage reservoir. Cascade Water Alliance purchased the reservoir for a potable water supply for cities in King County.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **PSE Integrated Resource Plan** (2021).

In 2021, PSE adopted an updated, which presents a long-term forecast of the lowest reasonable cost combination of resources necessary to meet the needs of Puget Sound Energy's customers over the next 20 years.

Energy Facility Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **PSE Integrated Resource Plan** (2021).

Compliance with the Energy LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City has reviewed the **PSE Integrated Resource Plan** (2021)and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.3 FIRE & EMS PROTECTION

Current Facilities

East Pierce Fire & Rescue (EPF&R) provides fire protection in Bonney Lake. The District formed when the City of Bonney Lake Fire Department, Lake Tapps Fire District No. 22 and Pierce County Fire District No. 24 merged in 2000. As the result of additional merges since 2000, EPF&R covers 153 square miles, including Bonney Lake, Edgewood, Milton, Sumner, South Prairie and unincorporated areas around Lake Tapps and Tehaleh.

EPF&R provides a full range of emergency services within the district's service area, including fire, medical, and rescue response as well as special operation disciplines such as technical rescue, water rescue, wildland firefighting and hazardous materials response. EPF&R protects residents from seven (7) staffed fire stations and one (1) facility on Lake Tapps for the marine rescue unit. All full-time firefighters are cross-trained as either emergency medical technicians (EMTs) or paramedics and can respond to both medical emergencies and fires.

The headquarters for EPF&R is Station 111 located at 8601 Main St E in Bonney Lake. Completed in 2025, this station contains all support and administrative staff in addition to serving as a fully functioning fire station.

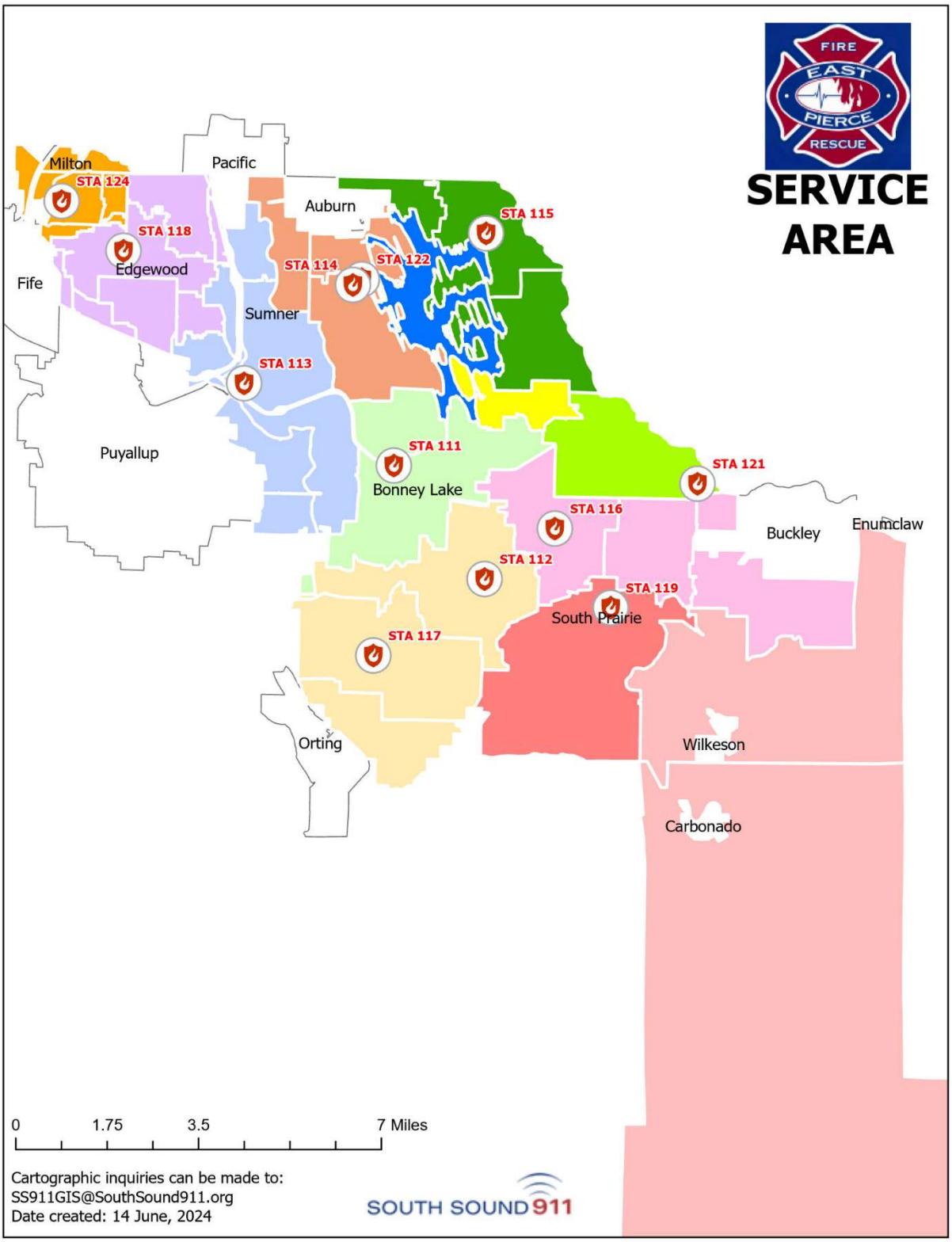
In addition to Station 111, EPF&R staffed stations able to respond to Bonney Lake incidents are:

- Station 112 (Prairie Ridge): 12006 214th Ave E
- Station 114 (Lake Tapps): 3206 W Tapps Dr E
- Station 116 (Foothills): 10515 234th Ave E
- Station 117 (Tehaleh): 14504 181st Ave E
- Station 122 (Water Rescue Facility): 2905 Sumner-Tapps Hwy E

Exhibit 19 illustrates the coverage areas of the staffed fire stations.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **East Pierce Fire & Rescue Capital Facilities Plan** (2018).

Exhibit 19: East Pierce Fire & Rescue Stations and Service Areas, 2024



Source: Courtesy of East Pierce Fire & Rescue

Current Service

Between 2021 and 2023, East Pierce Fire & Rescue was dispatched to an average of 12,106 calls for service per year. These calls involved structure, vehicle, and brush fires; emergency medical response, including for vehicle crashes; and other calls, including false alarms, hazmat incidents, and other service calls. **Exhibit 20** shows calls per year by population and commissioned officers.

Exhibit 20: East Pierce Fire & Rescue Calls, 2021 – 2023

	Bonney Lake		Entire Service Area	
Call Type	No. of Calls	% of Calls	No. of Calls	% of Calls
2021				
Fire[7]	57	2.2%	330	2.6%
EMS[8]	1,902	72.8%	8,846	69.7%
Other[9]	654	25.0%	3,519	27.7%
Total	***2,613***		***12,695***	
2022				
Fire[7]	53	2.0%	323	2.6%
EMS[8]	2,087	77.0%	9,369	76.5%
Other[9]	571	21.1%	2,556	20.9%
Total	***2,711***		***12,248***	
2022				
Fire[7]	72	2.82%	369	3.0%
EMS[8]	1,916	74.99%	9,280	76.7%
Other[9]	567	22.19%	2,457	20.3%
Total	***2,555***		***12,106***	
Average				
Fire[7]	61	2.3%	341	2.8%
EMS[8]	1,968	74.9%	9,165	74.2%
Other[9]	597	22.7%	2,844	23.0%
Total	***2,626***		***12,350***	

Source: Courtesy of East Pierce Fire & Rescue

[7] Includes structure, vehicle, and brush fires.
[8] Includes emergency medical calls for vehicle crashes.
[9] Includes false alarms, hazmat incidents, and other service calls.

As of 2020, EPF&R has earned a fire service protection rating of four (4) for the City of Bonney Lake, as assigned by the Washington Survey and Rating Bureau (WSRB). A numerical classification of 1 through 10 is used to represent the fire protection capabilities in a community, with 1 being the best possible rating. The rating process is conducted every five years by the WSRB. The review consists of four aspects of community fire safety with various levels of impact on the overall rating.

- **Water Supply (35%):** WSRB evaluates the capacity, distribution and maintenance of water systems and fire hydrants.
- **Fire Department (40%):** WSRB evaluates the fire department (EPFR), including fire stations, apparatus (fire engines, ladder trucks and water tenders), equipment, personnel and their training.
- **Emergency Communications (9%):** WSRB evaluates the emergency communication system used to dispatch the fire department.
- **Fire Safety Control (16%):** WSRB evaluates the fire code enforcement and fire safety education activities in the community.

Fire & EMS Protection Level of Service

The City adopts by reference, as amended, the Level of Service established in **East Pierce Fire & Rescue Standards of Cover** (2023).

Compliance with the Fire & EMS Protection LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City has reviewed the **East Pierce Fire & Rescue Capital Facilities Plan** (2018) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.4 LIBRARY

Current Facilities

The Pierce County Library System (PCLS) is an independent municipal corporation established under RCW 27.12, serving all unincorporated area within Pierce County as well as annexed cities and towns. As a junior taxing district, all operations and capital improvements are funded by a dedicated property tax levy. The City of Bonney Lake is part of PCLS. The Bonney Lake branch is located at 18501 90th St E and is co-owned by the City (which built the original building) and the PCLS (which built the addition). PCLS also leases the land upon which the building is located.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Pierce County Library System Facilities Master Plan** (2010), which serves as the long-range capital facilities plan. In 2017, PCLS completed a **Strategic Plan,** updated annually, that informs implementation of the Facilities Master Plan. PCLS anticipates updating the 20-year capital facilities plan by the end of 2025.

Library Facility Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Pierce County Library System Facilities Master Plan** (2010), as informed by the PCLS **Strategic Plan** (2017).

Compliance with the Library LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

To meet the future demand, the Pierce County Library System will need to significantly expand or replace the current 6,480 square foot Bonney Lake Library. Pierce County Library's existing operating levy supports ongoing operations and capital maintenance, but is not adequate for new or expanded facilities. To implement the recommended service levels and facility improvements, the Library will need to approach voters for additional capital facilities funding or obtain additional revenue from other sources. The Library will continue to work with communities to seek funding for identified improvements.

The City has reviewed the **Pierce County Library System Facilities Master Plan** (2010) and has determined that, in conjunction with the expansion of digital and off-site services and the new library in Sumner, it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.5 PUBLIC SCHOOLS

Ensure opportunities for a quality education for the community's citizens through cooperation with the school district.

- *Bonney Lake Comprehensive Plan (1985)*

The City of Bonney Lake does not own or operate school facilities. The Sumner – Bonney Lake School District serves the majority of residents, while the White River School District serves the remaining residents. Schools are vital to protect and enhance community quality. Deficiencies in school facilities might not raise severe obstacles to any single new development, but over time can contribute to deterioration of community quality.

The City is ultimately responsible for assuring that adequate facilities and services, such as schools and school facilities, are available or can be made available to support planned growth. This responsibility is carried out by working with the school districts that serve the City to identify needs for facilities and services based on the planned amount and location of growth. The mechanism for identifying needs is through each district's capital facilities plan. The provision of an adequate supply of public schools is essential to avoid overcrowding and to enhance the educational opportunities for Bonney Lake's children.

The Growth Management Act requires school districts to prepare a capital facility plan which includes an inventory of existing capital facilities owned by public entities, a forecast of the future needs for capital facilities, including the proposed locations and capacities of expanded or new facilities, and a six-year plan that will finance the expansion or new facilities. Specific information on school district facilities including, but not limited to, enrollment, classroom size, service standards, and financing, is contained in each school district's capital facilities plans.

The location of schools and their associated service areas are shown for elementary schools on **Exhibit 21**, for middle schools on **Exhibit 22**, and for high schools on **Exhibit 23**.

Exhibit 21: Elementary School Service Areas, Sumner-Bonney Lake School District and White River School District, 2025

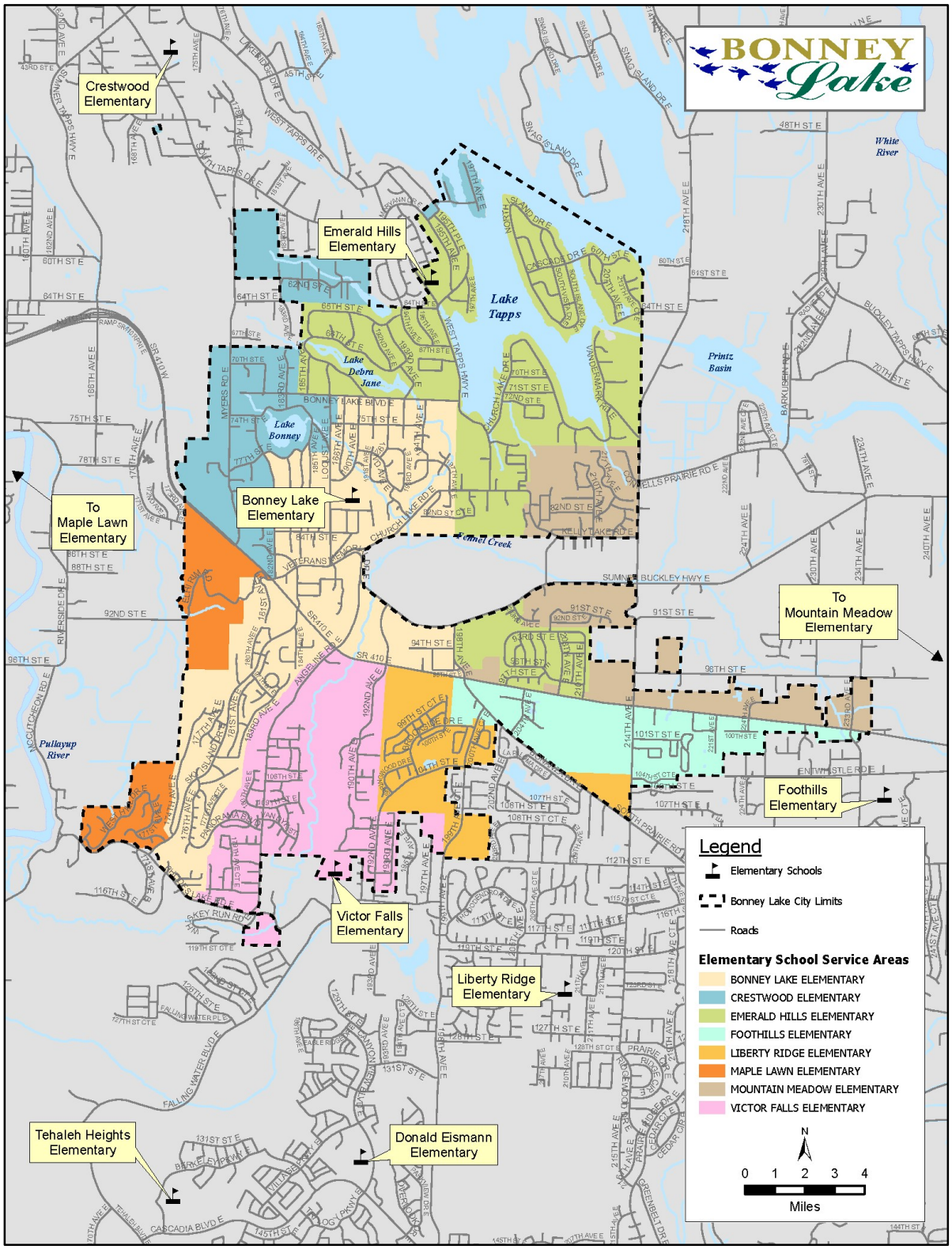
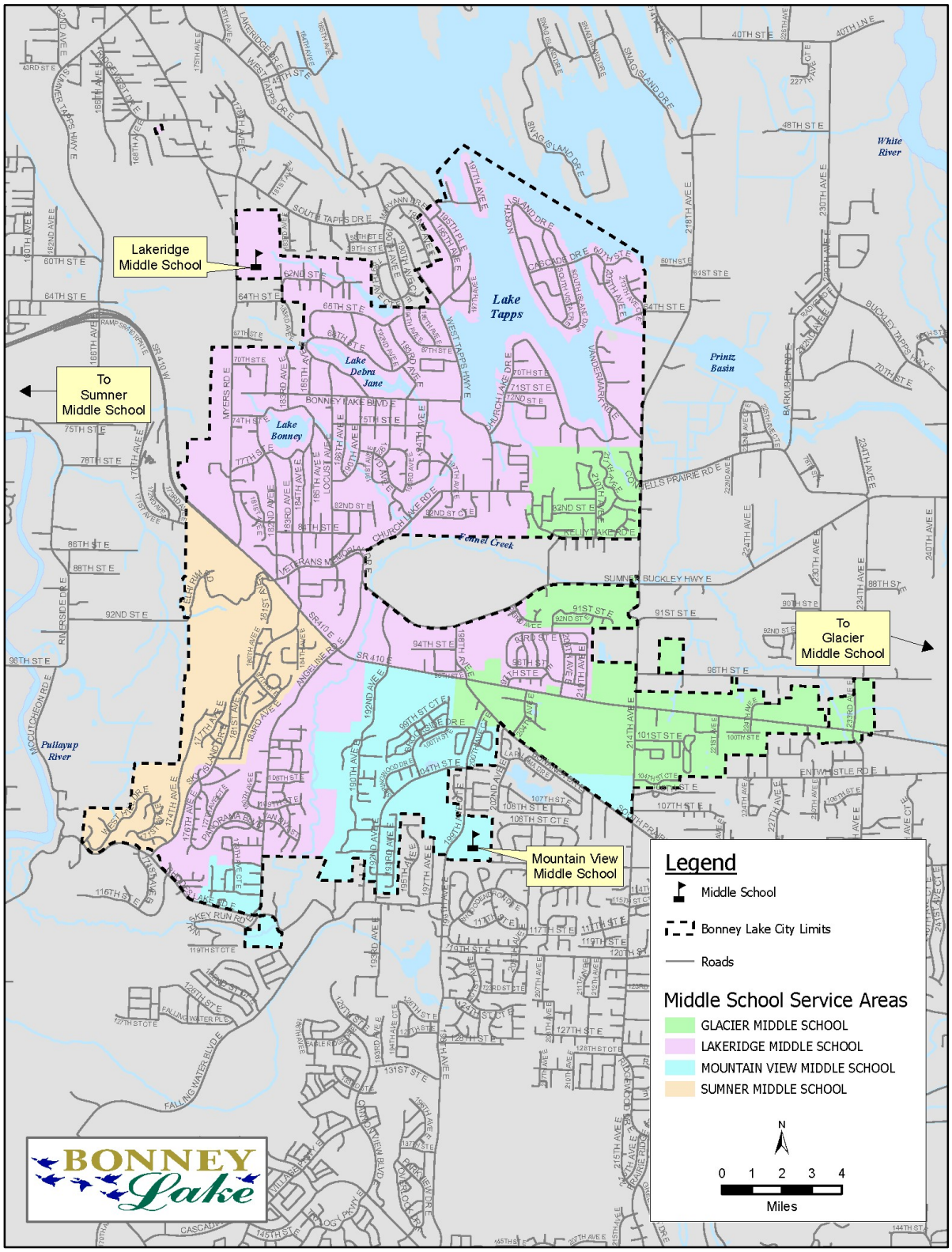
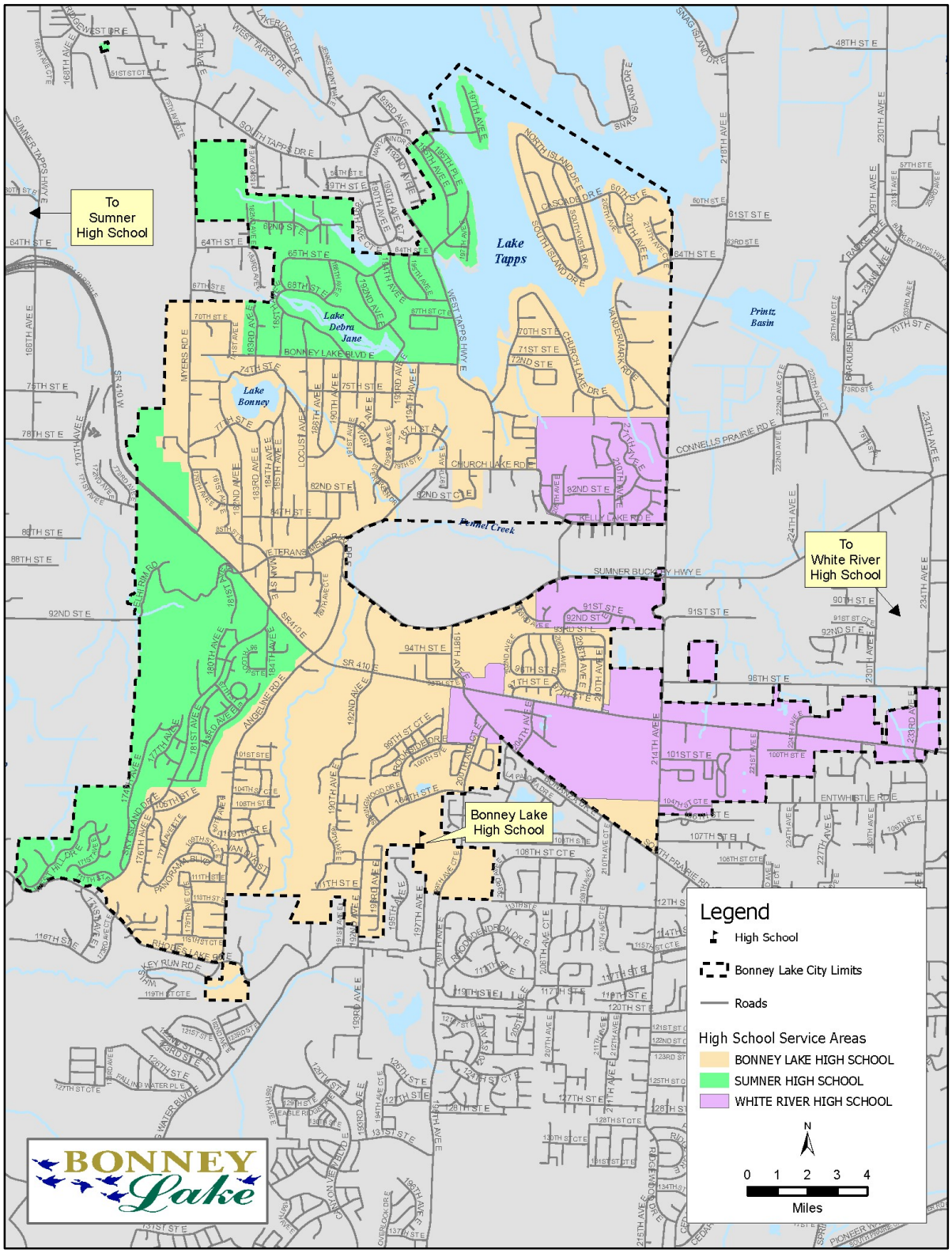


Exhibit 22: Middle School Service Areas, Sumner-Bonney Lake School District and White River School District, 2025



Envision BONNEY LAKE
Celebrating 100 Years

Exhibit 23: High School Service Areas, Sumner-Bonney Lake School District and White River School District, 2025



Sumner-Bonney Lake School District

Current Facilities

The service area for most Sumner – Bonney Lake School District's (SBLSD) elementary schools include a portion of Bonney Lake, except for Daffodil, Tehaleh Heights, and Donald Eismann elementary schools. The service area of all three of the SBLSD's middle school and both high schools include portions of Bonney Lake. The specific SBLSD facilities within the City include Bonney Lake High School, Mountain View Middle School, Lake Ridge Middle School, Bonney Lake Elementary, Victor Falls Elementary, and Emerald Hills Elementary.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Sumner-Bonney Lake School District Capital Facilities Plan** (2024).

School Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Sumner-Bonney Lake School District Capital Facilities Plan** (2024).

Compliance with the School LOS is not subject to the City's concurrency requirements.

The City has established School Impact Fees to mitigate the impacts of new development in the Bonney Lake Municipal Code.

Challenges, Opportunities, and Future Needs

SBLSD routinely reviews the capacity at each of its facilities against actual and projected enrollment to determine what projects are needed. SBLSD completed several capital projects in the past ten years that significantly improved capacity at schools within Bonney Lake. Additional classroom capacity and upgrades are planned at Bonney Lake High School, and a new middle school is planned for construction in Tehaleh, which will reduce pressure on schools within the city limits.

The City has reviewed the **Sumner-Bonney Lake School District Capital Facilities Plan** (2024) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

White River School District

Current Facilities

The service area for two of the four White River School District's (WRSD) elementary schools include portions of Bonney Lake. There is only one middle school and one high school in the WRSD. There are no WRSD facilities located within the City of Bonney Lake.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **White River School District Capital Facilities Plan** (2024).

School Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **White River School District Capital Facilities Plan** (2024).

Compliance with the School LOS is not subject to the City's concurrency requirements.

The City has established School Impact Fees to mitigate the impacts of new development in the Bonney Lake Municipal Code.

Challenges, Opportunities, and Future Needs

WRSD routinely reviews the capacity at each of its facilities against actual and projected enrollment to determine what projects are needed. WRSD plans to complete additions to an elementary school, a middle school, and a high school as part of the most recent Capital Facilities Plan.

The City has reviewed the **White River School District Capital Facilities Plan** (2024) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.6 SEWER (WASTEWATER) TREATMENT

Current Facilities

The City of Bonney Lake jointly owns the Sumner Wastewater Treatment Plant locates at 13114 63rd St E with the City of Sumner, which serves as the destination for all wastewater generated within Bonney Lake's service area. The City has an Interlocal Agreement with the City of Sumner that ensures adequate capacity in the treatment plant and that outlines specific programmatic and maintenance responsibilities.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan are available in the **City of Sumner Sanitary Sewer Comprehensive Plan** (2020) and **City of Sumner Capital Facilities Plan** (2025).

Sewer Treatment Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **City of Sumner Sanitary Sewer Comprehensive Plan** (2020).

Compliance with the Sewer Treatment LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

A Wastewater Treatment Facility (WWTF) Feasibility Study was completed in 2016, concluding that a maximum monthly WWTF capacity of 9.2 million gallons per day was achievable at the existing treatment facility site. As City of Bonney Lake anticipates more rapid growth of its sewer area than Sumner in the future, another expansion may be necessary and would likely be funded heavily by the City of Bonney Lake. Most of the growth is expected to occur within the City's Southern Sewer Area, which is located outside of the City in unincorporated Pierce County.

The City has reviewed the **City of Sumner Sanitary Sewer Comprehensive Plan** (2020) and **City of Sumner Capital Facilities Plan** (2025) and determined that they are consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.7 SOLID WASTE

Current Facilities

There are no solid waste facilities in the City for the public. Pierce County contracts with private companies to operate five County-owned solid waste facilities, and to gain access and capacity at an additional four facilities. The nearest refuse facility for garbage is the Pierce County Prairie Transfer Station located at 11710 Prairie Ridge Dr E.

Solid waste collection services in Bonney Lake, including curb side yard waste collection and one-source curbside recycling, are provided by a private company through a contract with the City. The City has a street waste facility that serves as a dewatering and collection area for street sweeping and catch basin waste permitted through the Tacoma – Pierce County Health Department.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Pierce County Capital Facilities Plan** (2024).

Solid Waste Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Tacoma-Pierce County Solid and Hazardous Waste Management Plan** (2021).

Compliance with the Solid Waste LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

In 2022, Washington State passed House Bill 1799 (Organics Management Law) concerning organic materials management. The Organics Management Law requires diversion of organic materials away from landfill disposal and towards food rescue programs and organics management facilities. In response to this legislation, Pierce County facilities will need to be upgraded to handle the increase in organic matter. Upgrades are planned to the Prairie Ridge Transfer Station to accommodate population growth and changing operational needs.

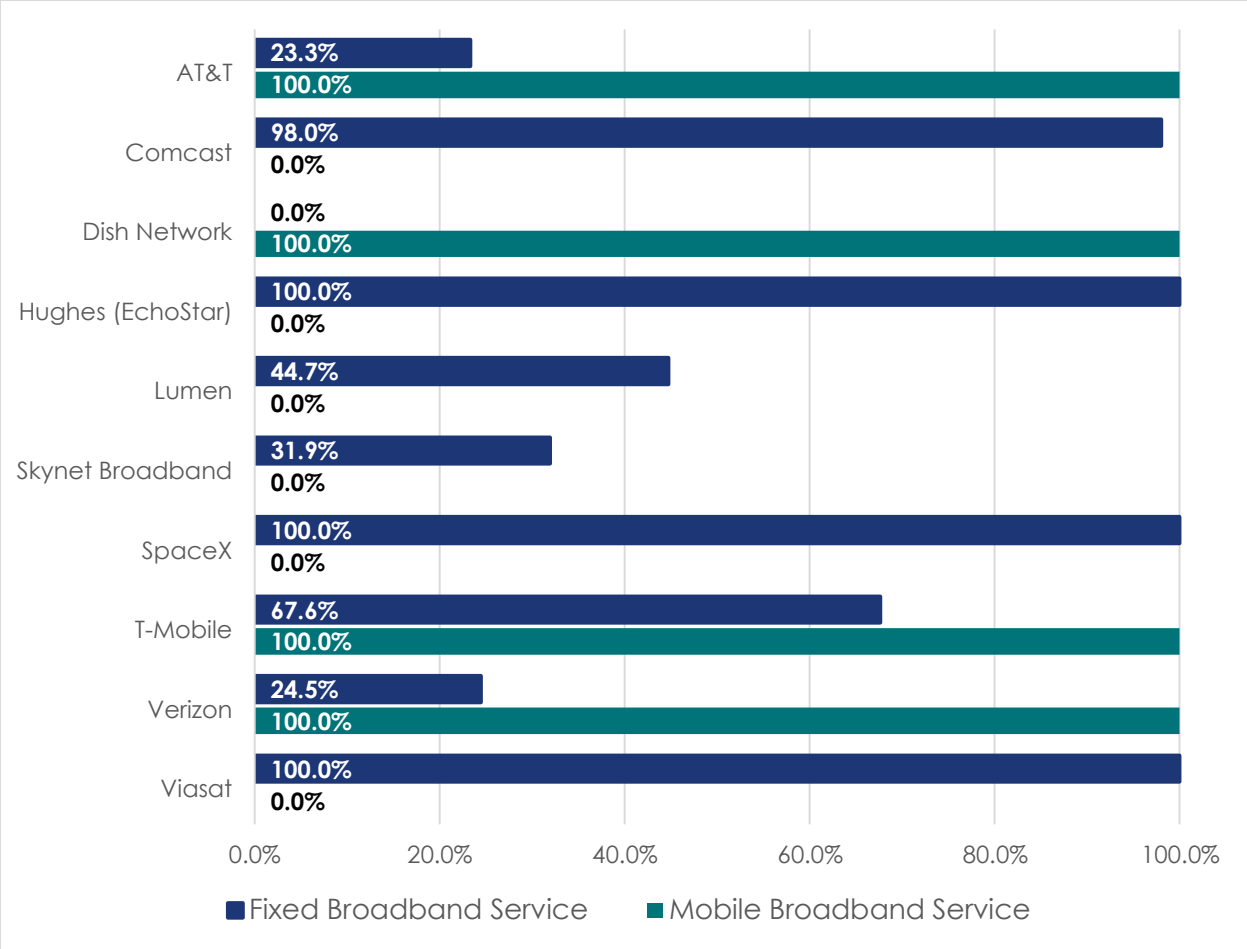
The City has reviewed the **Pierce County Capital Facilities Plan** (2024) and **Tacoma-Pierce County Solid and Hazardous Waste Management Plan** (2021) and determined that they are consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.8 TELECOMMUNICATIONS

Current Facilities

Telecommunication infrastructure is a vital community asset. New communication technology has and will continue to revolutionize the way residents in the City communicate, work and live. A variety of private telephone, cellular, and internet service companies operate in Bonney Lake, providing important voice and data connections for the community (see **Exhibit 24**). All service in the City is currently 4G or better.

Exhibit 24: Coverage by Telecommunications Provider, Bonney Lake, 2025[10]



Source: Adapted from Federal Communications Commission FCC National Broadband Map, available online at: https://broadbandmap.fcc.gov/home. Retrieved September 22, 2025.

[10] Fixed broadband includes cable, copper, fiber, satellite, and fixed wireless services provided at a set physical location. Mobile broadband service is provided over the cellular network and provided wherever the user is.

Telecommunications Level of Service (LOS)

As telecommunication services are provided by private companies, the City does not have access to any Level of Service standards. The provision of telecommunication services is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City continues to receive requests from telecommunications providers for franchise agreements, installation of in-ground utilities, and approval of cellular towers and wireless antennas and equipment. While recognizing the importance of the services, the City is faced with the challenge of trying to accommodate this infrastructure and technology without compromising aesthetics or view corridors and while also complying with Federal Communications Commission and Federal Aviation Administration regulations regarding communication towers. Bonney Lake continues to work with these providers to continue to improve and expand telecommunication options and reliability.

3.9 TRANSIT

Current Facilities

Currently, there is no local transit service in the Bonney Lake area. Bonney Lake is served by regional express bus service by Sound Transit from the Bonney Lake Transit Center, which is owned and operated by Sound Transit. See the **Community Mobility Element** for additional information on transit services in the City.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Sound Transit Transit Development Plan** (2024).

Transit Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Sound Transit Service Standards and Performance Measures** (2018).

Compliance with the Transit LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City has reviewed the **Sound Transit Transit Development Plan** (2024) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

3.10 WATER SUPPLY, STORAGE, & DISTRIBUTION

Tacoma Water (Tacoma) Public Utilities

Current Facilities

Tacoma Water, a division of Tacoma Public Utilities (TPU), is operated by the City of Tacoma and was formed in 1884 under Tacoma Light and Water Company. TPU's water service area includes direct retail water service to customers within a small portion of the City of Bonney Lake from approximately 230th Ave E to the eastern City limits. This area is developed primarily with light manufacturing and flex office space. In addition to TPU's retail service, it also provides wholesale water service the City's water system to supplement the City's water supply and provide an emergency intertie in the event there is a catastrophic failure in the City's water system.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Tacoma Water Water System Plan** (2018). TPU anticipates completing an amendment to this plan by the end of 2025.

Water Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Tacoma Water Water System Plan** (2018).

Compliance with the Water LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City has reviewed the **Tacoma Water Water System Plan** (2018) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

Valley Water District

Current Facilities

Formed in 1993, the Valley Water District serves six (6) separate and non-contiguous areas in unincorporated, rural, east Pierce Country. One of these areas, the View Royal Water System, serves a small area in the southeast portion of the City and unincorporated Pierce County.

the City of Bonney Lake. The View Royal Water System facilities consist of one active well, one emergency use well, three reservoirs with a total storage capacity of 146,000 gallons, and approximately nine and one-half miles of distribution pipe. The system has one six-inch intertie with the City of Tacoma. These physical assets are used to serve 482 single-family residential connections, 515 multifamily residential connections and 12 non-residential connections consisting of a restaurant, a church, hardware store, and several small businesses. The Department of Health has not specified the maximum number of approved connections to the system.

An inventory of existing facilities, forecast of future needs, location and capacity of expanded or new facilities, and minimum 6-year improvement plan is available in the **Valley Water District Water System Plan** (2021).

Water Level of Service (LOS)

The City adopts by reference, as amended, the Level of Service established in the **Valley Water District Water System Plan** (2021).

Compliance with the Water LOS is not subject to the City's concurrency requirements.

Challenges, Opportunities, and Future Needs

The City has reviewed the **Valley Water District Water System Plan** (2021) and determined that it is consistent with and provides sufficient capacity to handle the growth projections established in the **Community Development Element**.

4. ESSENTIAL PUBLIC FACILITIES

Essential Public Facilities (EPFs) are facilities that are typically difficult to site but provide necessary and important services to the region. Under the GMA, cities cannot preclude the siting of EPFs and can only impose reasonable conditions necessary mitigate direct, adverse impacts from the construction or operation of an EPF[11].

Under RCW 36.70A.200(1)(a), EPFs include facilities such as:

- Airports;
- State education facilities;
- State or regional transportation facilities as defined in RCW 47.06.140;
- Regional transit authority facilities as defined in RCW 81.112.020;
- State and local correctional facilities;
- Solid waste handling facilities;
- Inpatient facilities including substance use disorder treatment facilities, mental health facilities, group homes, and community facilities as defined in RCW 72.05.020; and
- Secure community transition facilities as defined in RCW 71.09.020.

The following essential public facilities are currently located in Bonney Lake:

- State Route 410 (Highway of State-wide Significance)

State law requires that cities establish a process for identifying, mitigating, and siting EPFs within their jurisdictions. Bonney Lake's process is outlined in Chapter 14.80 of the Bonney Lake Municipal Code.

[11] The Central Puget Sound Growth Management Hearings Board (CPSGMHB) in *King County v. Snohomish County* (Case Number 03-3-011) found that "… no local government plan or regulation, including permit processes, and conditions, may preclude the siting, expansion or operation of an essential public facility. Local plans and regulations may not render EPFs impossible or impracticable to site, expand, or operate, either by the outright exclusion of such uses, or by imposition of process requirements or substantive conditions that render EPF impracticable. While there is no absolute time limit for how long an EFP Permit may take, and EFP permit process lacking provisions that assure an ultimate decisions may bound to be so unfair, untimely, and unpredictable as to substantively violate RCW 36.70A.020(7). …"

While CPSGMHB has interpreted "preclude" to mean "… impossible or impracticable to site, expand, or operate, either by the outright exclusion of such uses, …", the CPSGMHB in *Port of Seattle v. City of Des Moines* (Case No. 97-3-0014 – Final Order)) found that "[A] zoning code that confines certain EPFs to certain zones is not automatically considered preclusive."

5. CAPITAL IMPROVEMENT PLAN

> *Town, County, and State park systems should be developed around Lake Tapps and within Bonney Lake to take advantage of the many amenities of Lake Tapps. Recreation may become an important economic resource of the community. Early planning for parks would provide economic and recreational benefits for the community.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

One of the primary purposes of this Element is to identify capital facility needs and funding mechanisms to finance the construction, reconstruction, and acquisition of needed assets because of growth, aging, changing needs, and Bonney Lake's desire to improve the quality of life made possible by various capital investments.

However, there is not nearly enough revenue capacity to fund all the identified projects. Further, not all the facilities and improvements identified are necessary to support new development but may be desirable to address existing deficiencies or to achieve the quality of services and life the community desires. The City has sought and utilized a variety of revenue sources, including grants, loans, bonds, and impact fees, coupled with traditional reoccurring revenues, to develop and maintain its capital facilities to meet the needs of this growing community.

Capital facilities can be categorized into three levels:

- **Maintenance of Existing Facilities:** The City is committed to being a good steward of the investment in public infrastructure and facilities built in years past. Routine maintenance, upgrades, and replacement is needed to prevent hazards, inefficiencies, and greater operational costs caused by delay.
- **Facilities to Support Development:** The second type of capital facilities are those necessary to support development. Without these projects, the minimal levels of service needed to support new development would not be achieved or maintained. These projects include both system expansion needs and site-specific needs to serve development.
- **Facilities to Improve Service:** The last type of projects are ones that improve the overall community or enhance the general quality of life. These projects may include projects or services that are important to the community, such as adding new features to existing parks, adding sidewalks in areas where no or partial sidewalks exist, or construction of a community center.

5.1 BONNEY LAKE 6-YEAR CAPITAL IMPROVEMENT PLAN

The Capital Improvement Program (CIP) is the city's six-year capital financing and implementation plan. The first two years of the CIP are incorporated as part of the biennial budget, in which planned capital improvements to the City's public facilities and infrastructure are identified, budgeted, and approved. After the City Council has reviewed and approved the program, these projects are implemented provided the funding has been secured. **Section 5.2** provides a detailed discussion of each of the specific revenue sources identified in the CIP budget and available to the City.

Additionally, the related capital and facility plans that have been adopted above by reference describe and identify numerous capital investment projects to serve future development within the City. Revenues come from various sources including sales taxes, utility rates, state revenues, bond issues, state and federal grants, impact fees, and other specific revenues allowed by law to fund those capital investments and public facilities.

Exhibit 25: Bonney Lake Capital Improvement Plan, 2025-2030

Description[12]	2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
2025-2030 General Government Facility Projects			
General Government CIP Fund Beginning Fund Balance	**$2,041,819**	**$1,886,619**	**$2,082,219**
Anticipated Revenue Sources	**$2,045,900**	**$1,430,600**	**$946,104**
Real Estate Excise Tax (REET)	$400,000	$408,000	$416,160
Park and Facility Rentals	$360,000	$367,200	$374,544
Other Revenue Sources: Fund balance interest, leases, etc.	$155,400	$155,400	$155,400
American Rescue Plan Act (ARPA) Grant	$500,000	$0	$0
FEMA Generator Grant	$0	$500,000	$0
Washington State Legislative Appropriation (Senior Center)	$630,500	$0	$0
Anticipated CIP Expenses	**($2,201,100)**	**($1,235,000)**	**($1,510,000)**
Green Garage - Demolition	$0	($40,000)	$0
Old City Hall - Demolition	($101,100)	$0	$0

[12] See the associated plan for CIP projects with a project number. CIP projects without a project number were identified as a need after adoption of the associated plan.

Description[12]	2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
Public Safety Building - Building Rehabilitation	($750,000)	($500,000)	$0
Public Safety Building - Emergency Generator	($600,000)	$0	$0
Senior Center - Building Upgrades (Phase 1)[13]	($750,000)	$0	$0
Justice & Municipal Center - Blind Replacement	$0	($30,000)	$0
Justice & Municipal Center - Court Counter Glass	$0	($100,000)	$0
Justice & Municipal Center - Emergency Generator	$0	($150,000)	($1,100,000)
Public Safety Building and Senior Center - Parking Lot Lighting	$0	($30,000)	$0
Public Services Center - Pedestrian Emergency Exit Gates	$0	($10,000)	$0
Senior Center - Building Upgrades (Phase 2)[14]	$0	($375,000)	$0
Senior Center - Roof	$0	$0	($350,000)
Public Services Center - Vehicle Exit Gates	$0	$0	($60,000)
General Government CIP Fund Ending Fund Balance	**$1,886,619**	**$2,082,219**	**$1,518,323**
2025-2030 Parks & Recreation Projects			
Parks CIP Fund Beginning Fund Balance[15]	**$4,874,694**	**$1,610,694**	**$1,092,694**
Anticipated Revenue Sources	**$1,751,000**	**$1,692,000**	**$1,664,640**
Real Estate Excise Tax (REET)	$800,000	$816,000	$832,320
Park Impact Fees	$400,000	$408,000	$416,160
Other Revenue Sources: Fund balance interest, leases, etc.	$400,000	$468,000	$416,160
Washington State Legislative Appropriation	$151,000	$0	$0
Anticipated CIP Expenses	**($5,015,000)**	**($2,210,000)**	**($660,000)**
AYP-A Allan Yorke Park - NW Parking Lot Upgrades	($4,100,000)	$0	$0
AYP-H Allan Yorke Park - Tennis Court Upgrades (Partial)	($75,000)	$0	$0
Allan Yorke Park - Ballfield #5 Playground	($415,000)	$0	$0

[13] Phase 1 of the Senior Center project includes bathroom upgrades, painting the interior and exterior of the building, window replacement, deck replacement, and 3-phase power upgrade.
[14] Phase 2 of the Senior Center project includes kitchen upgrades, new freezer, stove, hot water heater, replacing the front entry, and acoustical tiles.
[15] Includes any previously collected Park Impact Fees that have not been expended.

Description[12]		2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
BLSC-B	Bonney Lake Sports Complex - Multi-Sport Fields (Design)	$0	($650,000)	$0
CP-A	Cedarview Park - Covered Sport Court, Playfield Improvements & 206th Parking	$0	($240,000)	$0
VDP	Viking Dog Park - ADA Access Pathway	($25,000)	$0	$0
SW	Systemwide - Wayfinding & Interpretive Signage	($50,000)	($50,000)	($50,000)
SW	Systemwide - Minor ADA Access & Amenity Upgrades	($100,000)	($100,000)	($100,000)
	Allan Yorke Park - Bulkhead Replacement	$0	($500,000)	$0
	Allan Yorke Park - Dock Replacement	$0	($500,000)	$0
	Allan Yorke Park - Playground Replacement	$0	($100,000)	($400,000)
	Allan Yorke Park - Ballfield #5 Netting Replacement	$0	($30,000)	$0
	Security Cameras (Various Parks)	$0	($40,000)	($50,000)
	Allan Yorke Park - Parking Lot Seal Coat / Striping	$0	$0	($60,000)
	Veterans Memorial Park	($250,000)	$0	$0
Parks Fund Ending Fund Balance		**$1,610,694**	**$1,092,694**	**$2,097,334**
2025-2030 Sewer Utility Projects				
Sewer Enterprise Fund Beginning Fund Balance		**$21,433,534**	**$13,164,879**	**$10,548,824**
Anticipated Revenue Sources		**$24,808,916**	**$27,305,108**	**$27,199,922**
Sewer Utility Rate Revenue		$21,495,180	$22,250,372	$23,643,766
Sewer Utility System Development Charges (SDC)		$1,050,000	$1,071,000	$1,092,420
Sewer Utility Other Revenue Sources: Fund balance interest, leases, etc.		$2,263,736	$2,263,736	$2,263,736
Eastown Latecomers Payments[16]		$0	$220,000	$200,000
Federal Appropriation		$0	$1,500,000	$0

[16] The amounts are based on the 2016 Roll and on projects that have already signed the required Latecomer's Agreement to connect, are currently in permitting, or are within the Peak410 Business Park Development Agreement (DA). The final amount will be higher, as the amount is increased annually based on the Seattle Construction Const Index (CCI). The credit authorized in the Peak410 DA, has been subtracted from the amounts shown.

	Description[12]	2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
Anticipated CIP Expenses		**($15,098,789)**	**($10,328,056)**	**($12,330,000)**
	Collection - Cedarview Sewer "Dry Line" Installation (Septic Reduction)	($600,000)	$0	($3,000,000)
	Facility - Decant Facility Roofing	($150,000)	$0	$0
C-04	Collection - Inflow & Infiltration (I&I) Reduction Program	($4,000,000)	($180,000)	($200,000)
LS-02	Lift Station - LS-17 Capacity Upgrades (Pumps, Valves, Grates, Odor Control)	($375,000)	($500,000)	($5,000,000)
LS-04	Lift Station - LS-17 Replacement Construction or LS-24 Diversion Design	($350,000)	($300,000)	($2,000,000)
G-03	General - Sewer Plan Update	($300,000)	$0	$0
C-02	Collection - SR 410 Sewer Main Improvements (East of LS-17)	($250,000)	($1,500,000)	$0
R9[17]	Collection – W Tapps Hwy E (New Segment)	($110,000)	($3,000,000)	$0
	Sumner WWTF - Upgrades and Modernization[18]	($8,963,789)	($4,268,056)	$0
	Facility - Grinder Pump Replacement Program	$0	($40,000)	($50,000)
	Lift Station - Safety Improvements (Guiderails and Valves)	$0	($120,000)	($130,000)
	Lift Station - LS-12, LS-13, and LS-14 Upgrade and Rehabilitation	$0	$0	($750,000)
	Lift Station - LS-18 Transfer Switch	$0	($120,000)	$0
	Lift Station - LS-3, LS-4, LS-6, and LS-7 Generator Replacements	$0	($300,000)	($450,000)
	Collection - Riverside Drive Manhole Replacement	$0	$0	($750,000)
Other Expenses		**($17,978,782)**	**($19,593,107)**	**($21,368,864)**
Sewer Utility Bond Covenant Reserve		($416,865)	($416,865)	($416,865)
Sewer Utility Debt Service		($1,418,671)	($1,418,671)	($1,418,671)
Sewer Utility Operation & Maintenance		($16,143,246)	($17,757,571)	($19,533,328)
Sewer Enterprise Fund Ending Fund Balance		**$13,164,879**	**$10,548,824**	**$4,049,882**

[17] Associated with work for Transportation Improvement Program (TIP) Project Number R9. See the **Mobility Element** for additional information.

[18] Work at the Sumner Wastewater Treatment Facility (WWTF) includes the upgrades and modernization to aeration basins, biosolids, clarifiers, disinfection & discharge, machinery, and equipment. All work was approved as part of the 2025-2026 Biennial Budget; however the work is expected to be completed in 2027.

Description[12]		2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
2025-2030 Stormwater Utility Projects				
Stormwater Enterprise Fund Beginning Fund Balance		**$2,041,819**	**$1,752,719**	**$1,273,319**
Anticipated Revenue Sources		**$6,955,572**	**$5,839,334**	**$6,171,068**
Stormwater Utility Rate Revenue		$5,010,814	$5,136,084	$5,264,486
Stormwater Utility System Development Charges (SDC)		$130,000	$133,250	$136,581
Stormwater Utility Other Revenue Sources: Fund balance interest, leases, etc.		$370,000	$370,000	$370,000
American Rescue Plan Act (ARPA) Grant		$994,758	$0	$0
Grants		$450,000	$200,000	$200,000
Flood Control District Zone Funds		$0	$0	$200,000
Anticipated CIP Expenses		**($2,503,000)**	**($1,785,000)**	**($1,200,000)**
5-1	Non-Construction - Fennel Creek Stream Gauge	($30,000)	$0	$0
	NPDES Compliance - Annual Permit Documentation	($100,000)	($125,000)	($150,000)
	NPDES Compliance - Decant Facility Roofing	($150,000)	$0	$0
	NPDES Compliance - Fennel Creek Total Maximum Daily Loads (TMDL) Monitoring	($100,000)	($100,000)	($100,000)
	NPDES Compliance - Stormwater Comprehensive Plan	($300,000)	$0	$0
	NPDES Compliance - Stormwater Management Action Plan (SMAP)	($100,000)	$0	$0
3-3	Subbasin Retrofit - Lake Tapps Park/West Tapps Highway East Subbasin Retrofit, Option A	($170,000)	$0	$0
	System Improvements - Inlet Island - Lake Tapps (S Island Dr)	($230,000)	$0	$0
4-1	Water Quality Swale Retrofit Program - 67th Ct E and 67th St E	($1,323,000)	$0	$0
	NPDES Compliance - Stormwater Action Plan Compliance	$0	($500,000)	($500,000)
	Programmatic Maintenance - Pond Rehabilitation	$0	($80,000)	($90,000)
	Programmatic Maintenance - System Improvements	$0	($300,000)	($350,000)
1-8	System Improvements - Inlet Island - Lake Tapps (Cascade Dr)	$0	($400,000)	$0

Description[12]		2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
1-4	System Improvements - Kelly Lake Rd and 214th Ave E	$0	($100,000)	$0
1-9	System Improvements - Simmer Property (SR 410 / Angeline Rd E)	$0	($150,000)	$0
1-6	System Improvements - The Market at Lake Tapps – Walmart	$0	($30,000)	$0
2-1b	Regional Pond - Midtown Regional Pond Outfall Retrofit	$0	$0	($10,000)
Other Expenses		**($5,080,345)**	**($5,562,940)**	**($6,092,714)**
Stormwater Utility Bond Covenant Reserve		($135,199)	($135,999)	($135,999)
Stormwater Utility Debt Service		($127,200)	($127,200)	($127,000)
Stormwater Utility Operation & Maintenance		($4,817,946)	($5,299,741)	($5,829,715)
Stormwater Enterprise Fund Ending Fund Balance		**$3,671,554**	**$2,162,949**	**$1,041,303**
2025-2030 Transportation Projects				
Street CIP Fund Beginning Fund Balance		**$9,057,446**	**$8,590,996**	**$7,263,722**
Anticipated Revenue Sources		**$3,133,550**	**$4,487,726**	**$2,675,181**
Real Estate Excise Tax (REET)		$1,188,800	$1,212,576	$1,236,828
Traffic Impact Fees (TIF)[19]		$400,000	$408,000	$416,160
Sidewalk In-Lieu Fees (Annual Average)		$13,000	$13,260	$13,525
Undergrounding In-Lieu Fees (Annual Average)		$4,500	$4,590	$4,682
Other Revenue Sources: Fund balance interest, leases, etc.		$965,000	$984,300	$1,003,986
PSRC RTC Grant (Angeline and Veterans RAB)		$562,250	$1,000,000	$0
TCC Grant (Pavement Preservation)		$0	$865,000	$0
Anticipated CIP Expenses		**($3,600,000)**	**($5,815,000)**	**($8,605,000)**
I1, R5, R9	W Tapps Hwy E Corridor Project (Design)	($500,000)	$0	$0
I2	Intersection - Angeline Rd E and Veterans Memorial Dr E	($650,000)	($1,500,000)	($5,000,000)
PM1	Programmatic Maintenance - Street Reconstruction Program	($700,000)	($700,000)	($700,000)

[19] Includes any previously collected Park Impact Fees that have not been expended.

	Description[12]	2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
PM2	Programmatic Maintenance - Street Overlay and Chip Seal Programs	($575,000)	($575,000)	($575,000)
PM3	Programmatic Maintenance - ADA Program	($550,000)	($550,000)	($550,000)
	Pedestrian - Sidewalk Construction	($550,000)	($550,000)	($550,000)
	Pavement Condition Index (PCI) Study	($75,000)	$0	$0
I3a	Intersection - S Prairie Rd E and 200th Ave Ct E (Phase 1)	$0	($60,000)	$0
I9	Intersection - SR 410 and 204th Ave E (Study)	$0	($150,000)	$0
PM4	Programmatic Maintenance - Safety Improvements Program	$0	($100,000)	($100,000)
PM5	Programmatic Maintenance - Annual Sign Maintenance Program	$0	($30,000)	($30,000)
	Pedestrian - Sidewalk Repair Program	$0	($100,000)	($100,000)
	Intersection - Traffic Signal Cabinet and Camera Replacement	$0	($500,000)	($500,000)
	Road - 214th Ave E Overlay	$0	($1,000,000)	$0
I3b	Intersection - S Prairie Rd E and 200th Ave Ct E (Phase 2, Design)	$0	$0	($500,000)
	Street CIP Fund Ending Fund Balance	**$8,590,996**	**$7,263,722**	**$1,333,903**

2025-2030 Water Utility Projects

Water Enterprise Fund Beginning Fund Balance	**$20,002,663**	**$28,565,913**	**$10,412,487**
Anticipated Revenue Sources	**$34,586,161**	**$26,981,236**	**$28,705,888**
Water Utility Rate Revenue	$21,929,161	$23,536,696	$25,192,457
Water Utility System Development Charges (SDC)	$1,000,000	$1,020,000	$1,040,400
Water Utility Other Revenue Sources: Fund balance interest, leases, etc.	$2,377,000	$2,424,540	$2,473,031
Washington State Department of Health (DOH) Loan	$9,280,000	$0	$0
Anticipated CIP Expenses	**($5,527,000)**	**($23,700,000)**	**($9,420,000)**

	Facility - Decant Roofing	($150,000)	$0	$0
F5	Facility - Grainger Springs Upgrades (Construction)	($3,500,000)	$0	$0
	Pressure Zone - Replace Pressure Relief Valve (PRV) 1 & 2 with New PRV Station	($327,000)	$0	$0
PZ4	Pressure Zone - Wholesale 800 to 748 Zone Connection	($166,000)	$0	$0

Description[12]		2025-2026 Biennium	2027-2028 Biennium	2029-2030 Biennium
ST4	Storage - Lakeridge 748 Zone Reservoir	($195,000)	($7,100,000)	$0
ST3	Storage - Lakeridge 810 Zone Reservoir	($264,000)	($7,100,000)	$0
ST2	Storage - Tacoma Point Water Reservoir Replacement (Demolition)	($100,000)	$0	$0
WM4	Water Main - Cedar View Water Main Replacement Program (Design)	($300,000)	($3,500,000)	$0
	Water Main - Fennel Creek Crossing	($500,000)	($4,000,000)	$0
R9[17]	Water Main – W Tapps Hwy E (New Segment)	($25,000)	($1,000,000)	$0
P1	Planning & Operation - Water System Plan Update	$0	($250,000)	($250,000)
P4	Planning & Operation - Wellhead Protection Program	$0	($250,000)	($250,000)
WM7	Water Main - 12" Water Main Replacement (Myers Rd to City Limits)	$0	($500,000)	($2,500,000)
WM5	Water Main - Interlake Island/Inlet Lake Bed Crossing	$0	$0	($855,000)
WM29	Water Main - Locust Avenue East	$0	$0	($1,530,000)
F7	Facility - Victor Falls Upgrades	$0	$0	($1,000,000)
WM13	Water Main - Jenks Point Way	$0	$0	($855,000)
	Water Main - Rainier Drive	$0	$0	($1,100,000)
	Water Main - 64th St E (214th to 213th Looping)	$0	$0	($1,080,000)
Other Expenses		**($20,495,911)**	**($21,434,662)**	**($22,420,351)**
Water Utility Bond Covenant Reserve		($574,598)	($574,598)	($574,598)
Water Utility Debt Service		($1,146,292)	($1,146,292)	($1,146,292)
Water Utility Operation & Maintenance		($18,775,021)	($19,713,772)	($20,699,461)
Water Enterprise Fund Ending Fund Balance		**$28,565,913**	**$10,412,487**	**$7,278,024**

5.2 REVENUE SOURCES

City Revenue Sources

Business & Occupation Tax (B&O)

Chapter 35.11 RCW authorizes cities to collect Business & Occupation (B&O) tax on the gross or net income of businesses. Revenue may be used for capital facilities acquisition, construction, maintenance, and operations. Voter approval is required to initiate the tax or increase the tax rate.

General Obligation Bond

Voters can approve general obligation bond whose debt is serviced by an additional property tax levy, up to a maximum of 5.0% of the assessed value of taxable properties in the City.

Impact Fees

Cities and counties with an adopted comprehensive plan that satisfies GMA requirements can adopt growth impact fees. These fees offset the impact caused by new developments within each jurisdiction's boundaries. Growth impact fees can only be used to acquire or develop new school, road, or park facilities needed due to growth, and not to maintain or operate facilities or programs or for current deficiencies in levels-of-service or operating expenses. The collected fees must be spent within 10 years of the date of collection for a facility improvement that benefits the service area where the project was located.

Latecomer Agreements and Local Improvement Districts

Cities can use Latecomer Agreements to expand or improve utility systems. The City cannot establish a Utility Latecomer Agreements (ULA) unilaterally; instead, it must reach an agreement with a developer or property owner(s) to fund the ULA. ULAs are authorized and established by the City Council without a vote from benefitting property owners. Latecomer fees established by a Latecomer Agreement are assessed when a property connects to the utility system for which the ULA was established.

Limited Tax General Obligation (LTGO) Bond

The City Council can issue limited tax general obligation bonds, also known as councilmatic bonds, equal to 1.5% percent of the City's assessed value. LTGO bonds are

typically issued for capital projects and infrastructure that provide a long-term benefit to the public.

Local Improvement District (LID)

Property owners may petition (or vote in response to a request from a local government) to adopt an annual tax assessment for the purpose of improving the public right-of-way abutting their property. If approved, properties are subject to an amortized tax payment schedule over generous periods at low interest charges based on each property's proportionate share of the improvement cost. These funds may be used to finance sidewalk, landscaping, parking, streetscape, or other improvements to the public or private abutting properties.

Local Sales Tax

Voters can approve assessment of a local sales tax for up to 1.0% of all retail sales and uses. Revenue from this tax is unrestricted and may be used for new capital facilities, or maintenance and operations at existing facilities.

There are additional restricted use sales taxes that local cities can impose, for specific uses such as affordable housing and public safety.

Metropolitan Park District (MPD)

Chapter 35.61 RCW allows voters to approve the creation of a metropolitan park district for the management, control, improvement, maintenance, and acquisition of parks, parkways, boulevards, and recreational facilities. An MPD may include territory located in portions or in all of one or more cities or counties.

Park Lease and Facility Rentals

Jurisdictions that lease or rent property for private, semi-private, or public use can use the revenue for capital improvement programs.

Real Estate Excise Tax (REET)

Chapter 82.46 RCW authorizes local governments to collect a Real Estate Excise Tax (REET) of up to 0.50% for capital projects and limited maintenance based on the full sale price of all real estate transactions.

Countywide, voters can approved additional REET taxes for the acquisition and maintenance of conservation areas and for affordable housing.

Reserve Funds and Fund Balances

Revenue is accumulated in advance and earmarked for capital improvements. Sources of funds can be surplus revenues, funds in depreciation reserves, or funds resulting from sale of capital assets. Funds in excess of the reserves and operational requirements are accumulated until sufficient funds are available to pay for capital improvement projects. Alternatively, debt service payments can incrementally pay for larger capital expenditures over time.

Sewer, Stormwater, and Water System Development Charges

The City imposes a System Development Charge (SDC) on all new connections to the water and sewer systems. The City also imposes a stormwater SDC based on the amount of new impermeable surface are created by a development project. SDC revenues can only be used to fund utility capital projects or to pay debt service incurred to finance those projects. The revenues collected can only be used by the utility that collected the SDC.

Sewer, Stormwater, and Water System Utility Rate Revenue

Bonney Lake collects monthly fees from each residential and commercial consumer for water and sewer usage. These rates are partly fixed cost and variable cost elements. The fixed cost is a flat rate charged to all customers. The variable cost element is based on the amount of water consumed by each customer.

Bonney Lake also collects a monthly stormwater fee from each property owner based on the amount of impermeable surface these improvements have added to a property. This program maintains and operates a citywide stormwater system in compliance with the NPDES permit mandated by the federal government and administered by Washington State. Utilizing a monthly rate based on the amount of impermeable surface area on each parcel ensures that all property owners are charged a fair amount contributing to the operation and maintenance of the City stormwater system.

These revenues may be used for capital facility improvements, as well as operation and maintenance expenses. The revenues collected can only be used by the utility fund for which the fee was collected.

Transportation Benefit District (TBD)

RCW 35.21.225 authorizes cities to create transportation districts with independent taxing authority for the purposes of acquiring, constructing, improving, providing, and funding any City street, county road, or state highway improvement within the district. Revenue

can be generated through property tax excess levies, general obligation bonds (including councilmatic bonds), local improvement districts, and development fees. Transportation improvements funded with district revenues must be consistent with state, regional, and local transportation plans; necessitated by existing or reasonably foreseeable congestion levels attributable to economic growth; and partially funded by local government or private developer contributions, or a combination of such contributions.

External Revenue Sources

Centennial Clean Water Fund (CCWF)

These grants and loans are administered by the Washington State Department of Ecology under the Centennial Clean Water Program (Referendum 39). CCWF monies can be used for public and park developments that propose to restore, construct, or otherwise enhance fish producing streams, ponds, or other water bodies. CCWF funds are limited to the planning, design and construction of water pollution control facilities, stormwater management, ground water protection, and related projects.

Conservation Futures Grants

Pierce County has established a property tax to acquire shoreline and other open space lands. Pierce County makes this money available as grants for the acquisition of open space conservation lands. Types of property that may qualify include wildlife habitat, resource conservancies, portions of resource activity lands, and portions of linear trail corridors. These funds cannot be used to develop or maintain the properties.

Public Works Trust Fund (PWTF) Loans

Public Works Trust Fund loans are low-interest loans for financing capital facility construction and design, public works emergency planning, and capital improvement planning that are competitively awarded by Washington State. These loans cannot be used for maintenance and operations.

To apply for the loans, Bonney Lake must have an adopted Capital Improvement Plan in place and must be levying REET. Loans for construction projects require matching funds generated from local revenues or state shared entitlement revenues.

Recreation and Conservation Office (RCO) Grants

Recreation and Conservation Office (RCO) Grants are issued by the state to jurisdictions with an approved parks plan for recreation improvements. Projects require a 50% match

and are very competitive. The RCO assigns each project application a priority on a competitive statewide basis according to each jurisdiction's need, population benefit, natural resource enhancements, and other factors.

Transportation Improvement Account (TIA)

The Washington State Transportation Improvement Board (TIB) distributes Transportation Improvement Account (TIA) funds for projects that alleviate and prevent traffic congestion caused by development. Various funding programs are available depending on the population of the jurisdiction, including for statewide transportation improvements, urban and local arterials, and sidewalk improvements.

Water Pollution Control State Revolving Fund (WPCSRF)

The Washington State Department of Ecology distributes Water Pollution Control State Revolving Fund (WPCSRF) loans for water pollution control projects. The applicant must show water quality needs, have a facility plan for treatment works, and show a dedicated source of funding for repayment.

Water Systems Support (WSS)

The Washington State Department of Health distributes Water Systems Support (WSS) grants for upgrading existing water systems, ensuring effective management, and achieving maximum conservation of safe drinking water. These grants require a 60% local match.

5.3 REASSESSMENT STRATEGY

The Growth Management Act requires that provisions be made to reassess the growth assumptions in the **Community Development Element** periodically to ensure that adequate facilities will be made available at the time they are needed. If the anticipated funding for needed capital facilities falls short, the GMA requires a reassessment of the land use plan to determine what changes, if any, need to be made.

Bonney Lake updates its comprehensive plans and development regulations on a regular basis. Additionally, the City monitors the status of development in the city in relation to the Plan. Consistent with the GMA, Bonney Lake will evaluate land use plans and the CIP as well as other jurisdictions' facilities plans to ensure that public facilities are available when needed. Tools that are used to monitor and reassess include:

- The annual process to amend the Comprehensive Plan;

- Periodic GMA-level plan monitoring: Buildable Lands, Periodic Update, and Growth Targets;
- The biennial CIP budget process;
- Budget monitoring reports with quarterly updates.

The City is currently not using all of the revenue sources available to it. Additional revenue sources could also be used if the City's revenue projections identified in the CIP fall short.

6. FUTURE CAPITAL FACILITIES & SERVICES GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal CF&S-1:	**Bonney Lake will provide general government services and operations at the adopted level of service to serve existing and future residents.**	
Policies:	**CF&S-1.1**	Promote energy efficiency and alternative energy sources in public facility remodeling and construction, in order to reduce maintenance and operation costs and environmental impact.
	CF&S-1.2	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.
	CF&S-1.3	Encourage shared development and use of public facilities including parks, libraries, schools, and other public buildings and community meeting facilities.
	CF&S-1.4	Coordinate the transfer of capital facility programs and projects from the county to the city prior to the annexation of new areas through Interlocal agreements on service transition.
	CF&S-1.5	Lands that are identified in this Element, including those ancillary plans adopted by reference, and any related special district comprehensive plans, shall be considered lands that are useful for public purposes.
	CF&S-1.6	General government services and operations should be centralized at a single, compact municipal campus in the Downtown Civic Center or in the Eastown Public Works Center, to the extent practically feasible.
Goal CF&S-2:	**Citizens feel safe and protected and there is open communication, participation, and trust between the citizens, the City, and the Police Department.**	
Policies:	**CF&S-2.1**	Provide staff levels that provides superior police protection for the residents of the City of Bonney Lake and supports all of the current programs of the Police Department.

CF&S-2.2 Continue to build the reserve officer and police department volunteer program.

CF&S-2.3 Continue to participate in programs like the National Night Out and Shop with a Cop.

CF&S-2.4 Continue to provide public education programs, such as the Citizens Academy and the Water Safety and Boating Program, to promote prevention of crime and life safety.

CF&S-2.5 Assure that public safety capital investments in rolling stock and facilities meet the identified public safety needs of the City as demonstrated by a cost-benefit or similar analysis of the equipment or facility showing its direct benefit and value to the City prior to the expenditure of funds.

CF&S-2.6 Partnership with non-profit and local community organizations to help develop trust, strengthen public-private dialogs, and improve community safety.

Goal CF&S-3:	**Ensure that sufficient fire protection services and emergency medical services are provided to meet the needs of the City's current residents and to support future development.**	
Policies:	**CF&S-3.1**	Coordinate with EPF&R to assure adequate fire flow needs are provided by the City of Bonney Lake's water system.
	CF&S-3.2	Require all new or substantially remodeled residential and commercial buildings within the City install automatic sprinkler systems.
	CF&S-3.3	Support public education programs of EPF&R that inform and educate citizens in fire safety issues that will prevent fires and promote of life safety.

Goal CF&S-4:	**Ensure that sufficient library services are provided to meet the needs of the City's current residents and to support future development.**	
Policies:	**CF&S-4.1**	Cooperate with the Library District in the implementation of the Library Facilities Plan.
	CF&S-4.2	Encourage the construction of a new library in the Downtown area possibly co-locate in the new civic center if the timing of such facility development can be achieved to each party's satisfaction.

	CF&S-4.3	Maintain the current facility lease with the Library District until a new library is constructed.
	CF&S-4.4	Encourage the Library to construct satellite facilities as needed in Tehaleh or other appropriate areas of the greater Bonney Lake plateau.
Goal CF&S-5:	**Local students have access to excellent educational opportunities and local school districts provide educational facilities and programs to meet the needs of the City's current and future residents.**	
Policies:	**CF&S-5.1**	Encourage the school districts in the community to maintain sufficiently detailed capital facilities plans that will provide valuable advance planning information in regards to long-range school district facility extension needs and would establish an acceptable basis for the imposition and collection of equitable school impact fees.
	CF&S-5.2	Partner with the various school districts in the City to facilitate the development of non-motorized transportation systems to enhance the safety of children walking and riding bicycles as a means of traveling to the schools.
	CF&S-5.3	Support school district programs that promote a healthy school environment such as nutritional education, fitness education, nutritional standards for the foods and beverages available to students while at school, providing opportunities for physical activity, and other school-based activities designed to promote the well-being of students.
Goal CF&S-6:	**Develop a cost-effective parks and recreation system that provide a balance of passive and active recreational facilities and pedestrian/bicycle trails through pleasant natural ecosystems at the adopted park level of service standards.**	
Policies:	**CF&S-6.1**	Where land is conserved due to environmental limitations, such as wetlands or riparian corridors, consider extending trails through area without compromising ecosystems functions and values.
	CF&S-6.2	Require new developments to either pay impact fees or provide parks as necessary to maintain the level of service standards, accepting only land that meets the site selection criteria for the applicable facility type.

	CF&S-6.3	Design recreational facilities to be accessible to all citizens, including the disabled.
	CF&S-6.4	Where possible, use trails or sidewalks to link parks, open spaces, schools, community facilities, sidewalks (see Mobility Element), and other agencies' trials, such as the Pierce County Foothills Trail.
	CF&S-6.5	Require subdivisions along the Fennel Creek corridor to dedicate trail right-of-way and develop their portions of the trail.
	CF&S-6.6	Require new subdivisions to provide internal pathways as necessary to connect the subdivision to nearby pedestrian destinations.
	CF&S-6.7	Cooperate with other organizations and individuals to maximize recreational opportunities.
Goal CF&S-7:	**Cooperate with other organizations and individuals to maximize recreational opportunities.**	
	CF&S-7.1	Encourage homeowner associations, churches, and schools to develop recreational facilities.
	CF&S-7.2	Where appropriate, provide recreational programs cooperatively with other agencies such as Pierce County and the school districts.
	CF&S-7.3	Encourage Pierce County to provide regional parks and satisfy the recreational needs of the proposed development in unincorporated Pierce County.
	CF&S-7.4	If land owned by other public entities is no longer needed for its original purpose, and if said land is suitable for parks, arrange to retain or acquire that land and convert it to park use.
	CF&S-7.5	Continue to cooperate with Sumner School District in the provision of the inter-local recreation program.
Goal CF&S-8:	**Ensure an adequate supply of water for current and future residents, commercial activities, and public agencies.**	
Policies:	**CF&S-8.1**	Do not expand the City's water service area in such a manner as to cause water capacity to be inadequate for the City's water service area.

	CF&S-8.2	Work with the Valley Water District and Tacoma Public Utility, to ensure that the Districts long-range plans are consistent with the Bonney Lake Comprehensive Plan.
	CF&S-8.3	The City shall require the use of efficient water fixtures in all new construction.
	CF&S-8.4	The City will promote the efficient and responsible use of water and will conserve during a water shortage.
	CF&S-8.5	The City will require special control measures to protect aquifer recharge zones.
	CF&S-8.6	Maintain water quality at a level that equals or is better than water quality in its natural state and that meets or exceeds all water quality laws and standards.
	CF&S-8.7	Maintain current Interlocal Agreements (ILAs) detailing usage policies and procedures for water supplied to and received from water purveyors outside the City.
Goal CF&S-9:	**Provide sewer services to all residents within the Bonney Lake sewer service area to maintain public health and protect ground and surface waters.**	
Policies:	**CF&S-9.1**	Coordinate with other jurisdictions to provide sewer capacity.
	CF&S-9.2	Do not expand the UGA or provide sewer outside the UGA in such a manner as to cause sewer capacity to be inadequate for build-out of the existing City and UGA.
	CF&S-9.3	Require connection to City sewer when possible and on-site sewage disposal systems are failing.
	CF&S-9.4	Treated effluent disposed to surface waters should also meet standards outlined in applicable State Law.
	CF&S-9.5	The City shall require the use of efficient water fixtures in all new construction.
	CF&S-9.6	The City will ensure that Infiltration and Inflow (I&I) is kept to a minimum with a proactive sewer collection maintenance and repair program.
	CF&S-9.7	The City will ensure that surges in Total Suspended Solids (TSS) reaching the WWTF are kept to a minimum through a proactive sewer collection system-flushing program.

	CF&S-9.8	The City will divest itself of City owned and maintained grinder pumps serving private property when property owners agree to this change.
Goal CF&S-10:	**Natural gas and electric infrastructure that meet the needs of new development.**	
Policies:	**CF&S-10.1**	Where practical, install power distribution lines underground to reduce storm damage and aesthetic clutter.
	CF&S-10.2	Wisely manage placement of private utilities in street right-of-way.
	CF&S-10.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.
	CF&S-10.4	Work with PSE to ensure that their long-range plans are consistent with the City's Comprehensive Plan and that infrastructure is sufficient to support new development.
Goal CF&S-11:	**High quality, inexpensive communications networks available to the community.**	
Policies:	**CF&S-11.1**	Where practical, install power and telecommunication distribution lines underground to reduce storm damage and aesthetic clutter.
	CF&S-11.2	Wisely manage placement of private utilities in street rights-of-way.
	CF&S-11.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.
	CF&S-11.4	Encourage cable providers to complete upgrades to local fiber optic networks, taking into account the need to minimize traffic disruptions and return the streets to their pre-existing condition.
Goal CF&S-12:	**Waste diversion maximized with the long-term objective of significantly reducing landfill waste.**	
Policies:	**CF&S-12.1**	Encourage the provision of solid waste collection, disposal and recycling facilities and services that protect the public health, the natural environment, and land use quality.

	CF&S-12.2	Promote waste reduction and recycling as a means to minimize the need for transfer stations and sanitary landfills.
	CF&S-12.3	Educate the public to make informed purchasing decisions that reduce waste, litter, toxicity, and pollution in the environment.
Goal CF&S-13:	**Ensure that public facilities and services necessary to support new development are adequate to serve the development at the time the development is available for occupancy and use based on locally adopted level of service standards.**	
Policies:	**CF&S-13.1**	Periodically review the Capital Facilities Element in order to assess its applicability, ensure timely updates are made to improvement plans, and to maintain Level of Service standards for the existing and future population.
	CF&S-13.2	Ensure that new growth and development pay for a proportionate fair share of the cost of new facilities needed to serve such growth and development.
	CF&S-13.3	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.
	CF&S-13.4	Concurrently with the review and update of the Water, Sewer, and Stormwater System Plans review and update City charges and fees that are based on these infrastructure project costs. This includes utility System Development Charges, Impact Fees, and monthly utility rates that have infrastructure renewal elements built into them.
	CF&S-13.5	Annually adjust charges, fees, and utility rates by an annual rate based on national indexes such as the Engineering New Record Construction Cost Index or the Consumer Price Index.
	CF&S-13.6	Reset charges, fees, and utility rates when new rate analysis is completed concurrently with the update of the Water, Sewer, and Stormwater System Plans.
Goal CF&S-14:	**Essential public facilities (EPFs) are located, designed, expanded in such a way as to enhance, or at least minimize adverse impacts on surrounding residents, community, and land uses.**	
Policies:	**CF&S-14.1**	The City's comprehensive plan and development regulations may not render EPFs impossible or impracticable to site, expand, or operate, by the outright exclusion of such uses, or by imposition

of process requirements or substantive conditions that render EPF impracticable.

CF&S-14.2 Utilize the City's permit process to review, approve, impose reasonable conditions on EPFs necessary to mitigate the impacts, provide notice and an opportunity to comment to other interested counties and cities and the public.

CF&S-14.3 Impose design conditions to make an EPF compatible with its surroundings.

CF&S-14.4 Consider provisions for amenities or incentives for neighborhoods in which the EPF is sited.

CF&S-14.5 Any conditions imposed must be necessary to mitigate an identified impact of the EPF.

Goal CF&S-15:	**Families and individuals can meet their basic needs, share in the region's economic prosperity, and participate in building a safe, healthy, educated, and caring community.**

Policies:

CF&S-15.1 Promote volunteerism and community service by enhancing people's access to information about opportunities to contribute their time, energy, or resources and by encouraging young people of all ages to be involved in creating and participating in community service projects.

CF&S-15.2 Encourage public and private efforts that support food banks and nutrition programs, especially to meet the nutritional needs of infants, children, and the elderly, and other vulnerable populations.

CF&S-15.3 Promote opportunities that bring people together to help them build connections to each other, their peers, their neighbors, and the greater community in order to achieve a sense of belonging among all Bonney Lake plateau residents.

CF&S-15.4 Promote the investment by adults in the healthy development of the community's children and youth.

CF&S-15.5 Encourage private parties to help provide recreational facilities through donations, sponsorships, and volunteerism.

CF&S-15.6 Encourage the formation of garden clubs to develop and maintain undeveloped City property, to include undeveloped

right-of-way, that are barren, weed-infested areas, with flower or vegetable gardens.

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printing purposes.

Environmental Stewardship Element

Envision BONNEY LAKE
Celebrating 100 Years

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1. INTRODUCTION

The purpose of the Environmental Stewardship Element is to provide a framework to guide decision making regarding the conservation, management, and utilization of Bonney Lake's natural resources. The topics in the Enviromental Stewardship element overlap with other elements in the Comprehensive Plan, including the Community Development, Public Facilities and Services, and Mobility Elements. However, the Environmental Stewardship Element distinguishes itself by being primarily oriented to the conservation of natural resources, including air and water quality protection, greenhouse gas reduction, and energy conservation.

1.1 REGULATORY CONTEXT

Growth Management Act

In 2023, the Washington State Legislature passed major updates to environmental goals (RCW 36.70A.020) and mandatory element requirements (RCW 36.70A.070) in the Growth Management Act (GMA), adding a climate change and resiliency element and affirming the importance of shoreline management planning to local comprehensive planning efforts. The requirement for a climate change and resiliency element is conditioned on the availability of state funds (RCW 36.70A.070(10)). This component is due in 2029, if funding is provided.

With this update, six (6) of the 15 goals of the GMA specifically pertain to environmental conservation and enhancement:

- **Natural Resource Industries:** Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forestlands and productive agricultural lands and discourage incompatible uses.
- **Open Space and Recreation:** Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, and increase access to natural resource lands and waters.
- **Environment:** Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water
- **Citizen Participation and Coordination:** Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.

- **Climate Change and Resiliency:** Adapt to and mitigate the effects of a changing climate through reductions in greenhouse gas emissions, preparing for climate impact scenarios, fostering resiliency to climate impacts and natural hazards, protecting and enhancing health and safety, and advancing environmental justice.

- **Shorelines:** When a community contains shorelines of the state, the Shoreline Master Program is considered an element of the Comprehensive Plan (see **Chapter 8**).

While a separate Environmental Stewardship Element is not a mandatory element required by RCW 36.70A.070, it is required to ensure that the City's Comprehensive Plan is consistent with the GMA goals and the adopted Multi-County Planning Policies (MPPs) and County-Wide Planning Policies (CPPs), as required by RCW 36.70A.100. This Element also addresses the importance of the environment to the community, protecting local water supplies, and to preserving and enhancing natural systems and habitats.

The GMA requires the City to designate critical areas and to adopt development regulations to protect such areas, consistent with the environmental goals in RCW 36.70A.020. The goals and policies in this Element support the preparation and implementation of these regulations. Critical areas are defined as the following areas and ecosystems in RCW 36.70A.030(5):

- Wetlands;

- Areas with a critical recharging effect on aquifers used for potable water;

- Fish and wildlife habitat conservation areas;

- Frequently flooded areas; and

- Geologically hazardous areas (susceptibility to erosion, sliding, earthquake, or other geological events).

Lastly, the GMA also directs local governments to identify lands that are useful for public purposes and to identify open space corridors within urban growth areas that are useful for recreation, open spaces, wildlife habitat, trails and connections of critical areas (RCW 36.70A.160). The City has completed this work as part of the **Parks, Trails, Recreation and Open Space Plan**.

Multi-County Planning Policies (MPPs)

The Puget Sound Regional Council (PSRC) adopted MPPs in VISION 2050[1]. These policies encourage local jurisdictions to adopt coordinated strategies, policies, and actions to ensure the region's needs are met. This Element was prepared to be consistent with VISION 2050 in the following areas:

- **Open Space and Habitat**: Protecting, enhancing, and restoring open spaces, including natural lands, farmlands, working forests, aquatic systems, regional trails, and parks.
- **Puget Sound Recovery**: Protecting and restoring critical habitat, converting hardened shorelines back to more natural conditions, protecting aquifers, promoting and installing stormwater infrastructure, and upgrading sewage and septic facilities to improve water quality and water supplies across the region.
- **Air Quality**: Reducing air pollution and greenhouse gases to improve health outcomes and access to the scenic vistas that make the Puget Region a high-quality place to live.

County-Wide Planning Policies (CPPs)

Pierce County adopted updated CPPs in 2022[2] that further refine how municipal comprehensive plans are drafted and adopted. This Element was prepared to be consistent with the CPPs in the following areas:

- **Regional Coordination:** Work across jurisdictions to cooperatively identify, protect, enhance and restore natural resources, critical areas, and open space.
- **Open Space:** Plan for and provide access to open space for all segments of the population, regardless of socioeconomic status.
- **Watershed Planning:** Coordinate efforts across jurisdictional boundaries to plan for natural systems at their natural boundaries.
- **Development Regulations:** Use best available science to regularly update development regulations for the built and natural environments.
- **Air Quality:** Reducing air pollution from particulates, toxics, and greenhouse gases.

[1] Available online at: https://www.psrc.org/planning-2050/vision-2050
[2] Available online at: https://online.co.pierce.wa.us/cfapps/council/iview/proposal.cfm?proposal_num=2022-29

1.2 ORGANIZATION

The Element is divided into the following sections :

- **Section 2:** Regional Coordination acknowledges the importance of local tribes as stewards of this land since time immemorial, and the role of future coordination in environmental planning.
- **Section 3: Critical Areas** addresses the preservation and protection of environmental critical areas, including (1) geologically hazardous areas, (2) aquifer and wellhead protection areas, (3) surface water, (4) frequently flooded areas, (5) wetlands, and (6) fish and wildlife habitat areas.
- **Section 4: Urban Forestry** is focused on the steps needed to maintain, preserve, and enhance Bonney Lake's tree canopy.
- **Section 5: Agricultural Lands** addresses the need for the City to protect agricultural resource lands and promote urban agriculture.
- **Section 6: Air Quality** relates to regulating air pollution, toxic air contaminates, and greenhouse gas emissions.
- **Section 7: Resiliency** focuses on building community resilience in the face of inevitable change.
- **Section 8: Environmental Stewardship Goals and Policies** contains goals and policies based on best available science that are meant to guide day-to-day City decisions on topics related to the protection of the environment.

2. REGIONAL COORDINATION

Bonney Lake is framed within a beautiful natural setting, with open spaces, an abundance of trees, scenic mountain vistas, and watersheds provide habitat functions, recreational enjoyment, and contribute to the City's general quality of life. Therefore, preservation and restoration of these environmental resources require a regional approach and coordination among cities, counties, federally recognized tribes, federal and state agencies, utilities, and other partners. The City of Bonney Lake will be taking additional steps to coordinate planning efforts with local Tribes as directed by Substitute House Bill 1717[3] (HB 1717), enacted in 2022.

[3] Available online at: https://app.leg.wa.gov/billsummary?billnumber=1717&year=2022

3. CRITICAL AREAS

The Washington State Growth Management Act (GMA) and implementing rules require cities to protect environmental critical areas, which include:

- Maintaining functions and values of hydrological ecosystems and watersheds through the protection, preservation, and restoration of wetlands, lakes, rivers, ponds, streams, and floodplains. As part of preventing pollutants from entering the waters of the state, jurisdictions subject to the U.S. Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) must also comply with all permit requirements and are encouraged to adopt the Department of Ecology's *Stormwater Manual for Western Washington* or the equivalent, incorporate relevant land-use recommendations from adopted local watershed plans, and adopt a clearing and grading ordinance.

- Identifying and providing policies to conserve, connect, restore, and prevent impacts to fish and wildlife habitat conservation areas (FWHCA); however, not every parcel of land that provides habitat for wildlife constitutes fish and wildlife habitat. [4] FWHCA only include areas where endangered, threatened, and sensitive species have a primary association; habitats and species of local importance (determined locally); commercial and recreational shellfish areas; kelp and eelgrass beds; herring, smelt, and other forage fish spawning areas; naturally occurring ponds under twenty acres and submerged aquatic beds that provide fish or wildlife habitat; waters of the state; lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; and state natural area preserves, natural resource conservation areas, and wildlife areas.[5]

- Designating and providing policies to protect the functions and values of geological hazardous areas and preventing impacts associated with development within geological hazardous areas. Geological hazardous areas are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development. There is no affirmative mandate associated with this definition except to "protect the functions and values." However, if a local jurisdiction, as the City has, requires lower densities in geologically hazardous

[4] *Pilchuck, et al v. Snohomish County*. Final Decision and Order. Case Number 95-3-0047c. (December 6, 1995).

[5] WAC 365-190-130(2)

areas, the geologically hazardous areas must be mapped using "best available science."

- Designating and providing policies to protect the functions and values of Critical Aquifer Recharge Areas (CARAs) and preventing impacts associated with development within CARAs. CARAs are established to protect sources of drinking water that are vulnerable to contamination that would affect the potability of the water or are susceptible to reduced recharging.[6] Potable water is an essential life sustaining element for people and once contaminated it is difficult, costly, and sometimes impossible to clean up. Preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people and ecosystems.[7] Therefore, WAC 365-190-100(3) requires cities to classify recharge areas for aquifers according to aquifer vulnerability.

Policies to protect the functions and value of critical areas are mandated to be based on "best available science."[8] The CPSGMHB in *DOE/CTED v. City of Kent* referencing *Honesty in Environmental Analysis and Legislation v. Seattle*, 96 Wn. App. 522, 979 P.2d 864 (1999) stated, that the"…purpose of the best available science requirement is to ensure that critical areas regulations are not based on speculation and surmise, but on meaningful, reliable, relevant evidence."[9] The CPSGMHB also found in Kent that there is no bright-line definition of "best available science" but rather a requirement to consider the following factors as established in *Ferry County v. Concerned Friends of Ferry County, et al.*, 155 Wn.2d 824, 123 P.3d 102 (2005):

> (1) The scientific evidence contained in the record; (2) Whether the analysis by the local decision-maker of the scientific evidence and other factors involved a reasoned process; and (3) Whether the decision made by the local government was within the parameters of the Act as directed by the provisions of RCW 36.70A.172(1).

In other words, a jurisdiction is not required to win the scientific argument, but only to demonstrate that the jurisdiction's policies and regulations are based on reliable evidence reviewed through a reasoned process. In 2019, the City participated in a robust

6 WAC 365-090-030(3)
7 WAC 365-190-100(1)
8 RCW 36.70A.172(1)
9 *Washington State Department of Ecology and Washington State Department of Commerce, Trade, and Economic Development v. City of Kent*. Final Decision and Order. Case Number 05-3-0034. (April 19, 2006).

update of its critical area's ordinance using best available science to update and change the ordinance to better serve and protect the community.

Maps presented in this Element are for reference purposes only and not intended to identify precise locations of critical areas or environmental features. At the time of development, best available information including site-specific analysis will determine the presence or absence of such features.

3.1 GEOLOGICALLY HAZARDOUS AREAS

The geological foundation of the Bonney Lake area consists of impermeable sedimentary bedrock formed by volcanic activity during the Eocene to Miocene age. Receding glaciers left 5 to 100 feet of till, ranging from porous sand and gravel to hardpan composites. Glaciers, glacial meltwater, and rivers created the Puyallup and Fennel Creek valleys.

The soil map in **Exhibit 1** illustrates soil associations within the City of Bonney Lake. Soil associations consist of one or more major soils and other minor soils but are named for the major soils. Soil association maps provide a broader perspective of the soils to identify areas that have soil properties that are either favorable or unfavorable for certain land uses.

82% of the soils within Bonney Lake are within in the Alderwood - Everett association. This soil association consist of Alderwood, Everett, Indianola Kitsap and small amounts of other soil types and is poor for farming but good for pasture and timber. The soil association is well suited for urban residential and industrial development. Onsite sewerage disposal systems are suited to as much as one-third of this association.

17% of the soils are within the Buckley association. The parent material of this soil association is the lobe of the Osceola mudflow, a portion of Mount Rainier, which liquefied and flowed into the Puyallup River valley through Fennel Creek approximately 5,700 years ago[10]. Buckley loam soils make up nearly 70% of this association but includes small amounts of Alderwood, and other minor soil types making it a hydric soil that is

[10] Dragovich J.D, et. al. (September 1995) *Liquefaction Susceptibility for the Sumner 7.5-minute Quadrange, Washington*. Prepared for Washington State Department of Natural Resources.

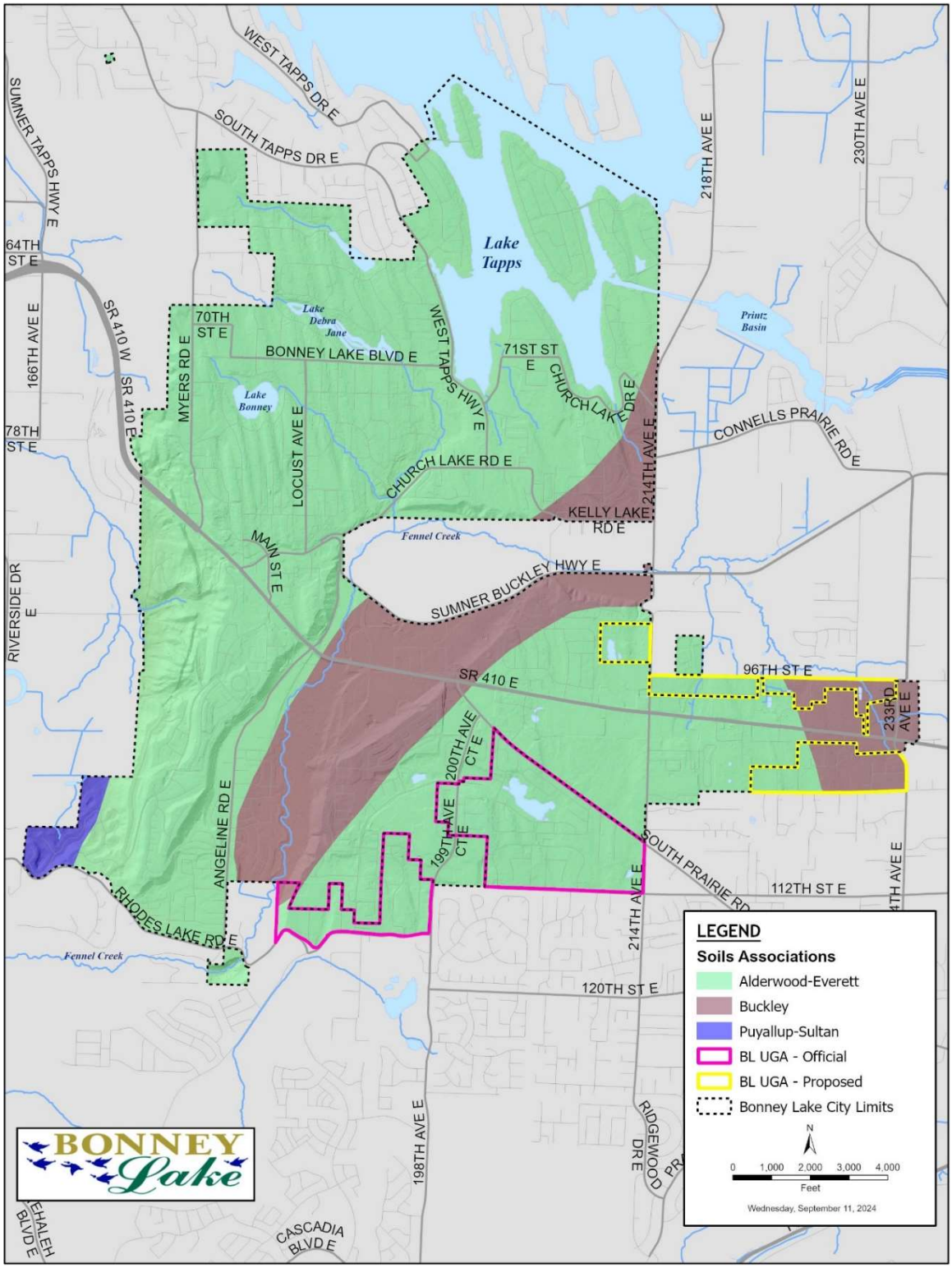
favorable for pasture and hay farming. The soil can support residential developments if there is access to community sewage facilities.[11]

The remaining one (1) % consists of the Puyallup-Sultan association, which is well suited to both farming and residential development.[12]

[11] Zulauf, A. S., et. al. (February 1979) *Soil Survey of Pierce County Area, Washington*. Prepared for the Natural Resource Conservation Service (formerly Soil Conservation Service).

[12] ibid.

Exhibit 1: Soil Associations



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from USDA Soil Conservation Service, April 3, 2000.

According to RCW 36.70A.030, Geologically Hazardous Areas are "those areas that are susceptible to erosion, sliding, earthquake, or other geological events and are not suited to the siting of commercial, residential, or industrial development consistent with public health and safety concerns". This subsection contains a discussion of the four main geological hazards in Bonney Lake.

Landslide Hazards

> *Bonney Lake is surround by land that is on slopes exceeding 25 percent. These slopes should be retained in their natural state and will help delineate the urban areas since land having slopes exceeding 15 percent are difficult to develop…*
>
> - *Plan for Bonney Lake, Washington (1964)*

The soils in the Bonney Lake area are susceptible to landslide at slopes of 15% or more. The slopes bordering the Puyallup valley are highly dangerous because of the steepness of the slope and the presences of unconsolidated glacial materials. Slopes generally collapse when rainstorms oversaturated the soil on the slope. Such failure is especially likely where a permeable layer lies atop a less permeable layer because percolating water seeps out at the layer boundary.

Exhibit 2 and **Exhibit 3** illustrate the areas of Bonney Lake with a high and moderate susceptibility to shallow or deep landslides**.** The data contained in **Exhibit 2** and **Exhibit 3** was created based on modeling developed by the Department of Natural Resources and not site-specific evaluations. Therefore, **Exhibit 2** and **Exhibit 3** should only be used as a screening tool to highlight areas where further site-specific investigation is needed to determine if there is truly susceptibility to either a shallow or deep landslide[13].

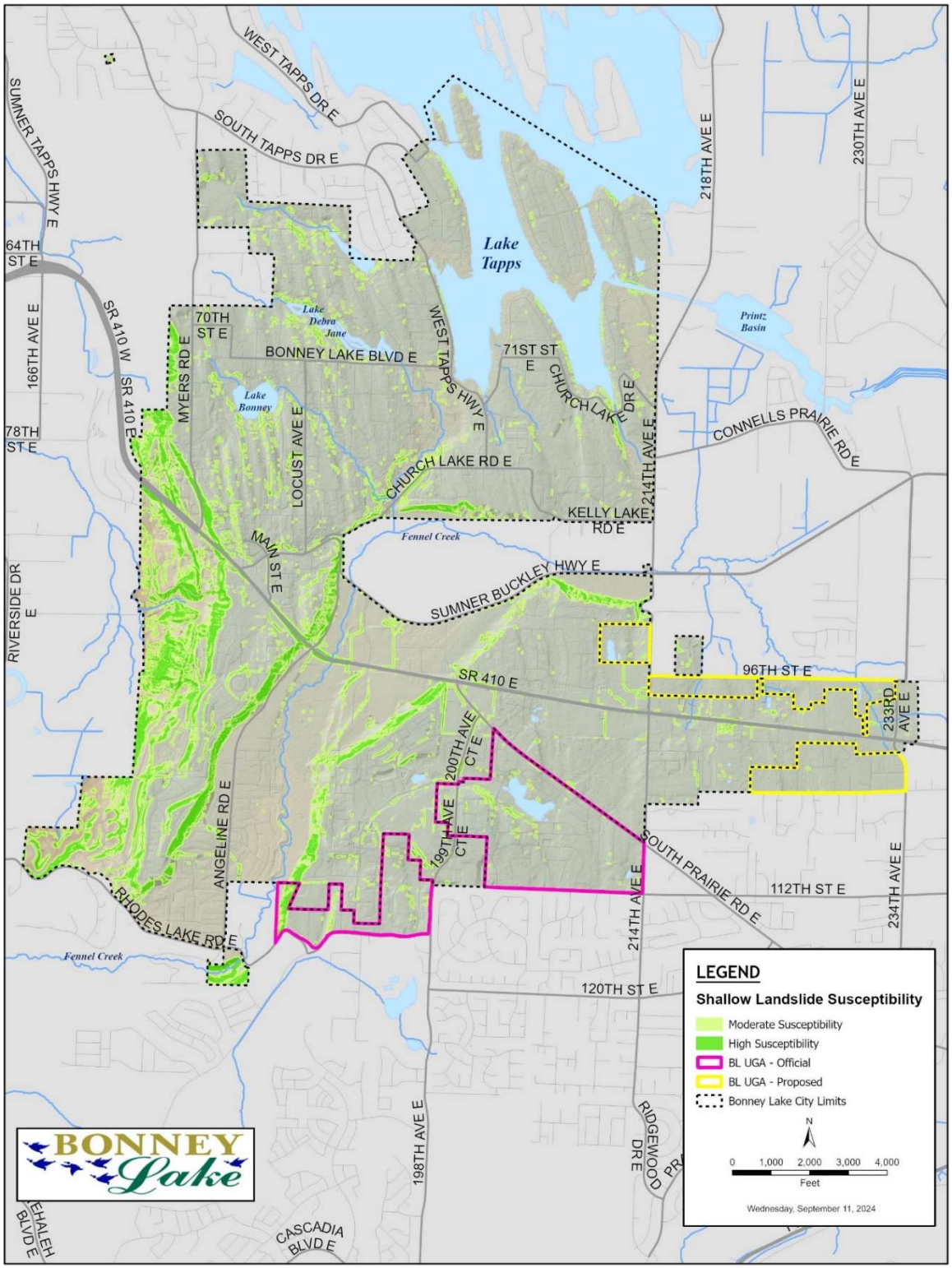
The City categorizes landslide hazard areas into two categories:

- **Class 1** landslide hazard areas have slopes that:
  - Are 40% or greater with a vertical relief of 10 feet or more; or
  - Are 25% or greater with a vertical relief of 10 feet or more and two (2) or more limiting factors detailed in the Critical Areas Ordinance.
  - These Class 1 landslide hazard areas are undevelopable.

[13] Mickelson, K. A.; Jacobacci, K. E.; Contreras, T. A; Biel, Alyssa; Slaughter, S. L. (2017) *Landslide Inventory, Susceptibility, And Exposure Analysis Of Pierce County*, Report of Investigations 39,

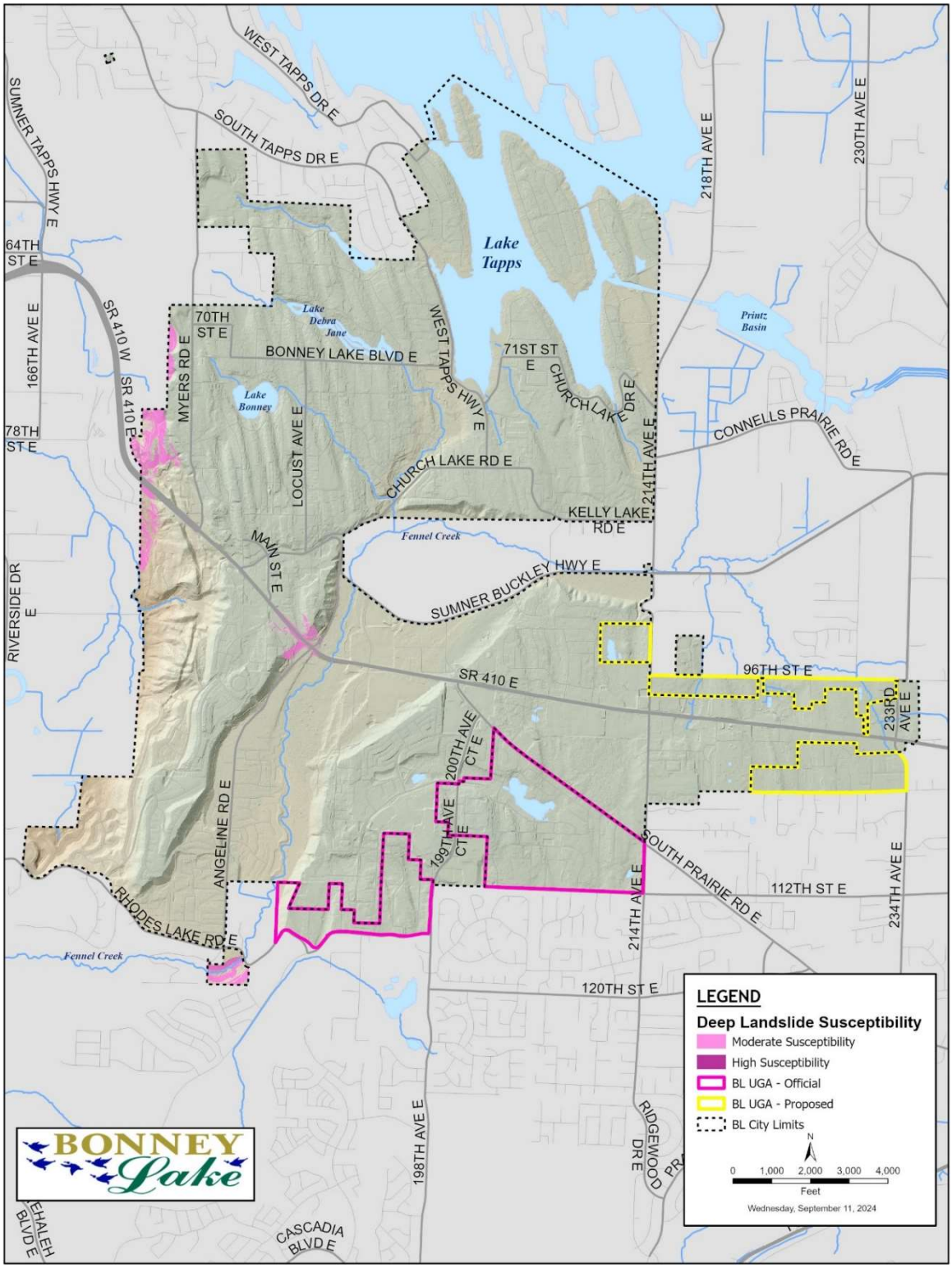
- **Class 2** landslide hazard areas have slopes that:
  - Are 25% to 39% with a vertical relief of 10 feet or more that do not have two (2) or more additional limiting factors;
  - Are 15% to 25% with a vertical relief of 10 feet or more and have additional risk factors.
  - Class 2 landslide hazard areas also include engineered slopes like those in the Sky Island, Panorama Heights, and Panorama West developments.
  - Class 2 landslide hazard areas may be buildable but require some special precautions. These categories are designed to protect citizens and their private property from damage during natural disasters.

Exhibit 2: Shallow Landslide Susceptibility



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Washington Geological Survey, November 6, 2017.

Exhibit 3: Deep Landslide Susceptibility



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Washington Geological Survey, November 1, 2018.

Erosion Hazards

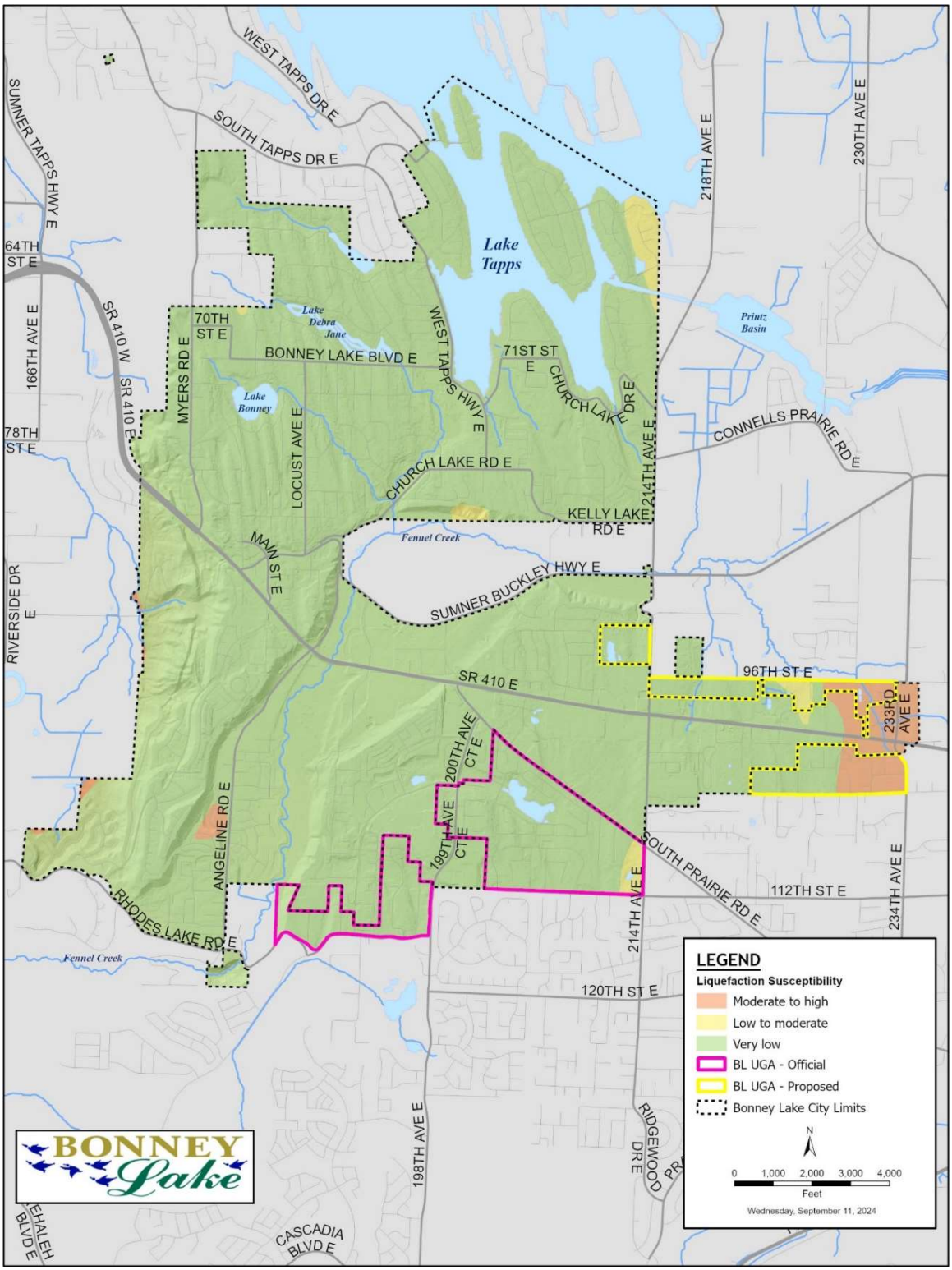
In addition to landslides, land clearing, earth movement, and unmanaged stormwater can cause erosion, which damages the site itself, the downstream drainage network, and aquatic habitat. The finer the soil and the steeper the slope, the greater the erosion hazard. The City utilizes the U.S. Department of Agriculture's Natural Resources Conservation Service data to identify these areas,

Seismic Hazards

The Puget Sound area is also seismically active. An earthquake could cause improperly built structures to collapse, trigger landslides, and cause liquefaction. Liquefaction occurs when increasing water pressure during an earthquake or other ground vibration causes loose, fine sandy and silty sediments layers below the water table to behave as a liquid, similar to quicksand.[14] The City utilizes data from the Washington Department of Natural Resources to identify these areas. The majority of the City has a low risk of liquefaction as illustrated in **Exhibit 4**.

[14] Dragovich J.D, et. al. (September 1995) *Liquefaction Susceptibility for the Sumner 7.5-minute Quadrange, Washington*. Prepared for Washington State Department of Natural Resources.

Exhibit 4: Liquefaction Susceptibility



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Washington Department of Natural Resources, undated. Retrieved September 11, 2024.

Volcanic Hazards

Mount Rainier, a dormant volcano, is the highest peak in the Cascade Range and carries a larger load of glacier ice than any other mountain in the contiguous United States, posing geologic hazards during both future eruptions and periods without eruptive activity especially given the Mountain's great topographic relief.[15] Bonney Lake is far enough away to avoid lava flows and landslides. However, in addition to these associated hazards, lahars that originate on Mount Rainier or an eruption of Mount Rainier could affect the plateau. There are four types or cases of lahars:

- **Case M:** This is a low-probability and high-consequence lahar. The Osceola Mudflow is an example in this category which occurred about 5,600 years ago and has occurred on Mount Rainier only once in in the last 10,000 years. [16]
- **Case I:** This type of lahar has occurred once every 500 to 1,000 years during the last 5,600 years. The annual probability of such a flow originating somewhere on Mount Rainier is about 0.1 to 0.2 percent. The Electron Mudflow, which reached the Puget Lowland about 600 years ago via the Puyallup River, is the most recent example.[17]
- **Case II:** The typical recurrence interval of this type of lahar is near the lower end of the 100-to-500-year range. The annual probability of such a flow is close to 1 percent for the volcano as a whole. For planning purposes, Case II flows are analogous to the 100-year flood commonly considered in engineering practice. Some Case II flows have inundated flood plains well beyond the volcano and a few have reached the Puget Lowland. Case II flows have a very low clay content. The most common origin for this class of flow is melting of snow and glacier ice caused by hot rock fragments during a volcanic eruption. An example is the National Lahar, which occurred about 2,000 years ago in the Nisqually River valley.[18]
- **Case III:** This type of lahar is small but has a recurrence interval of 1 to 100 years for the volcano as a whole. This class of flow includes small debris avalanches as well as lahars. Case III flows are not triggered by an eruption but are largely restricted

[15] Cakir R. and Walsh T. (May 2012) *Loss Estimation Pilot Project for Lahar Hazards from Mount Rainier Washington.* Prepared for the Washington State Department of Natural Resources.
[16] ibid
[17] ibid
[18] ibid

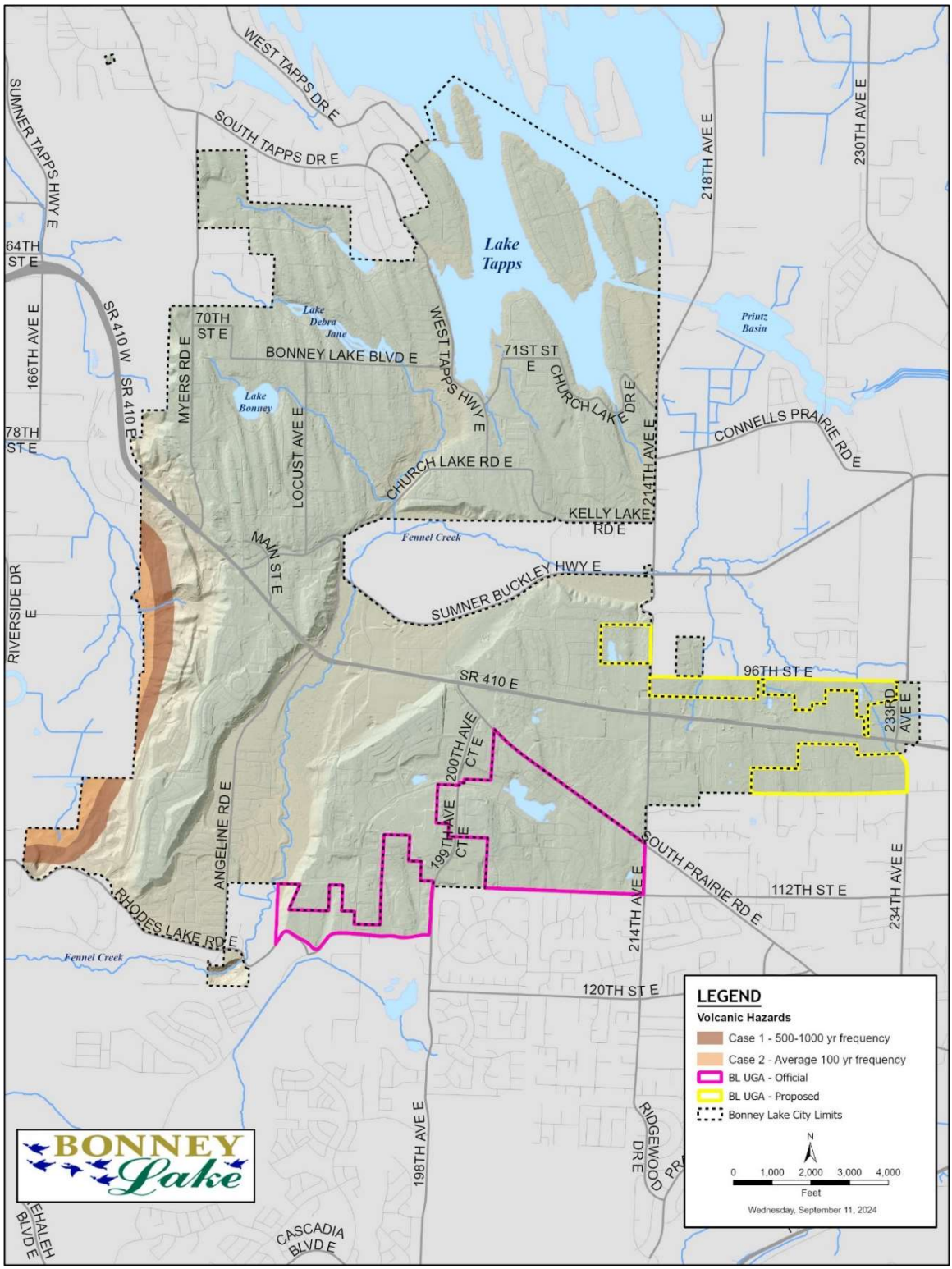
to the slopes of the volcano and rarely move beyond the National Park boundary.[19]

Portions of the City could be impacted by a Case I lahar that flows down either the Carbon River or Puyallup River valleys or by Case M lahars that flowed down the White River valley. Case I, Case II, Case III lahars that flowed down the White River or by Case M lahars that flowed down either the Puyallup River or Carbon River valleys would not affect the Bonney Lake.[20]

Given the extremely low-probability of a Case M lahar, less than 0.1% of all lahars that have originated on Mount Rainier, areas impacted only by this case of lahar are not considered to be within the volcanic hazard area zone as delineated by the Washington State Department of Natural Resources as illustrated in **Exhibit 5**. Areas impacted by a Case M lahar and the blast zone for an eruption of Mount Rainier, while not officially designated as a volcanic hazard area due to the low annual probability of these events are illustrated in **Exhibit 6**.

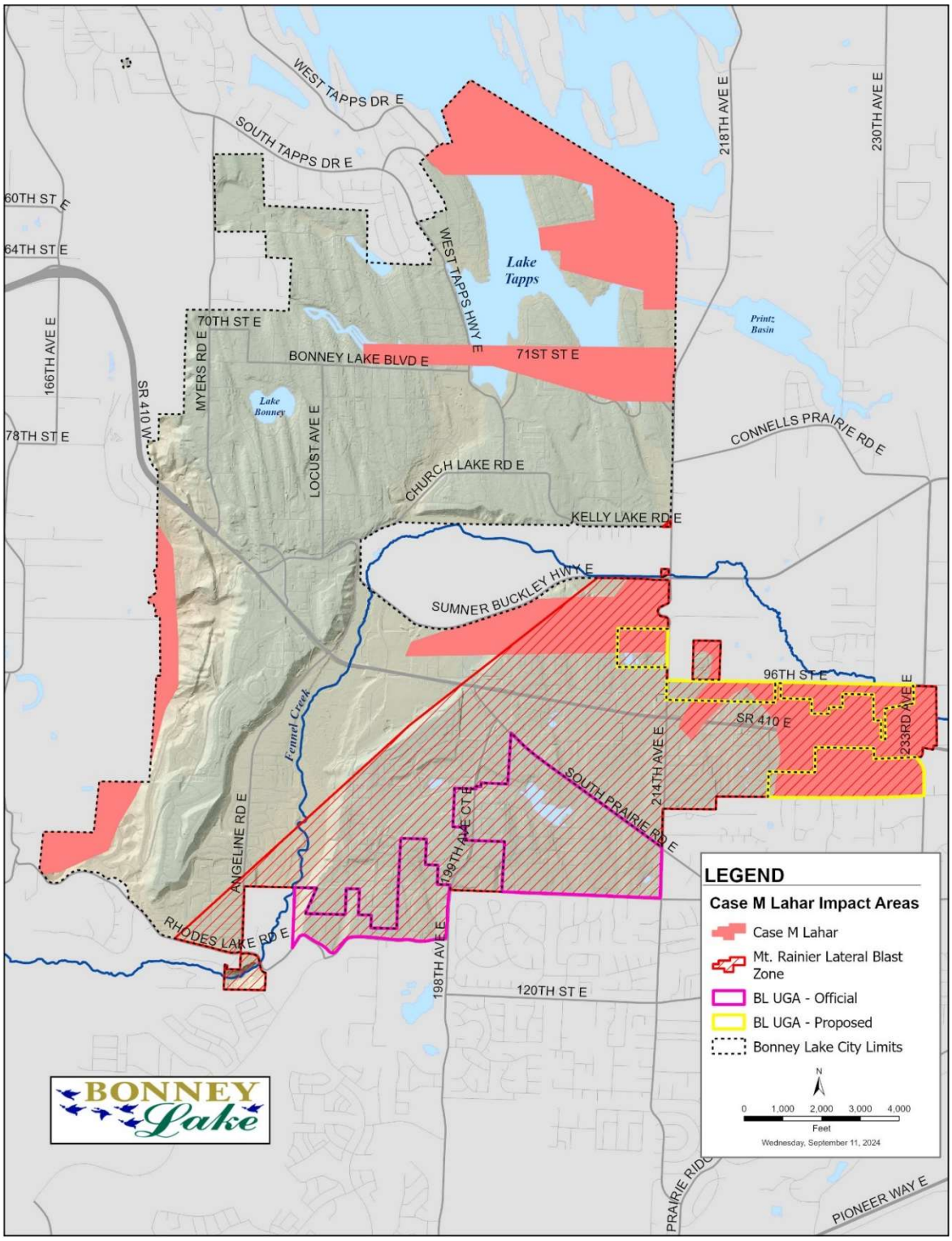
[19] ibid
[20] ibid

Exhibit 5: Volcano Hazard Zone



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Washington Department of Natural Resources, June 5, 2013.

Exhibit 6: Case M Lahar Impact Areas



Source: Prepared by the City of Bonney Lake. Data from Washington State Department of Natural Resources, Information Circular 113, May 2012, and United States Geological Survey, Open-File Report 98-428, September 18, 2013.

3.2 AQUIFER AND WELLHEAD PROTECTION AREAS

Potable water is an essential life sustaining element for people. Once contaminated, it is difficult, costly, and sometimes impossible to clean up; therefore, preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people and ecosystems.[21] A primary source of potable water in the City is aquifers, which are geologic formations that readily transmit water to wells or springs.

The importance of protecting aquifers and the associated recharge areas for public water supplies is evident by the fact that the GMA address this issue in two sections:

- **RCW 36.70A.070:** Land use elements are required to provide for protection of the quality and quantity of groundwater used for public water supplies.
- **WAC 365-190-100:** Aquifer recharge areas are designated as environmental critical areas.

Critical Aquifer Recharge Areas (CARAs) are established to protect sources of drinking water that are vulnerable to contamination that would affect the potability of the water or are susceptible to reduced recharging. Therefore, cities classify recharge areas for aquifers according to aquifer vulnerability, as defined in WAC 365-190-100(3):

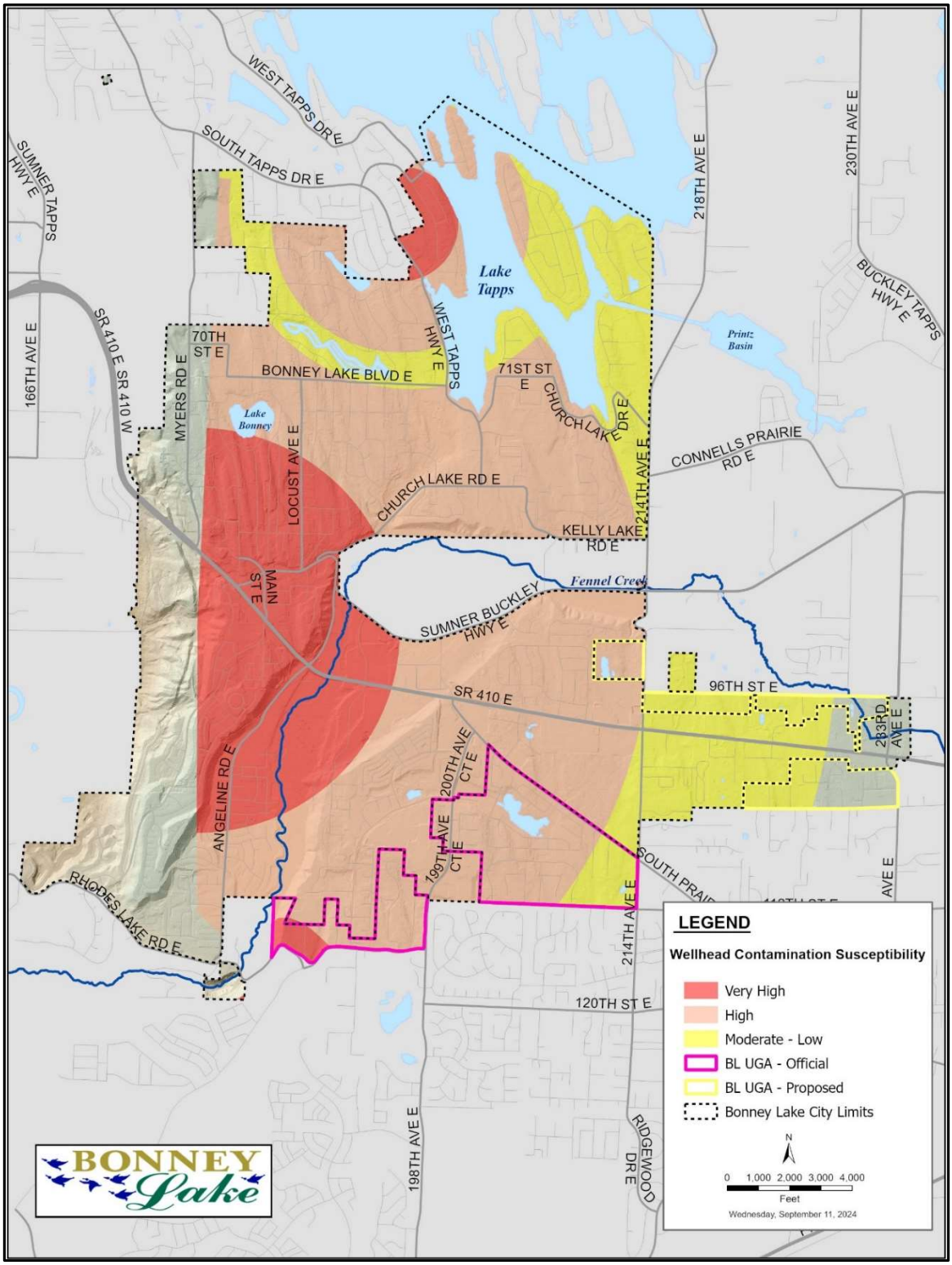
> … Vulnerability is the combined effect of hydrogeological susceptibility to contamination and the contamination loading potential. High vulnerability is indicated by land uses that contribute directly or indirectly to contamination that may degrade groundwater, and hydrogeological conditions that facilitate degradation. Low vulnerability is indicated by land uses that do not contribute contaminants that will degrade groundwater, and by hydrogeological conditions that do not facilitate degradation. Hydrological conditions may include those induced by limited recharge of an aquifer. Reduced aquifer recharge from effective impervious surfaces may result in higher concentrations of contaminants than would otherwise occur.

The City of Bonney Lake has a robust Water System Plan and Wellhead Protection Program. Grainger Springs has a 100-foot sanitary control area and is at moderate risk of contamination from the source area. Victor Falls Springs is at high risk for contamination from septic systems in the source area.

[21] WAC 365-190-100(1)

In order to protect Bonney Lake's groundwater, the City has designated the one year, five year, and ten year time-of-travel (TOT) zones identified in the *City of Bonney Lake Wellhead Protection and Monitoring Program Phase II* (November 2000) as CARAs. Additionally, the City has designed the one-year TOT zone as having very high contamination susceptibility, the five-year TOT zone as having high contamination susceptibility, and the 10-year TOT zone as having moderate to low contamination susceptibility (see **Exhibit 7**). These designations promote protection of wellheads which are sites most at risk for spreading contamination into the aquifer. The 2019 update to the Critical Areas Ordinance defined wellhead protection areas and integrated protections for wellheads into the existing CARA protections.

Exhibit 7: Wellhead Contamination Susceptibility



Source: Prepared by the City of Bonney Lake, RH2 Engineering, March 1, 2002.

3.3 SURFACE WATER

> *Maintain and enhance the quality of streams, wetlands, and lakes by retaining their natural characteristics*
>
> - *Bonney Lake Comprehensive Plan (1985)*

The water quality of Bonney Lake's surface waters is closely tied to the amount of development that occurs nearby, as development has the potential to cause impacts from contaminated runoff and siltation. Poor water quality can adversely affect natural resources, including streams, aquatic, and terrestrial ecosystems, and the plants and animals that depend on them. Poor water quality also has a negative impact on public health.

The Federal Clean Water Act's regulates stormwater discharge from municipal storm drain systems under a nationwide permit to prevent impacts to surface waters as the result of development, which is referred to as the National Pollutant Discharge Elimination System (NPDES). The City's Public Works Department is responsible for managing the City's compliance with the NPDES permit under the guidance of the Washington State Department of Ecology.

The Washington Department of Fish and Wildlife has provided new guidance in *Riparian Ecosystems – Volume 2: Management Recommendations* (Riparian Guidance)[22] dated December 2020. Using this new guidance, the City established riparian management zones (RMZs) around streams based on the site potential tree height (SPTH), which is the average maximum height of the tallest dominant trees (200 years in age or more) for a given site class. Along the City's streams:

- The SPTH is between 191 feet and 204 feet[23].
- The RMZ for fish bearing streams (shown as Type "F" in **Exhibit 8**) was established as 200 feet, or at one (1) SPTH as recommended in the Riparian Guidance. This will also help protect the water quality of Fennel Creek, a priority documented in the City's Watershed Protection Plan.

[22] Available online at: https://wdfw.wa.gov/publications/01988

[23] Based on the draft WDFW Priority Habitats & Species (PHS) Riparian Ecosystems: Site Potential Tree Height online mapping tool, accessed on August 18, 2023.

- The RMZ for non-fish bearing perennial streams (shown as Type "Np" in **Exhibit 8**) was established at 120 feet, which is 60% of one SPTH as recommended in the Riparian Guidance.
- The RMZ for non-fish bearing seasonal streams (shown as Type "Ns" in **Exhibit 8**) was maintained at 70 feet based on existing site conditions and consultation with WDFW, as recommended in the Riparian Guidance.

Lake Tapps

The Pacific Coast Power Company constructed Lake Tapps between 1909 and 1911 by diverting water from the White River into a diked area of the plateau. The 2,500-acre lake, now owned by the Cascade Water Alliance, is considered a shoreline of statewide significance and as such is discussed in the **Shoreline Element** of this Comprehensive Plan.

Lake Bonney

Lake Bonney is a 17-acre lake that has a mean water depth of 11 feet with a maximum depth of 21 feet located in a depression fed by surface and ground water. Lake Bonney is used for swimming, fishing, and non-power boating. Almost the entire shoreline has been developed for homes. Waterfowl frequent the lake.

Between 2004 and 2007, the lake was experiencing a mesotrophic to early eutrophic state of enrichment due to non-point pollution associated with residential development and lawn maintenance that over time will result in lake eutrophication with decreasing water quality and aesthetic values, odor problems, and algae blooms during the summer due to the presence of sunlight and nutrients.[24]

Since 2014, Lake Bonney has shown generally increasing TSI (Trophic State Index) scores indicating improving lake health. 2018 data classifies Lake Bonney as mesotrophic. [25] Lake Bonney did exceed the State's standards for fecal coliform bacteria in 2012 and 2013 but met the State's standards in 2014.[26] In efforts to improve the health of the lake,

[24] Parati of Oregon, LLC. (February 2007). Bonney Lake Preliminary Water Quality Assessment: An Analysis of Conditions 2004 through 2007. Prepared for the City of Bonney Lake.

[25] 2018 Bonney lake Annual Lake Report. City of Bonney Lake: Volunteer Lake Monitoring Program. Prepared by Pierce Conservation District for the City of Bonney Lake.

[26] Ragland, I. (2014) City of Bonney Lake: Volunteer Lake Monitoring Program. Prepared by Pierce Conservation District for the City of Bonney Lake.

the City included a required vegetative conservation area[27] within 20 feet of the lake to be installed when property owners make waterward improvements on their lots.

Lake Debra Jane

Lake Debra Jane is about 15 acres in size and ranges from seven (7) to 15 feet in depth. The lake is used for fishing, swimming, and non-power boating. Waterfowl frequent the lake. Lake Debra Jane is fed by local springs that are augmented in late summer by nearby wells. The lake has little inflow/outflow for two to three months during the year. Algae grows in the weeds along the shoreline, especially in the summer. Lake Debra Jane is a mesotrophic lake.[28]

The lake has a history of total coliform counts that have been in gross excess of the Department of Ecology's standards and occasionally exceeds the standards of the Pierce County Health Department.[29] In efforts to improve the health of the lake, the City included a required vegetative conservation area27 within 20 feet of the lake to be installed when property owners make waterward improvements on their lots.

Fennel Creek

Fennel Creek begins at a spring near the intersection of SR-410 and 234th Ave E flowing west then south through a flat, shallow valley to Victor Falls, then west through a deep canyon to the Puyallup River. The creek collects surface and spring runoff all along the corridor, including excess flows from the municipal water supply springs near Victor Falls. The Fennel Creek drainage basin covers about 11 square miles, of which 3 square miles are located within the City of Bonney Lake.

The reach of Fennel Creek below Victor Falls is within the highest-class range (Class AA) established for Washington state surface waters. This reach is an Urban Natural Open Space consisting of a high value riparian corridor with multiple vegetation layers and a predominance of native plant species providing high quality habitat for wildlife species including Coho salmon, cutthroat trout, and winter steelhead, listed as threatened or

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[27] Under WAC 173-26-221(5)(a), "Vegetation conservation includes activities to protect and restore vegetation along or near marine and freshwater shorelines that contribute to the ecological functions of shoreline areas. Vegetation conservation provisions include the prevention or restriction of plant clearing and earth grading, vegetation restoration, and the control of invasive weeds and nonnative species."

[28] ibid.

[29] RH2 Engineering, Inc. (June 1998). *City of Bonney Lake Wellhead Protection and Monitoring Program – Phase I.* Prepared for the City of Bonney Lake.

endangered under the Endangered Species Act (ESA).[30] This portion of Fennel Creek is a Shoreline of the State, discussed in more detail in the **Shoreline Element**.

The reach of Fennel Creek above Victor Falls that gently meanders through the plateau has high water quality values (Class A) and moderate habitat values containing a mosaic of vegetation classes including forested uplands, forested wetlands, palustrine emergent wetlands, scrub-shrub wetlands, riverine wetlands, and pastures.[31] Bonney Lake's greatest concentration of wetlands is along the Fennel Creek corridor. The corridor's riparian (streamside) vegetation, its linear nature, and its close association with wetlands make it Bonney Lake's most valuable asset in terms of wildlife habitat and biological potential.

In 1999, the Foster Wheeler Environmental Corporation prepared for the City an Environmental Analysis of the Fennel Creek Corridor. It thoroughly studied the corridor's environmental quality, providing a baseline for future comparison. The Foster Wheeler Analysis recommended improvements designed to remedy its environmental problems. For example, where the creek has been straightened it recommends that it be restored to its original sinuosity by installing diversion berms and large woody debris. Where riparian vegetation has been destroyed, it recommends plantings. Where it floods a road, the study recommends culverts. Where wetlands have been damaged, it recommends that they be enhanced by hydrological connections and plantings. Because its wetland functions and values can be greatly enhanced at reasonable cost, the corridor has great potential for wetland mitigation. That is, if a wetland outside the corridor is in the path of development and not worth saving, the developer could pay to enhance wetlands inside the corridor, thus preventing a net loss of wetland functions and values.

Bonney Lake Outfall

The Lake Bonney Outlet starts on the eastern shoreline of Lake Bonney and flows for approximately one (1) mile through a series of pipes, culverts, swales, ditches, and open channels in mostly residential areas prior to joining Debra Jane Creek at the southwest of the corner of Church Lake Rd East and Evergreen Drive. Lake Bonney Outlet, upstream of 192nd Avenue Place East is an intermittent watercourse that occasionally flows when Lake Bonney fills past its capacity does not support fish due to the lack of stream channels and significant sections of pipes and culverts. Downstream of 192nd Avenue Place East,

[30] Foster Wheeler Environmental Corporation. 1999. Environmental Analysis of the Fennel Creek Corridor. Pg. 2-75.
[31] ibid.

the Bonney Lake Outlet is a perennial fish bearing stream with hydrology supported by springs and precipitation.

Debra Jane Creek

Debra Jane Creek starts at the outlet in the southeast corner of Debra Jane Lake. Maps show that Debra Jane Creek then flows south through residential and forested areas for approximately 1 mile until it reaches the confluence with Bonney Lake Outlet. Debra Jane Creek, from the outlet at Debra Jane Lake to Allan Yorke Park, is an intermittent stream that occasionally flows when the lake fills past its capacity and does not support fish due to the lack of significant stretches of defined stream channel. Once Debra Jane Creek enters Allan Yorke Park, the stream becomes perennial stream supported by wetland seeps, springs, and precipitation without physical fish barriers (other than passable culverts) downstream from Allan Yorke Park to the confluence of Bonney Lake Outlet, and eventual connection to Fennel Creek. Habitat is suitable for fish use throughout this section, with clear bed/bank, sorted substrate, and complex habitats and is considered a perennial stream with fish use.

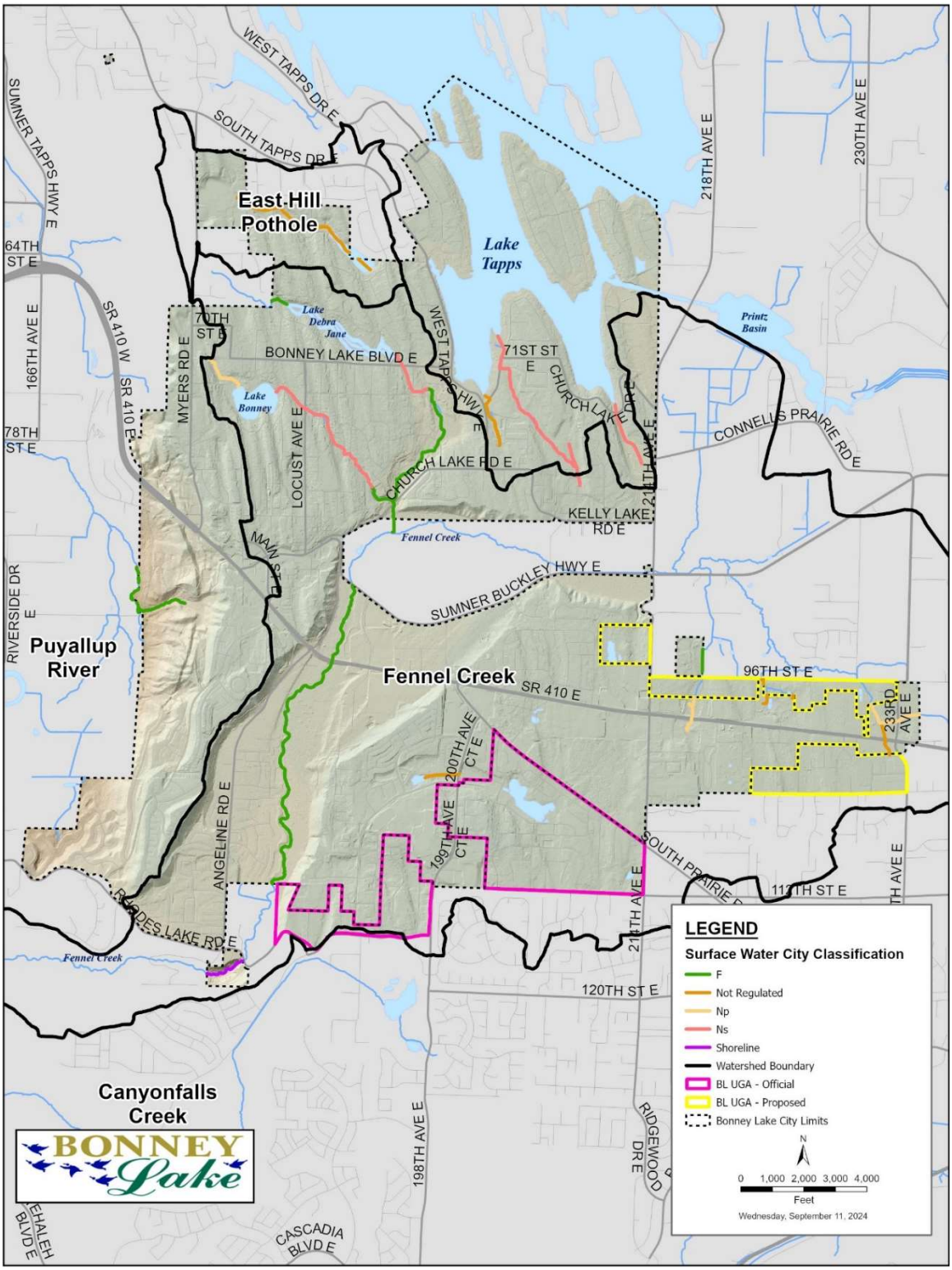
Other Streams

During 2018, the City undertook a stream assessment project. Prior to this assessment that City had mapped and classified most but not all stream located within the City. This assessment confirmed the presence or absence of the streams and assigned a classification per City code, if appropriate. More details regarding the project are available in a Final Stream Assessment Technical Memorandum which was completed by The Watershed Company for the City of Bonney Lake.

Streams evaluated as a portion of this assessment were assigned types consistent with the Bonney Lake Municipal Code, and WAC 222-16-030 and 222-16-031. **Exhibit 8** illustrates other small-unnamed streams located in the City.

The Federal Clean Water Act requires that all states restore their waters to be "fishable and swimmable." Washington's Water Quality Assessment, which meets the federal requirements for an integrated report under Sections 303(d) and 305(b) of the Clean Water Act, does not identify any impaired water bodies within Bonney Lake.

Exhibit 8: Surface Waters and Stream Typing



Source: Prepared by the City of Bonney Lake. Data from City of Bonney Lake, Watershed Company, Washington State Department of Fish & Wildlife, January 28, 2019.

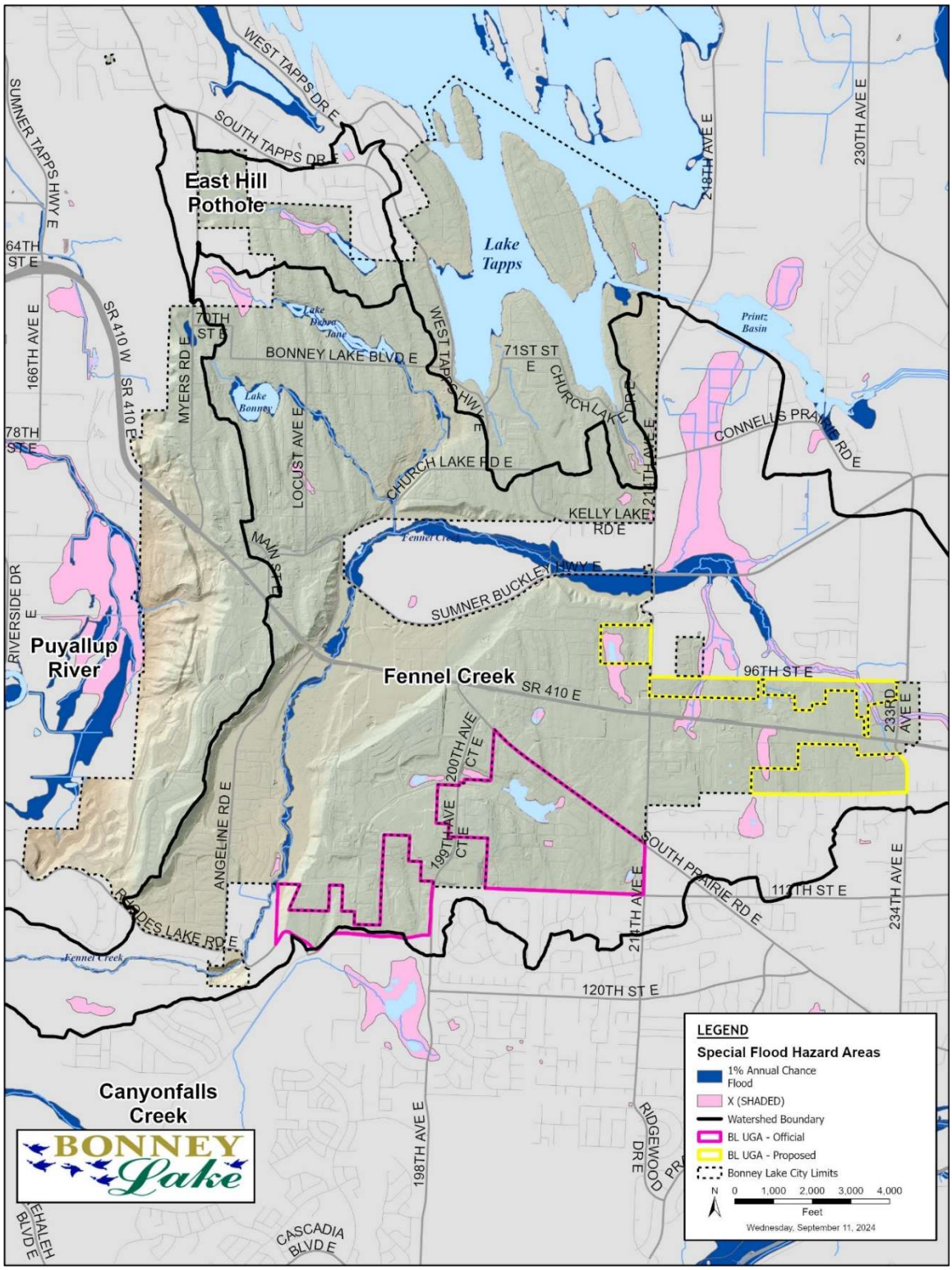
3.4 FREQUENTLY FLOODED AREAS

Flooding is defined as a general and temporary condition or partial or complete inundation of normally dry land areas from the overflow of inland water, the unusual and rapid accumulation of runoff of surface waters from any source, and mudslides which are proximately cause by flooding and are similar to a river of liquid and flowing mud. Flooding can also include the collapse or subsidence of land along the shore of a lake or other body of water a result of erosion or undermining cause by waves or currents or water exceeding average or anticipated levels.

Floodplains are regulated to protect the natural functions and habitat value of these areas and to manage potential risks to public safety. Bonney Lake regulates floodplains as special flood hazard areas, (see **Exhibit 9**), which is defined as land within the community subject to a one percent or greater chance of flooding in any given year.[32] To minimize flood damage, and maintain FEMA flood insurance eligibility, the City has administered floodplain regulations since 1982.

[32] BLMC 16.26.020

Exhibit 9: Special Flood Hazard Areas



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Federal Emergency Management Agency, May 28, 2024.

Of growing concern in urban areas are urban stream/groundwater flood hazards. As weather patterns shift, increasing the variability and severity of precipitation events, urban stormwater systems can face challenges coping with increased rates of development when paired with larger than average storm events, as in **Exhibit 10**, if not proactively planned for. Urban stream flooding is exacerbated by rain-on-snow events. Sometimes debris can accumulate in stormwater collection systems and reduce the capacity of the system to convey flow.[33]

Exhibit 10: Image of 2016 Flooding at 188th Ave E and 62nd St E



Photo Credit: KOMO News

3.5 WETLANDS

The commonly used wetland definition as issued by the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (Corps), Shoreline Management Act

[33] Pierce County Department of Emergency Management. (n.d.). Pierce County Hazard Identification & Risk Assessment (March 2015 Edition). Retrieved from https://www.co.pierce.wa.us/DocumentCenter/View/7032/HIRA?bidId=

(SMA), Growth Management Act (GMA), and recorded in the Washington Administrative Code (WAC 173-22-030(10)) is:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

Wetland scientists generally acknowledge that wetlands perform the following eight functions: (1) flood/storm water control, (2) base stream flow/groundwater support, (3) erosion/shoreline protection, (4) water quality improvement, (5) natural biological support, (6) general habitat functions, (7) specific habitat functions, and (8) cultural and socioeconomic values.[34] In the past, these functions were not understood. Many wetlands were senselessly destroyed by clearing, dredging, draining, and filling. Federal, state, and local government regulations now protect wetlands and an undisturbed buffer around the wetland.

The Bonney Lake area contains bogs, forested wetlands, scrub/shrub wetlands, wet meadows, shallow marsh wetlands, and deep marsh. The greatest concentration of wetlands is in the Fennel Creek corridor. Wetlands also exist along swales draining Lake Bonney and Lake Debra Jane and in a few other isolated spots.

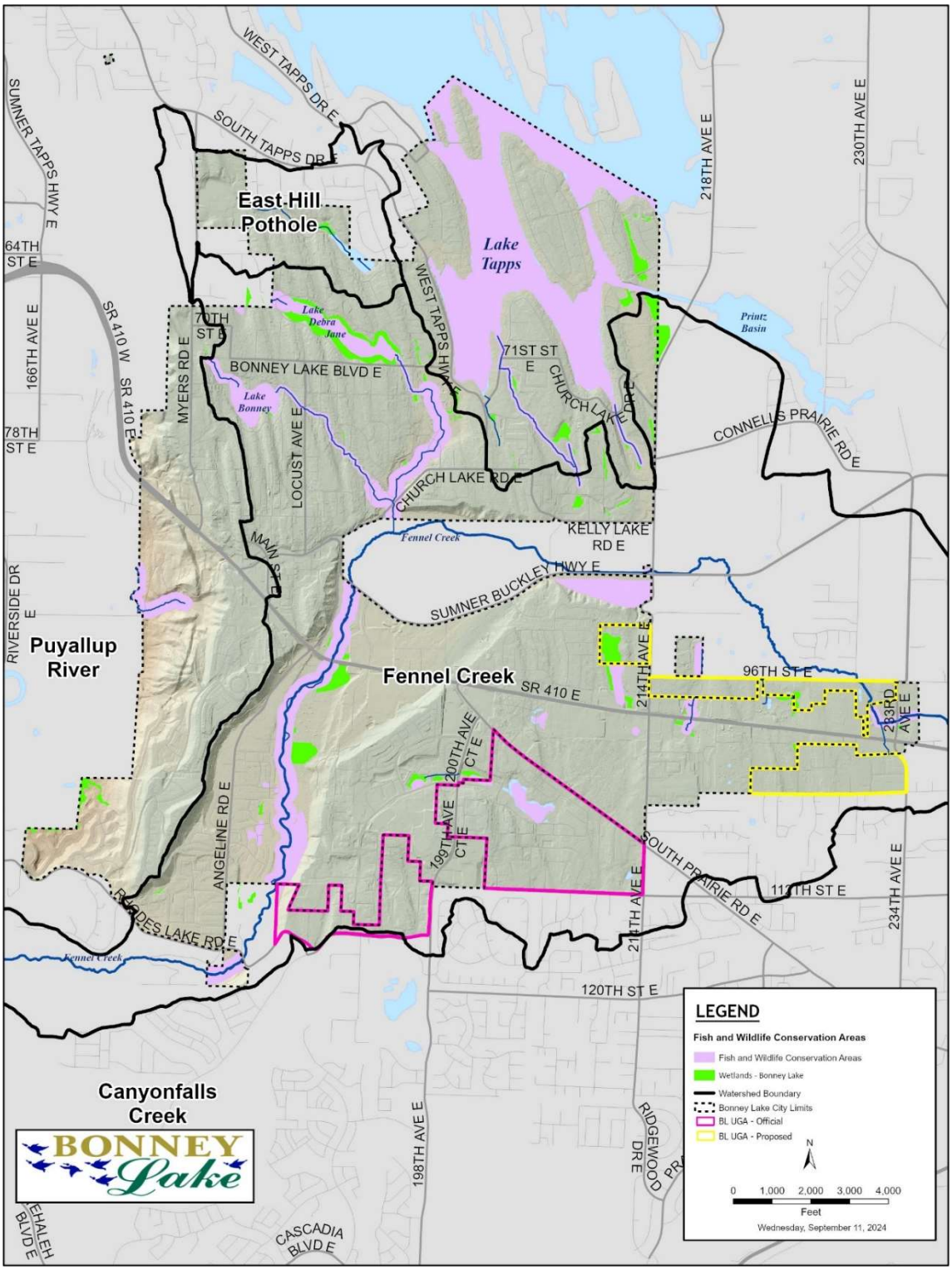
3.6 FISH AND WILDLIFE HABITAT AREAS

Urbanization and agriculture have reduced Bonney Lake's wildlife habitat, but the area's lakes, stream corridors, wetlands, floodplains, and forests support many plants and animals. Urban development and habitat conservation are compatible.

[34] Cooke Scientific Services. (February 2000). *Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (SAM)*.

According to State rules (WAC 365-190), fish and wildlife conservation areas (FWHCAs) are "…areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness." Areas that are considered FWHCA, as determined by the Department of Natural Resources, are illustrated in **Exhibit 11**.

Exhibit 11: Fish and Wildlife Conservation Areas



Source: Prepared by the City of Bonney Lake, courtesy of Pierce County Planning and Public Works. Data from Washington Department of Fish and Wildlife, Department of Health and Department of Natural Resources, May 3, 2023.

4. URBAN FORESTRY

> *Preserve Bonney Lake's character by maintaining significant trees, tree lines, and wooded lots to the maximum extent possible through the regulation of clearing prior to development.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

A healthy urban forest contributes to a sustainable City in several ways. Trees consume carbon dioxide (CO2), absorb air, and water pollutants. They also provide shade (which reduces energy consumption), absorb runoff, reduce soil erosion, provide habitat for plants and animals, and make walking more pleasant. The Center for Urban Forest Research estimates that over a 40-year period, 100 urban trees in the Pacific Northwest provide $202,000 in benefits.[35]

Recognized by the Arbor Day Foundation as a Tree City USA[36] since 2005, Bonney Lake has an active Community Forest Program and has made a commitment to protect and manage the community's tree resources. As part of this ongoing commitment, the City contracted with the Watershed Company to prepare an analysis of the City's tree canopy. This analysis included a review of the effectiveness of existing codes, trends from recent development, and yield priority recommendations. This analysis was completed in 2019 and utilized high-resolution multispectral aerial imagery to complete a map-based canopy analysis that compared 2008 and 2017/2018 canopy coverage, see **Exhibit 12**. The analysis revealed a reduction in total coverage percentage from 43% to 34%; or 1,872 acres reduced to 1,638 acres of tree canopy.

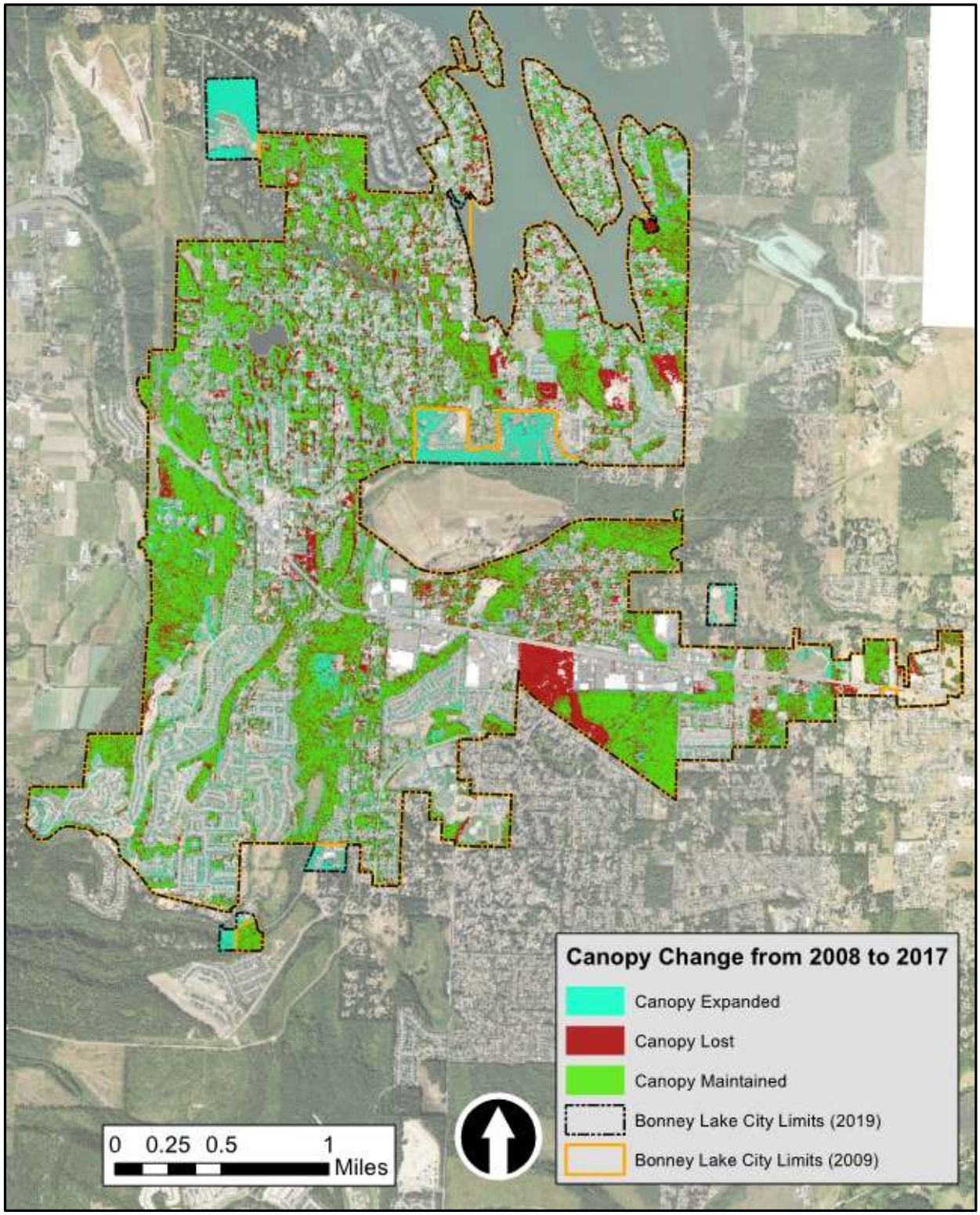
Previous best practice established a 40% canopy coverage as an average for urban areas. However, as of 2017, this is no longer the best practice.[37] Based on existing impervious surface, future population projections, and a land use analysis the City has established a new canopy goal of 38%. The urban canopy is concentrated in existing residential and open space areas. Revisions to the clearing and landscaping codes that

[35] Davey Resource Group. (March 2011). *City of Bonney Lake Washington: Urban Tree Canopy Assessment*. Prepared for the City of Bonney Lake.
[36] To learn more about the Tree City USA program, visit: https://www.arborday.org/programs/treecityusa/
[37] The Watershed Company. (November 2019). *Technical Memorandum – Bonney Lake Canopy Analysis*. Prepared for the City of Bonney Lake.

support the protection of this existing canopy and encourages tree replacement will be required in order to meet the 38% goal.

Trees make an important contribution to the aesthetics of the City, as well as the natural environment. Documentation and monitoring of the tree canopy will play an important role in preserving the visual identity and health of the Bonney Lake community. We all live under one canopy and must work together to protect it.

Exhibit 12: Tree Canopy Change, 2008 to 2017



5. AGRICULTURAL LANDS

The GMA requires jurisdictions to prevent conversion of agricultural lands of long-term commercial significance. There are no such lands in the BLUGA. However, as a suburban community located on the edge of the Pierce County's urban growth area boundaries, pockets of agricultural lands of long-term commercial significance surround Bonney Lake. Therefore, the City should work cooperatively with the County to preserve and protect these areas. Additionally, one of the City's proposed additions to the Bonney Lake Urban Growth Area (BLUGA), the Fennel Creek Corridor Area, contain lands designated as agricultural resource lands (ARL). Areas designated as ARL are agricultural lands of long-term commercial significance, which should be preserved and protected, from urban development. The City proposes to preserve these resource lands by designating the areas as Open Space – Conservancy and zoning the areas Residential/Conservancy District that is comparable to the County's zoning in both the terms of allowed uses and density.

In addition to preserving agricultural lands of long-term commercial significance, Bonney Lake should also take steps to promote and preserve urban agricultural lands. Urban agriculture is an umbrella term encompassing backyard gardens, community gardens, urban farms, and framer's markets involved in a wide range of activities including raising, cultivation, processing, marketing, and distribution of food in urban areas.[38] Preserving and promoting urban agriculture would have a number of positive impacts on Bonney Lake, which include:

- Promoting community health by expanding access to fresh foods;
- Reducing green-house gas emissions caused by transporting food over long distances;
- Increasing social capital by facilitating community engagement (See Community Development Element for a discussion of the health impacts of social capital); and
- Activating underutilized community spaces.[39]

[38] National Policy & Legal Analysis Network to Prevent Childhood Obesity. (?). *Seeding the City: Land Use Policies to Promote Urban Agriculture*.

[39] ibid.

6. AIR QUALITY

> *The emission of noise, smoke, dust, other obnoxious matter are to be limited and controlled by specific performance standards.*
>
> - *Plan for Bonney Lake, Washington (1964)*

While air quality is not specifically identified as a critical area, protecting air quality is listed as a goal of the GMA and both the MPPs and CPPs include specific provisions that require the City to establish policies related to air quality. In the Puget Sound Region the primary concern is ground-level ozone, carbon monoxide, and fugitive dust which can damage lung tissue leading to respiratory disease, contribute to cancer and cardiovascular disease, and obscure many of our most scenic vistas, such as views of the Olympic and Cascade mountain ranges, including Mount Rainier.[40]

Air quality in Bonney Lake is monitored and regulated by the Puget Sound Clean Air Agency (PSCAA). The PSCAA is a special purpose, regional government agency covering King, Kitsap, Pierce and Snohomish Counties chartered by state law in 1967 under the Washington State Clear Air Act. The agency monitors air quality in the basin through a regional network of air pollution monitoring stations to determine if the national and State standards for criteria air pollutants and emission limits of toxic air contaminants are being achieved.

6.1 CRITERIA AIR POLLUTANTS

The Federal and Washington State Clean Air Acts have established ambient air quality standards for different air pollutants. The Federal Clean Air Act of 1970 (amended in 1977 and 1990) established the national ambient air quality standards (NAAQS) for six "criteria" pollutants which are known to be hazardous to human health:

- Carbon monoxide (CO)
- Ozone (O3)
- Nitrogen dioxide (NO2)
- Particulate matter (PM10 and PM2.5)
- Sulfur dioxide (SO2); and

[40] Puget Sound Regional Council. *Vision 2040*. 2008 pg. 39.

- Lead (Pb),.

Over the years PSCAA has made great strides toward reducing levels of carbon monoxide, sulfur dioxide, nitrogen dioxide and lead, which are now well below federal air quality standards. However, two air pollutants remain a concern in the Puget Sound region: particle pollution and ozone (smog), which can cause heart attacks, strokes, asthma attacks and even premature death.[41]

6.2 TOXIC AIR CONTAMINANTS

In addition to the six criteria air pollutants, the PSCAA increasingly is focusing efforts on reducing air toxics, which is group of over 400 pollutants known or suspected to cause several health problems, including cancer and birth defects, as well as damage to lungs, immune systems and nervous systems. In our region, health risk from air toxics comes primarily from fine particles in diesel exhaust.[42]

6.3 GREENHOUSE GAS EMISSIONS

> *Residential areas should be protected from the dangers of fire, explosions, toxic, noxious matter, and other similar objectionable influences.*
>
> - *Bonney Lake Comprehensive Plan (1985)*

In addition to the air quality, cities in the central Puget Sound Region are required to address climate change. While addressing climate has been added as a mandatory elements established in RCW 36.70A.070 by way of HB 1181 (2023) this change is not required for the 2024 periodic update cycle. However, the City is required to be consistent with adopted MPPs and CPPs pursuant to RCW 36.70A.100 and RCW 36.70A.210. Both the MPPs and CPPs include specific provisions that require the City to establish goals, policies, strategies, and performance measures related to the reduction of greenhouse gas emissions and to address adaptation to the effects of climate change. Additionally, the City will be required to incorporate a climate element by the time of the 2029 5-year check-in established by HB 1241 in 2022.

[41] PSCAA Website: http://www.pscleanair.org/airquality/airqualitybasics/airtoxics/Pages/default.aspx Accessed on 11/5/14

[42] ibid.

Unlike emissions of criteria pollutants and toxic air pollutants, which have local or regional impacts, emissions of greenhouse gasses (GHGs) have a broader, global impact. The principal GHGs are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated compounds. These gases allow visible and ultraviolet light from the sun to pass through the atmosphere, but prevent heat from escaping back out into space, a process known as the "greenhouse effect". Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect.

The City's efforts to reduce GHGs began in 2010 with the passage of Resolution 2049, which adopted policies to reduce emissions of GHGs. As part of Resolution 2049, the City stated that local governments throughout the nation, both large and small, are reducing the production of global warming pollutants through programs that provide economic and quality of life benefits, such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices, economic development, and job creation through energy conservation and new energy. The City of Bonney Lake adopted the following policies, as part of Resolution 2049, to reduce GHGs:

- The City will strive to assure that all new municipal buildings are models of cost-effective energy- efficient design.
- The City will encourage energy conservation practices in City buildings by raising the awareness of employee energy use.
- The City will use the recently approved shared resource conservation manager position to conduct energy audits of publicly owned buildings, evaluate potential conservation measures, and then carry out those measures that are appropriate.
- The City will monitor the efficiency of the pumps in water and sewer systems and operate and maintain them at peak efficiency whenever practically feasible. When evaluating new systems, the most cost-effective option using the least amount of energy will be preferred.
- The City will participate in the County-wide solid waste management plan which reduces the solid waste stream by recycling and other means, investigates ways to convert non-recyclable solid waste to energy, and promotes the purchase of recycled and recyclable goods.
- Where and when permitted under the building code, the City will encourage the use of building construction materials made from recycled and recyclable materials.
- The City will publicize energy conservation actions to raise public awareness of the value of wise energy use.

- The City will promote internal recycling programs, purchasing policies, and employee education to reduce the amount of waste produced.
- The City will implement its non-motorized transportation plan, on a funding available basis, to provide safe and convenient access for pedestrians and bicyclists to, across, and along major transit priority streets.
- The City will continue to support water conservation using conservation-based rates and a tiered rate structures for water use.

In Puget Sound region, nearly 40% of the GHGs pollution comes from transportation[43]. The goals and policies in the Community Development Element and Community Mobility Elements attempt to address the GHGs. These goals and policies encourage a local balance of jobs and housing, proximity of shopping, recreational, childcare, and other uses to residential areas, higher intensity land uses near transit, and encourage the use of alternative transportation modes such as transit, walking and bicycling.

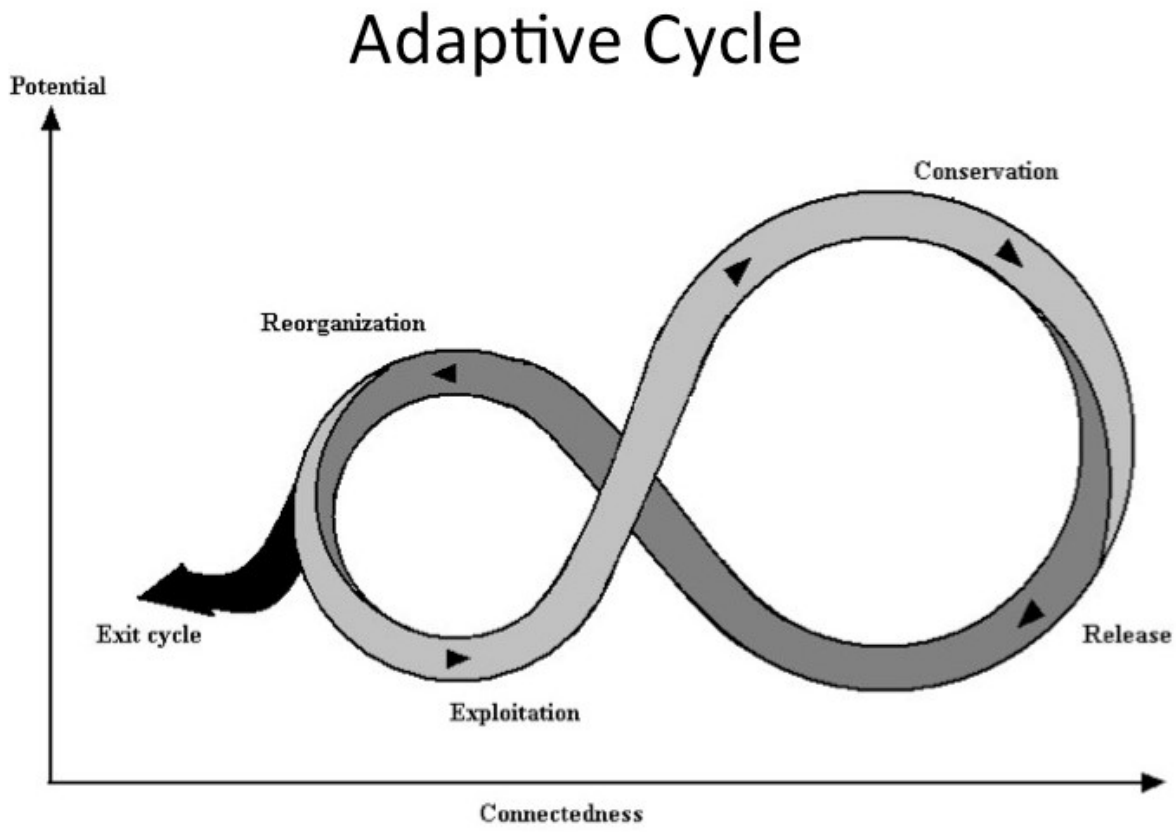
In addition to transportation, GHGs are released during energy production and consumption, such as electricity used to power homes and businesses, and fuel used to power cars and trucks. Reducing the carbon content of the fuel source (e.g., solar or wind power versus fossil fuels) or reducing energy consumption (e.g. using energy efficient appliances or designing buildings for solar access) will help to further reduce overall GHGs emissions.

[43] Puget Sound Clean Air Agency. *Puget Sound Regional Emission Inventory*. December 2023. Available online at: https://www.pscleanair.gov/DocumentCenter/View/5361/2019-Four-County-GHG-EI-FINAL

7. RESILIENCY

As the instances of natural disaster increase throughout the world, communities must begin planning for how these disasters may affect them. In Pierce County the most frequently occurring natural disaster is flooding. Historically, disaster planning has focused on avoid or minimizing damage from these events. Policies developed today have started focusing on building community resilience and preparing for inevitable disasters and the post-disaster to recovery. In this instance resiliency is the defined as the ability of a community or ecosystem to return to a functioning state and enter into recovery as quickly as possible. Resiliency can be thought of as a cycle as depicted in **Exhibit 13**. This adaptive cycle can be seen in ecological and social systems throughout our world.

Exhibit 13: The Adaptive Cycle[44]



The rapid growth and conservation phases are referred to as the fore loop and characterized by an accumulation of capital and stability. The release and reorganization phases are referred to as the back loop and are characterized by uncertainty and loss of capital, but also novelty and experimentation. In terms of community preparedness, the change from fore loop to back loop is the disruptive event (i.e., natural disaster).

This resiliency approach encourages communities to plan for safety, continuity of operations and delivery of services, and appropriate levels of infrastructure and support during events and for post-disaster recovery. The most likely instances for the City of Bonney Lake to face are flooding and being an area of reception for persons evacuated from surrounding areas during natural disasters. Hazard identification and risk

[44] Holling, C. S., & Gunderson, L. H. (2002). Panarchy: Understanding Transformations in Human and Natural Systems (Edition 1). Washington, D.C.: Island Press.

management for the area are managed by Pierce County and more information about these topics can be found in the Pierce County Hazard Identification and Risk Assessment.

7.1 CLIMATE CHANGE

Resilience thinking acknowledges that social-ecological systems are always changing, and adapting. With climate change, communities must plan for resilience in the face of changes in average temperature, weather conditions, wind patterns, precipitation, and increased variability in the frequency and severity of extreme weather events.

Likely impacts of climate change on the City are changes in rain and snowfall patterns, residents moving to the area because of sea-level rise impacting other parts of the region, an increased need to invest in infrastructure that can accommodate greater fluctuations in service, and economic changes.

7.2 FLOOD

Flooding is the most common hazard in Pierce County. Of particular risk are areas of the City within special flood hazard areas. However, other low-lying areas of the City and isolated "potholes" or closed depressions can be at risk of flooding, and once these areas flood the water can remain for the rest of the wet season. Flooding impacts about 50% of the population of Pierce County each year.[45] Mapping these low-lying and closed depressions could alert residents that might not otherwise prepare for flood events. This was demonstrated during the flooding of a portion of the City during February of 2016.

7.3 FIRE

While wildfires can be a natural part of the adaptive cycle in healthy forests, the densely knit rural-urban divide brings these fires too close to our homes, our neighbors, and our livelihoods. All communities face some risk for fire, but 2020 demonstrated that this risk is closer and more real than we would have thought given the extended wet season experienced in the South Sound Region.

Likely impacts from fire include temporary loss of air quality, sudden need for shelter/evacuation planning, temporary loss of ingress and egress from the City, loss of

[45] Pierce County Department of Emergency Management. (n.d.). Pierce County Hazard Identification & Risk Assessment (March 2015 Edition). Retrieved from https://www.co.pierce.wa.us/DocumentCenter/View/7032/HIRA?bidId=

telecommunication systems, loss of tree canopy, increase risk of landslide, and a need for long-term recovery management that focuses on soil health and stability. A focus on resiliency acknowledges that fires will happen, but community education, emergency preparedness, and established plans for recovery can save our homes and our lives.

Exhibit 14: Sumner Grade Fire, 2020



Image Credit: WSDOT

7.4 DROUGHT AND HEATWAVES

Bonney Lake's beauty and quality of life are likely to change if a long-lasting drought impacts the area. These impacts can include habitat reduction for birds, insects, and amphibians, impacts on water distribution, impacts on tourism, and higher risk of wildfire. A resilient community prepares for these changes and develops interdisciplinary networks of professionals before disaster strikes to ensure resources are in place to address these changes before the change impact day to day living.

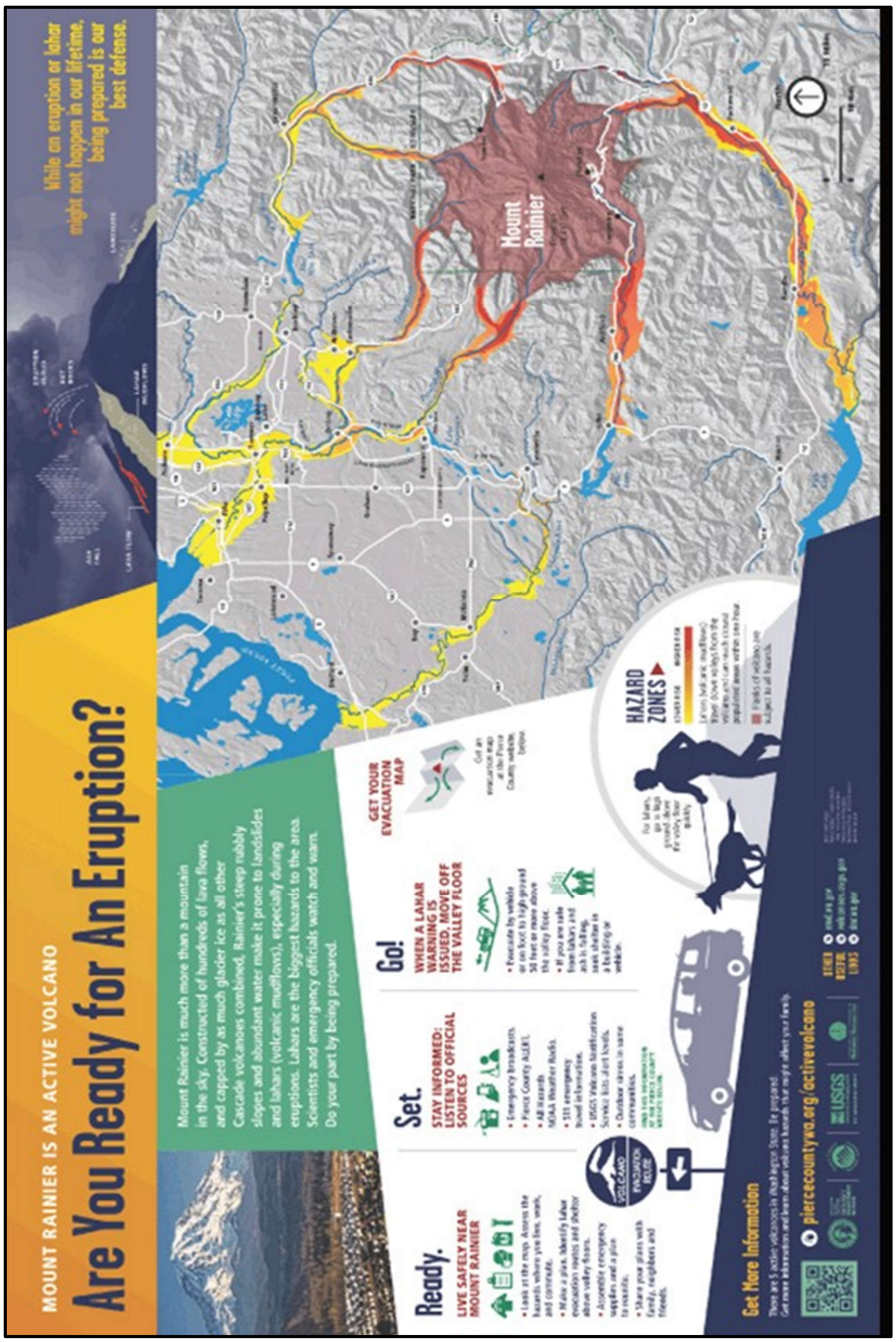
7.5 EARTHQUAKE

As evaluated in section 3.1 of this chapter, areas with steep slopes may be at higher risk of liquefaction and landslide. Many of the homes in the southern portion of the City could be impacted by seismic event. The City has taken steps to strictly regulate development in these higher risk areas. Additionally, close geographic proximity to volcanos has increased the general population's awareness of the risk of earthquake and the potential effects of an event. In addition to preparing residents for an earthquake event, the City is likely to be impacted by transportation disruption, energy disruption, and an influx of evacuees from other areas during an event.

7.6 VOLCANIC

While flood may be the most common event in Pierce County, a volcano event would impact the largest segment of the population. The immediate and secondary impacts of such an event would be far-reaching and long-lasting. Resilient communities prepare for these events, understanding they are inevitable even if they never happen in our lifetime. Investment in early alert systems and communication systems that will function and be accessible during an event are important aspects of preparedness, volcanoes give warning signs before they erupt. Additionally, education and outreach can help citizens understand risks (see **Exhibit 15**). Bonney Lake is an evacuation site for residents in other areas of Pierce County.

Exhibit 15: Are You Ready for An Eruption?[46]



[46] Pierce County Emergency Management. (n.d.). Mount Rainier is an Active Volcano Are You Ready for An Eruption [Interpretive Image]. Retrieved from https://www.piercecountywa.gov/3730/Mount-Rainier-Active-Volcano

7.7 TRANSPORTATION ACCIDENT HAZARD

Of unique risk to the City of Bonney Lake is the impact of a transportation accident hazard. The road system in Bonney Lake has been defined, extensively, by housing development. A resilient streets system has built-in redundancies that ensure that emergency personal and citizens have multiple travel routes regardless of transportation mode or temporary obstructions.

Sustainable transportation systems are best achieved by planning transportation around pedestrians. Pedestrian focused transportation promotes interconnected grids of closely spaced streets, readily available parking, and increased density.[47] In addition to cul-de-sac development, the dependence on State Route 410 to provide routes throughout the City puts the transportation at risk of being devastated during a medium to large vehicle accident or road system failure. These issues are addressed more fully in the Mobility Element of this plan.

[47] Tumlin, J. (2012). Sustainable Transportation Planning: Tools for Creating Vibrant, Healthy, and Resilient Communities. Hoboken, NJ: John Wiley & Sons, Inc.

8. ENVIRONMENTAL STEWARDSHIP GOALS AND POLICIES

The policies in this section identify actions the City should consider over the upcoming planning period to achieve the stated goals.

Goal ES-1	**Enhance coordination among cities, counties, federally recognized tribes, federal and state agencies, utilities, and other partners to protect, preserve, and restore environmental resources for current and future population.**	
Policies:	**ES-1.1**	Coordinate with Tribes, local and reginal jurisdictions, and community partners to restore and enhance the Puget Sound watersheds to a more natural state.
	ES-1.2	Coordinate with Tribes, local and reginal jurisdictions, and community partners to identity, mitigate, and adapt to the impacts of climate change on regional hydrological systems and local critical area.
	ES-1.3	Maintain and enhance the ecological, social, and economic benefits provided by a healthy Puget Sound environment.
	ES-1.4	Support implementation of the Puget Sound Partnership's action agenda.
Goal ES-2:	**Protect the environment, public health, and property from erosion, landslides, and unnecessary scars on the land that could occur as part of development.**	
Policies:	**ES-2.1**	Discourage development and disturbance of native vegetation on steep slopes.
	ES-2.2	Require buildings to be set back from the toe and top of steep slopes.
	ES-2.3	Require geotechnical or engineering studies to demonstrate that any proposed development in areas that have a high or moderate landslide hazard risk has been designed to withstand the hazard and not aggravate the hazard for other properties.
	ES-2.4	Designate areas with a moderate or high risk of slope instability either as Open Space – Conservancy, Open Space – Private, or Open Space – Public to limit the development intensity, site coverage, and vegetation removal within these hazardous areas.

	ES-2.5	Ensure that soils are suitable for the development proposed. Where soil suitability is questionable, require review by a geotechnical engineer.
	ES-2.6	Maintain existing vegetation to the greatest extent possible in order to prevent erosion. In cases where development necessitates removal of vegetation, a reasonable amount of landscaping should be required to replace trees, shrubs, and ground cover removed during construction.
	ES-2.7	When erosion hazard areas are disturbed, require erosion control measures, and limit the duration of site exposure.
	ES-2.8	Enforce building codes designed to prevent earthquake damage.
Goal ES-3:	**Protect the quality and supply of groundwater used for public water supplies to ensure reliable current and future sources of safe and drinkable water for Bonney Lake and the region.**	
Policies:	**ES-3.1**	Evaluate, monitor and mitigate the potential impacts of land development on critical aquifer recharge areas to ensure that the level of protection provided corresponds with the potential for contaminating the water supply aquifer.
	ES-3.2	Work with Pierce County, the Washington State Department of Ecology, Tribes and any relevant liable or engaged parties to protect Bonney Lake's water supply from contaminants originating inside and outside the city limits
	ES-3.3	Periodically review and update land use policies, regulations, development, or operating standards to ensure the use of best available science for meeting and exceeding levels of groundwater recharge while preventing degradation of groundwater quality.
	ES-3.4	Manage surface water to maintain and improve water quality, maximizing groundwater recharge.
	ES-3.5	Require new subdivisions and commercial development to connect to public sewers.
	ES-3.6	Encourage homes and businesses with septic systems to connect to public sewers.

	ES-3.7	Use the best available science (BAS) to protect and enhance groundwater quality.

Goal ES-4:		**Preserve, restore, and enhance the quality of surface waters to provide high quality natural habitats protected from point and non-point pollution sources.**
Policies:	**ES-4.1**	Protect water bodies from point and non-point sources of contamination and nitrification.
	ES-4.2	Promote the enhancement or restoration of surface waters as adjacent development activities occur.
	ES-4.3	Protect against erosion of drainage channels.
	ES-4.4	Encourage land developments to maximize stormwater infiltration.
	ES-4.5	Promote Low Impact Development techniques as an alternative to standard development practices such as, using natural systems to maintain and enhance environmental quality by having them perform such functions as cleaning air and water, and controlling storm water runoff.
	ES-4.6	Preserve vegetative buffers along streams and drainage ways to enhance water quality, protect habitat, and prevent erosion.
	ES-4.7	Mitigate stormwater related impacts through best management practices based on the best available science.
	ES-4.8	Protect Fennel Creek's natural functions by being especially diligent in applying to the Fennel Creek corridor those policies relating to wetlands and fish and wildlife habitat as stated elsewhere in this Element.
	ES-4.9	Construct the Fennel Creek corridor environmental improvements identified in the 1999 Environmental Analysis of the Fennel Creek Corridor.
	ES-4.10	Continue to purchase property along the Fennel Creek Corridor to preserve the corridor and consider using property around the creek as wetland mitigation sites.
	ES-4.11	Work with Tribes, local and regional jurisdictions, and community partners to restore local freshwater bodies identifying and mitigating potential impacts from extreme weather events.

Goal ES-5:	**Minimize risks to life and property resulting from flooding and preserve habitat associated with floodplains.**	
Policies:	**ES-5.1**	Prohibit new buildings in the 100-year flood zone as determined by the Federal Emergency Management Agency (FEMA) and as shown on the FEMA Flood Insurance Rate Maps (FIRM) unless the base elevation is above the floodplain elevation, the structure has been flood proofed, or the area is removed from the floodplain.
	ES-5.2	Protect floodplains from filling, excavating, and other activities that would interfere with natural drainage patterns and negatively affect the habitat functions.
	ES-5.3	Preserve and enhance floodplains to provide for natural flood storage protection and habitat functions.
	ES-5.4	Require new development and redevelopment designs to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding.
	ES-5.5	Design new city development and redevelopment projects to minimize hazards associated with flooding and extreme weather events, limiting the amount of runoff that contributes to flooding.
	ES-5.6	Research and evaluation the implementation of development incentives for projects incorporating climate mitigation and adaptation strategies into their stormwater design criteria.
	ES-5.7	Coordinate the implementation of flood mitigation and adaptation measures based on the best available science for development already built within flood zones.
Goal ES-6:	**Protect and enhance natural habitat, groundwater recharge, and floor attenuation functions performed by wetlands.**	
Policies:	**ES-6.1**	Ensure that wetland buffers are adequately sized to protect functions and values of wetlands.
	ES-6.2	Ensure a no net loss of wetland functions and values.
	ES-6.3	Avoid denying all reasonable use on any parcel.
	ES-6.4	Protect wetlands from water quantity or quality impacts stemming from improper stormwater management.

	ES-6.5	Encourage environmental stewardship programs aimed at wetland preservation.
	ES-6.6	Pursue implementation of a wetland mitigation-banking program.
	ES-6.7	Use the best available science when assessing wetland values and functions.
Goal ES-7:	**Preserve, restore, and enhance fish and wildlife habitat conservation areas.**	
Policies:	**ES-7.1**	Preserve habitats for species, which the federal or state government have identified, as endangered, threatened, or sensitive.
	ES-7.2	Further the conservation of sites that protect fish and wildlife habitat conservation areas through incentives or acquisition.
	ES-7.3	Support the restoration of ecological functions and the natural environment in environmentally damaged areas by offering incentives.
	ES-7.4	Protect and enhance water quality in lakes and streams using the best available science in coordination with local and regional jurisdictions, Tribes, and community organizations.
	ES-7.5	Promote clustered developments, common areas, buffers, conservation easements, and retention of native vegetation as a means of conserving critical habitat.
	ES-7.6	Use the best available science in measures preserving, restoring, and enhancing fish and wildlife habitats, giving special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat.
	ES-7.7	Coordinate conservation or protection measures of anadromous fish habitat in partnership with local Tribes.
Goal ES-8:	**Establish and maintain a healthy urban forest with an overall tree canopy goal of 38percent.**	
Policies:	**ES-8.1**	Protect and conserve open space and transition buffers between urban and rural areas.
	ES-8.2	Preserve and protect public views of the mountains and valley corridors.

	ES-8.3	Practice land cover management, which includes forest and topsoil preservation, native growth protection easements, dense vegetative zones, and preservation of the tree canopy.
	ES-8.4	Protect significant trees and, promote tree replanting, and the use of native plants in residential and commercial development and redevelopment.
	ES-8.5	Support the preservation of native vegetation and mature trees, revegetation, and appropriate landscaping to improve the quality of air, water, and fish and wildlife habitat.
	ES-8.6	Promote the use of native plants in residential and commercial landscapes.
	ES-8.7	Maintain the City urban forestry in-lieu fee program to assist the City in establishing or preserving urban tree canopy.
	ES-8.8	Provide opportunities to engage the Tree Board as advisors and stakeholders committed to the preservation of our tree canopy.
Goal ES-9:	**Preserve and protect agricultural resource lands and urban agriculture sites to improve access to healthy foods, build social connections, and provide locally sourced foods.**	
Policies:	**ES-9.1**	Allow continued agricultural production in areas which are producing such products but are not currently in designated agricultural resource lands as long as such production is appropriate in compatible with surrounding urban context.
	ES-9.2	Maintain agricultural production as the principal use on agricultural lands by limiting residential development, preventing conversion to non-agricultural uses, and prohibiting uses that are incompatible with long-term agricultural production.
	ES-9.3	Protect property owner's rights to cultivate gardens to produce fresh fruits and vegetables and to keep a limited number of farm animals through the City's development regulations.
	ES-9.4	Expand access to community gardens through Bonney Lake to increasing availability of locally sourced fresh produce while reducing greenhouse gas emissions.
	ES-9.5	Remain open to further designations of agricultural resource lands on land shown to merit that designation.

	ES-9.6	Ensure that land uses proposed adjacent to lands designated, as agricultural resource lands are compatible with agricultural activities.
	ES-9.7	Support community education programs providing opportunities to learn about urban agriculture and ways to use and access healthy foods locally, especially for communities that experience greater barriers accessing healthy foods.
	ES-9.8	Identity and mitigate the potential impacts of climate change on local agricultural lands, systems, and working condition.
Goal ES-10:	**Meet the Washington State goal to reduce greenhouse emissions to 25% below 1990 levels by 2035 established by RCW 70.235.020(1)(a)(ii) and ensuring that overall air quality meets or exceeds State and Federal standards.**	
Policies:	**ES-10.1**	Support efforts of other local, regional, and State agencies to improve regional air quality.
	ES-10.2	Coordinate land use planning and local transportation planning to reduce the potential for long-term exposure to criteria air pollutants and toxic air contaminants.
	ES-10.3	Reduce the air quality impacts created by truck traffic, hazardous materials, and development through transportation investments that reduce vehicle miles traveled and greenhouse gas emissions.
	ES-10.4	Continue to implement the policies adopted by Resolution 2049.
	ES-10.5	Encourage energy efficiency in site design, building orientation, landscaping, and utilities/infrastructure for all development and redevelopment projects.
	ES-10.6	Pursue renewable energy sources as part of new and existing city buildings and infrastructure projects.
	ES-10.7	Incentivize renewable energy sources for new and existing buildings and infrastructure projects proposed in the city.
	ES-10.8	Identify and publish a citywide approach to increasing energy efficiency and greenhouse gas emission reductions.
	ES-10.9	Evaluate the implementation of incentive opportunities to encourage desired energy efficiency practices within site design,

building orientation, landscaping, and utility/infrastructure for all development and redevelopment projects.

Goal ES-11:	**Develop disaster preparedness management systems with a focus on community resilience that prepares the Bonney Lake community to withstand, adapt, and recover from disaster in a responsive and healthy manner.**	
Policies:	**ES-11.1**	Improve and retrofit existing infrastructure and develop future infrastructure to withstand a variety of compounding severe weather events ranging from droughts to floods, prioritizing improvements to communities most vulnerable to these events.
	ES-11.2	Cooperate with other agencies in preparing emergency management plans to respond to a lahar originating on Mount Rainer, an eruption of Mount Rainer, or an earthquake along the Cascadia Subduction Zone or the Nisqually Fault Line.
	ES-11.3	Develop and update maps that identify areas of the City most at risk of hazards and develop resiliency resources and education programs for citizens likely to be impacted, prioritizing resources and programs for citizens most vulnerable within these areas.
	ES-11.4	Develops plans for managing event evacuees and, when appropriate, enter into inter-local and mutual aid agreements to help manage temporary population influx from disasters.
	ES-11.5	Develop a continuity of operations plan that identifies the City's essential functions and provides procedures for notifications, orders of succession, delegation of authority, alternate locations, essential records, and reconstitution.
	ES-11.6	Evaluate urban forestry program and codes for incorporation of fire prevention and preparedness best practices.
	ES-11.7	Complete a Risk and Resilience Analysis and develop an Emergency Response Plan for drinking water infrastructure.
	ES-11.8	Coordinate with other local and regional agencies and community organizations in preparing emergency management plans to respond to a variety of compounding severe weather events ranging from droughts to floods, prioritizing improvements to communities most vulnerable to these events.
	ES-11.9	Ensure members of the public receive timely concise information and instructions to proactively respond when an emergency

strikes, especially for communities disproportionately impacted in emergency situations.

ES-11.10 Coordinate with Tribes, local and regional jurisdictions, and community groups to explore the logistics of joining a Pierce County coalition to address the impacts of climate change on a regional scale, recognizing the clear danger posed by climate change, and its potential to drastically impact quality of life, the natural and built environment, and human health and safety for future generations.

ES-11.11 Require the incorporation of climate resiliency measures in all new development, especially new critical infrastructure and public facilities.

Shoreline Element

Envision BONNEY LAKE
Celebrating 100 Years

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NOTE

The City's Shoreline Master Program (SMP), Shoreline Element, and associated development regulations were updated by Ordinance No. 1633, adopted May 12, 2020. The existing element is incorporated herein by reference without amendment. The next SMP update is due in 2029, consistent with Revised Code of Washington (RCW) 90.58.080(4)(b)(i).

Exhibit 1: May 12, 2020, City of Bonney Lake Shoreline Element (see attached)

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1. INTRODUCTION

The *City of Bonney Lake's Shoreline Master Program* (SMP) consists of the shoreline goals and policies contained in this chapter of the *Bonney Lake Comprehensive Plan*, the shoreline regulations contained in the Shoreline Code (Chapters 16.34 – 16.58 of the Bonney Lake Municipal Code (BLMC)), and the *City of Bonney Lake Shoreline Restoration Plan*. The SMP is adopted pursuant to the authority in Chapter 90.58 RCW and Chapter 173-26 WAC.

1.1 STATUTORY FRAMEWORK

In 1971, the State of Washington's legislature enacted the Shoreline Management Act (SMA) in order "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines" which the legislature determined "are among the most valuable and fragile" of the state's resources. To that end, the SMA established broad policy goals related to the utilization, protection, restoration, and preservation of shorelines. The SMA gave preference single-family residences and to:

- Uses that protect water quality, vegetation, and wildlife habitat.
- Uses which depend on the proximity to the shoreline.
- Uses which preserve and enhance public access or recreational opportunities for the public.

A citizen's initiative in 1972 designated that all lands within two hundred (200) feet of the shoreline would be regulated under the SMA.

The goal of the SMA is to create a regulatory framework that balances the responsibility for regulating development within the shoreline jurisdiction between state and local government. Within this framework, the Department of Ecology has the responsibility for issuing guidelines for SMPs, assisting local governments in developing master programs, and determining if a local SMP meets the policy objectives of the criteria in RCW 90.58.090 and the requirements in Chapter 173-26 WAC. The City of Bonney Lake is responsible for maintaining an SMP that establishes policies, goals, and regulations related to future developments and uses of the shoreline areas, and that is tailored to the specific needs of our community while complying with the requirements established by the State.

1.2 VISION

- The City of Bonney Lake's first SMP was adopted in 1975 and was not substantively updated until 2014. Key considerations within the original (1975) SMP included conservation, public access, guidance for water-oriented recreational uses, and allowances for residential development. The City's 1975 SMP met the appropriate standards for the time at which it was written and adopted, but over time changes in conditions and improvements in the best available science resulted in a State requirement that all local jurisdictions complete a comprehensive update of the jurisdiction's SMP. To address the changes since 1975, comply with the mandates of the SMA, and enable the City to plan for emerging issues, the City initiated a comprehensive update of its SMP in 2009. The

updated SMP responded to current conditions and the community's vision for the future. In updating the SMP, the City's primary objectives were to:

- Enable current and future generations to enjoy an attractive, healthy, and safe waterfront.
- Protect the quality of water and associated natural resources of the State's shorelines.
- Preserve fish and wildlife habitats.
- Protect the investments of property owners along and near the shoreline.
- Have an SMP that is supported by Bonney Lakes elected officials, citizens, property owners, the State of Washington, and other key groups with an interest in the shoreline.
- Efficiently achieve the SMP mandates of the State.
- Plan for and foster all reasonable and appropriate uses.
- Provide opportunities for the general public to have access to and enjoy the shorelines of the state.

State law (RCW 90.58.080) also requires that local jurisdictions review and revise their SMPs regularly, in order to respond to developments in areas such as best available science and legal decisions. The City of Bonney Lake's SMP represents the City's commitment to an on-going, coordinated planning effort with the Department of Ecology to protect the public interest associated with the shorelines of the state, while at the same time recognizing and protecting private property rights. The objective of the SMP is to preserve the public's opportunity to access the shorelines of the state and to protect the functions of shorelines so that, at a minimum, the City achieves a 'no net loss' of ecological functions. The SMP also promotes restoration of impaired ecological functions.

1.3 ORGANIZATION

The goals and policies in this Shoreline Chapter are grouped under five sections:

- Shoreline Designations
- General Shoreline Policies
- Shoreline Uses and Development
- Shoreline Modifications
- Shorelines of Statewide Significance

1.4 LAKE TAPPS RESERVOIR

Lake Tapps is the largest freshwater body in Pierce County, with approximately 4.5 square miles of surface area (2,296 square acres) and 45 miles of shoreline. The City of Bonney Lake has jurisdiction

over approximately 9.5 miles of the Lake Tapps shoreline, while the remaining 35.5 miles of shoreline is under the jurisdiction of the Pierce County SMP.

Lake Tapps is a man-made water body constructed by Pacific Coast Power Company between 1909 and 1911 as part of the White River Power Plant. The project that created Lake Tapps included the construction of a diversion facility near the City of Buckley to divert water from the White River along with construction of 2.5 miles of dikes and embankments to create a reservoir that artificially raised the level of four natural lakes: Church, Crawford, Kirtley, and Tapps.

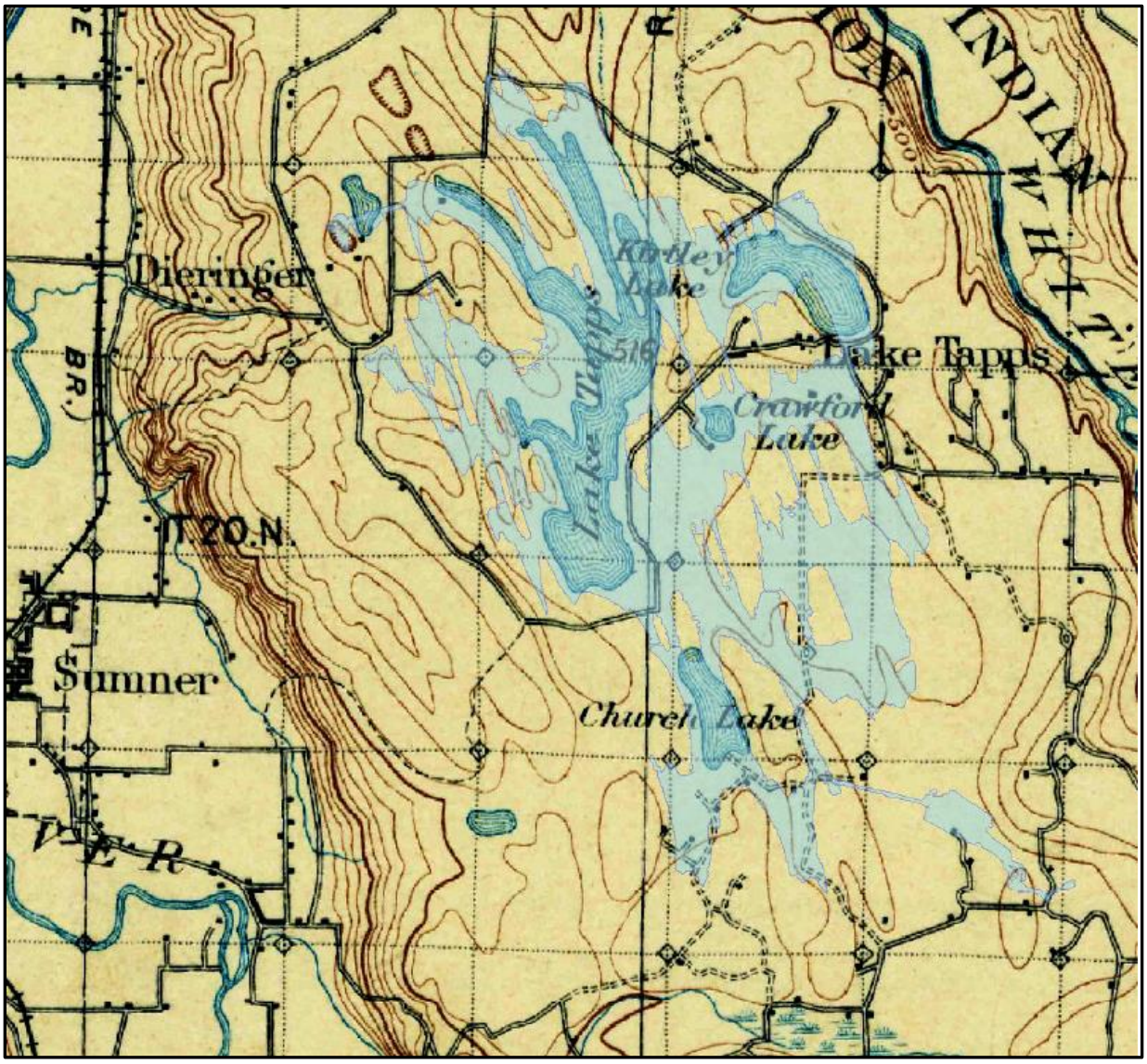


Figure 8-1: The four original lakes as shown on the 1897 USGS Map

The diverted water stored in the reservoir was originally used to turn turbine generator units in a powerhouse located on the valley floor near Derringer which supplied electricity to Tacoma and Seattle.[1]

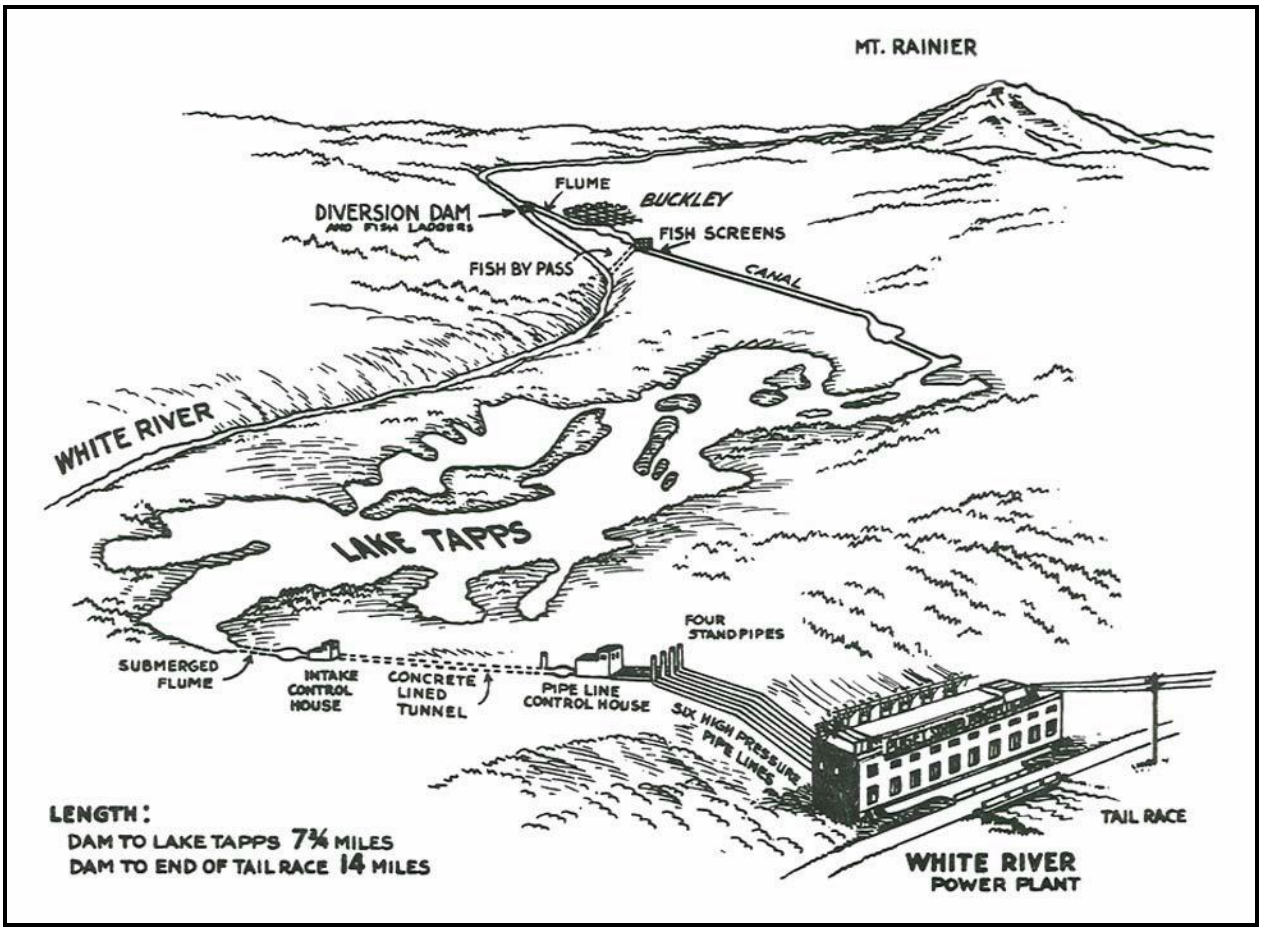


Figure 8-2 Historic Hydroelectric Facilities[2]

The water in Lake Tapps was utilized for hydroelectric power generation by Puget Sound Energy (PSE) for nearly a century. PSE voluntarily ceased operations in 2004, due to revisions to their operating license which included stronger environmental regulations established by the Federal Energy Regulatory Commission (FERC), making operation of the facility more expensive than alternative power sources.[3] In 2005 Cascade Water Alliance[4] (CWA) and Pierce County entered into a Memorandum of Understanding for the long term management and operation of Lake Tapps as a public water supply and public recreational amenity. CWA subsequently purchased the White River Power Generation Facility from PSE in 2009 assuming the operation and maintenance responsibilities for Lake Tapps.

In 2010, the Department of Ecology granted CWA water rights which allow CWA to divert water from the White River to be stored and withdrawn from Lake Tapps for municipal water supply purposes. The project is planned to take 50 years to construct, and once operations commence CWA will take an average of 48 million gallons of water from Lake Tapps each day for public use. As part of the project, CWA has entered into an agreement with the Muckleshoot and Puyallup Tribes to preserve and restore fish habitat in the White River.

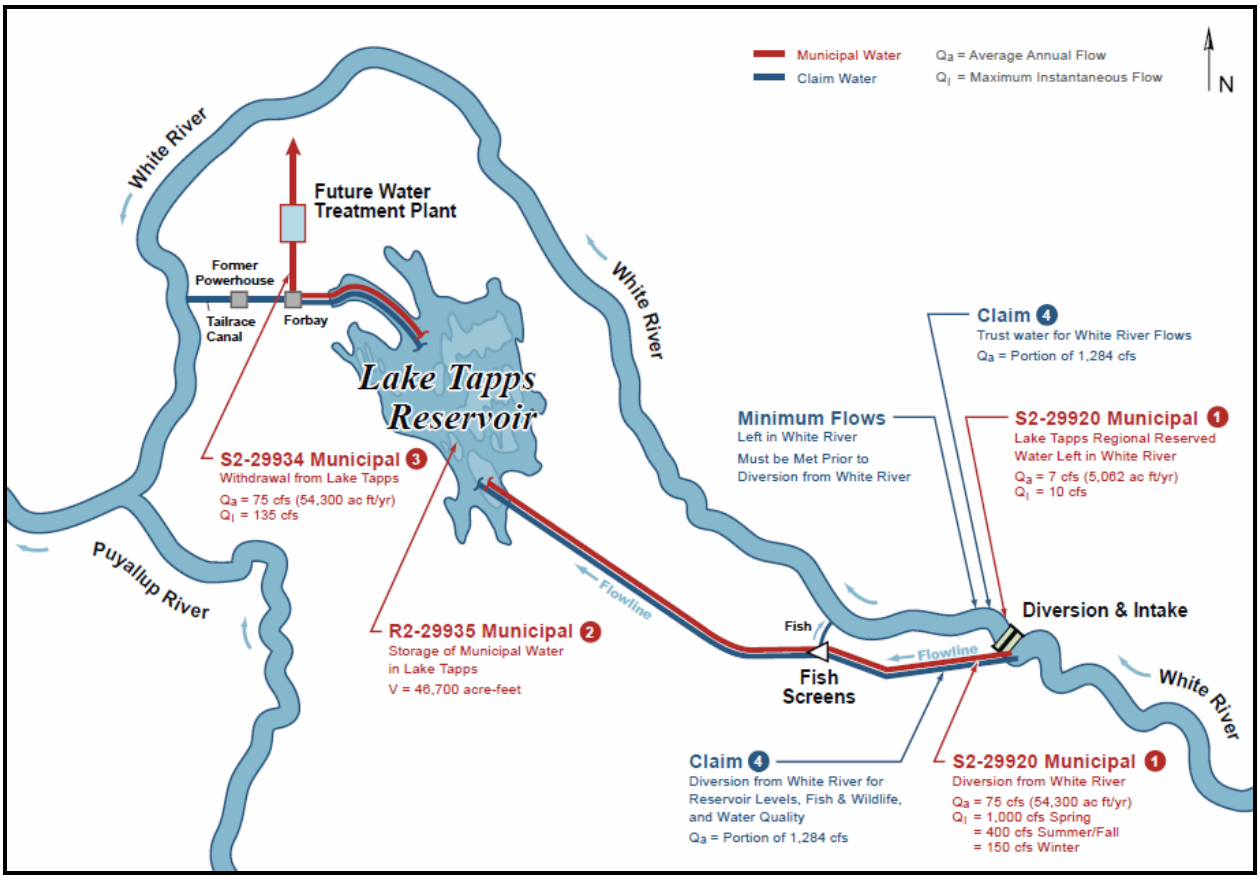


Figure 8-3: Plan for CWA Water Supply Project[5]

1.5 FENNEL CREEK

Fennel Creek begins at a spring near the intersection of SR-410 and 234th Ave. E. and collects surface and spring runoff all along the corridor before flowing into the Puyallup River. The only portion of Fennel Creek within the jurisdiction of the SMA and regulated by the City's SMP is located below Victor Falls.

2. SHORELINE ENVIRONMENTAL DESIGNATIONS (SED)

Goal SL-1: Provide a comprehensive shoreline environmental designation system to systematically guide the use, development, preservation, and restoration of the shorelines of the state within the City of Bonney Lake.

Policy SL 1.1 Areas designated Aquatic ("A") shall be all areas waterward of the ordinary high-water mark.

Within these areas, only water depended uses should be allowed in order to protect, restore, and manage the unique characteristics and resources of the aquatic environment. The following management policies should be implemented though the development regulations adopted by the City for these areas:

- Allow new over-water structures only for water-dependent uses, public access, and/or ecological restoration.

- Allow for maintenance of existing utilities within the aquatic SED that balances the need for maintenance and repair with effective environmental impact minimization and mitigation.

- The size of new over-water structures should be limited to the minimum necessary to support the structure's intended use.

- In order to reduce the net impacts of shoreline development and increase effective use of water resources, shared-use of over-water facilities should be encouraged.

- All developments and uses on navigable waters should be located and designed to minimize interference with surface navigation and to consider impacts to public views.

- Uses that adversely impact the ecological functions should not be allowed except where necessary and then only when impacts are mitigated to assure no net loss of ecological functions.

- Shoreline uses and modifications should be designed and managed to prevent degradation of water quality and alteration of natural hydrographic conditions. Wherever feasible, development incentives should be made available to upland property owners that provide on-site water quality improvement features.

- Shoreline areas should be reserved for shoreline preferred uses, and development occurring within the shoreline jurisdiction should consider upland and in-water uses, water quality, navigation, presence of aquatic vegetation, existing residential uses, critical habitats, aesthetics, public access and views.

Policy SL-1.2: Shorelines designated Natural ("N") should be areas that contain high quality habitat relatively free of human influence.

Within these areas, only low intensity uses and minimal development should be allowed in order to maintain the existing high quality habitat. This designation is appropriate for the undeveloped areas around Fennel Creek at Victor Falls. The City should focus on preserving these areas and prohibiting development that would degrade ecological functions. The following management policies should be implemented though the development regulations adopted by the City for these areas:

- Uses that would substantially degrade the ecological functions or be detrimental to the visual quality of the natural character should be prohibited.

- Access may be permitted for scientific, historical, cultural, educational, and low-intensity water-enjoyment recreational purposes.

- Physical alterations should only be considered when they serve to protect or enhance a significant, unique, or highly valued feature that might otherwise be degraded, or for the purpose of public access where no significant ecological impacts would occur.

Policy SL-1.3: Shorelines designated Park ("P") should be areas that are planned for recreational uses and school properties.

The purpose of the "Park" designation is to provide areas suitable for water-oriented recreational uses while protecting and, where feasible, restoring ecological functions. This designation is appropriate for areas such as Inlet Island Park, Church Lake Park, Allan Yorke Park, and Emerald Hills Elementary. The following management policies should be implemented though the development regulations adopted by the City for these areas:

- Water-dependent recreational uses should be given highest priority. Water-oriented recreational uses should be given priority over non-water-oriented uses.
- Water-dependent and water-enjoyment recreation facilities (e.g. boating facilities, angling, wildlife viewing trails, and swimming beaches) are preferred uses.
- During development and redevelopment, all reasonable efforts should be taken to restore ecological functions.
- Standards should be established for shoreline stabilization measures, vegetation conservation, water quality, and shoreline modifications within this designation to ensure that new development does not further degrade the shoreline and is consistent with the overall goal of improving ecological functions and habitat.

Policy SL-1.4: Shorelines designated as Shoreline Residential ("SR") should be areas that are identified to accommodate existing and planned single family residential uses.

The Shoreline Residential designation is suitable to areas that are already developed with residential units, or that are already planned to accommodate future residential development and appurtenant structures. The objective of assigning this designation to a particular area is recognizing and consolidating residential development in areas that are already characterized by residential development, while protecting shoreline areas that still remain in a highly natural state. This designation is appropriate for most of the residential areas around Lake Tapps, as approximately 90% of the shoreline is armored and already developed.[6] The following management policies should be implemented through the development regulations adopted by the City for these areas:

- Existing ecological functions should be protected and, where feasible, previously degraded ecological functions should be restored.
- During development and redevelopment, all reasonable efforts should be taken to restore ecological functions and establish effective measures to improve water quality, such as planting native vegetation adjacent to the OHWM and providing buffers between the OHWM and upland grass lawns.
- Standards should be established for buffers, shoreline stabilization measures, vegetation conservation, critical area protection, water quality, and shoreline modifications to ensure that development does not further degrade the shoreline and is consistent with the overall goal of improving ecological functions and habitat.

- Public access should be enhanced whenever feasible, provided that significant ecological impacts can be mitigated.

- Residential development should be permitted where there is adequate access to public utility services.

- Land divisions of five or more parcels should provide public access.

- New residential development should be located and designed so that future shoreline stabilization is not needed.

Policy SL-1.5: Shorelines designated as Shoreline Multifamily ("SM") should be areas that are identified to accommodate high density residential uses.

The Shoreline Multifamily designation is for areas that of January 1, 2013 were designated High-Density Residential by the Future Land Use Map adopted as part of the Comprehensive Plan. These areas are planned for multifamily residential development of up to 20 dwelling units per acre. This designation should not be expanded within the shoreline jurisdiction as high density multifamily is not a preferred use under the SMA.

The objective of assigning an area to this designation is in recognition that the first level of environment designation assignments must be based on planned land use identified in the Comprehensive Plan in order to ensure consistency between the Comprehensive Plan and SMP as required by WAC 173-26-211(3). Additionally, this designation recognizes that not only must the overall uses allowed be consistent between the Comprehensive Plan and the SMP, but also the restrictive provisions of each should not combine in such a way that the use is effectively precluded on any parcel. The following management policies should guide development within these areas:

- Existing ecological functions should be protected and, where feasible, previously degraded ecological functions should be restored.

- During development and redevelopment, all reasonable efforts should be taken to restore ecological functions.

- Standards should be established for buffers, shoreline stabilization measures, vegetation conservation, critical area protection, water quality, and shoreline modifications to ensure that development does not further degrade the shoreline and is consistent with the overall goal of improving ecological functions and habitat.

- Residential development should be permitted where there is adequate access to public utility services.

- New multi-family development should provide public access.

- New residential development should be located and designed so that future shoreline stabilization is not needed.

3. GENERAL SHORELINE POLICIES

3.1 PUBLIC ACCESS

Goal SL-2: Preserve and enhance the public's ability to physically and visually enjoy the shoreline environment.

Public access includes the ability of the general public to reach, touch, and enjoy the water's edge; to travel on the waters of the state; and to view the water and the shoreline. Public access is a key component of the SMA and should be encouraged both in private and public developments.

Policy SL-2.1: Views of Lake Tapps from public parks should be preserved and enhanced.

Enhancement of views should not be construed to mean excessive removal of vegetation.

Policy SL-2.2: Public access should be designed to minimize impacts on adjacent uses, provide for public safety, and avoid impacts to critical areas.

Public access should be designed to minimize the impacts on adjoining properties, through measures such as physical separation or by placing an intervening landscape buffer. In addition, public access trails should be located and designed to assure that users are visible and that pathways are well illuminated, if open in hours of darkness.

Public access through environmentally critical areas should be designed to avoid or minimize impacts to wetlands or streams and corresponding protective buffers.

Policy SL-2.3: Cooperate with Pierce County and other local government agencies to complete the Fennel Creek Trail.

While the entire length of the Fennel Creek Trail is not within the shoreline area, the trail will connect Allan Yorke Park to the Foothills Trail and the future Pierce County Flume Trail. This regional trail network will connect multiple shoreline areas including Lake Tapps, Fennel Creek, and the Puyallup and White Rivers.

Policy SL-2.4: Enhance West Tapps Highway and Bonney Lake Boulevard to improve access for recreational activities and local residence.

Traffic at the intersection of West Tapps Highway and Bonney Lake Boulevard has increased over time and is extremely heavy in the summer due to the boat launch facilities at Allen Yorke Park. Improvements should be sought which recognize the recreational and commuting needs of diverse user groups: pedestrians, bicyclists, boaters, and local residents.

Policy SL-2.5: Design transportation improvement projects to increase public access and scenic amenities.

Shoreline roadways, such as West Tapps Highway and Church Lake Road, should be designed to maximize views of the water, provide pedestrian amenities, (e.g. widened sidewalks, benches, view stations, etc.), and include the development of a public sign system that identifies historic or scenic features.

3.2 CRITICAL AREAS

Goal SL-3: Preserve, protect, and restore critical areas within the shoreline environment.

Policy SL-3.1: Protect and preserve shoreline-associated wetlands.

Within the immediate vicinity of Fennel Creek, there are wetlands which perform many ecological functions including providing habitat for fish and wildlife, flood control, groundwater recharge, water storage, and sedimentation filtration.

Policy SL-3.2: Manage development to avoid risk of damage to property and loss of life from geological hazards.

Lake Tapps is situated on an upland glacial drift plain bounded by volcanic mudflows and continental deposited ice-sheets.[7] As a result a small portion of Lake Tapps' shoreline has been classified as a Seismic Hazard Area.[8] Seismic hazard areas are subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, lateral spreading, or surface faulting.

Fennel Creek is located in a forested ravine that extends from Victor Falls to a point just upstream of McCutcheon Road which is considered a Class 1 Landslide Hazard Area.[9] Class 1 landslide hazard areas are areas prone to landslides based on geology, soils, topography, and hydrology and are intended to remain undeveloped.

Policy SL-3.3: Protect and preserve freshwater habitat conservation areas.

Fish and wildlife habitat conservation areas provide food, protective cover, nesting, breeding, or movement for threatened, endangered, sensitive, monitor, or priority species of plants, fish, or wildlife. Within the City, both Lake Tapps and Fennel Creek fall within this classification.

Lake Tapps has been designed a Priority Habitat Area for both Waterfowl and Small Waterfowl Concentrations, providing resting and foraging habitat for hundreds of waterfowl with the greatest concentrations present during the fall migration period.[10] Also, as part of the new update to the City's Critical Areas Ordinances, the area within 200 feet of Fennel Creek has been identified as a riparian zone and designated as a Fish and Wildlife Habitat Conservation area, consistent with WDFW's draft *Riparian Ecosystem, Volume 2: Management Recommendations (2018)*. The reach of Fennel Creek around Victor Falls is within the highest class range (Class AA) established for Washington state surface waters and is classified as an Urban Natural Open Space consisting of a high value riparian corridor with multiple vegetation layers and a predominance of native plant species providing high quality habitat for wildlife species including Coho Salmon, cutthroat trout, and winter steelhead.[11]

Policy SL-3.4: Prevent development within regulated flood hazard areas to avoid risk and damage to property and loss of life.

Frequently flooded areas help to store and convey storm and flood water, recharge ground water, and provide important riparian habitat for fish and wildlife. Flooding also can cause substantial damage to public and private developments located within these areas resulting in significant costs to the public as well as to private individuals. As a part of FEMA's adoption of updated FIRM mapping in 2017, the areas of shoreline immediately upland of Lake Tapps are no longer shown as regulated flood hazard areas, while the areas of mapped flood hazard area along Fennel Creek were reduced and development within those areas is effectively prohibited.

3.3 WATER QUALITY AND WATER QUANTITY

Goal SL-4: Manage activities in the larger watershed basin that may adversely impact surface and ground water quality or quantity.

Surface water management of the larger watershed basin is critical since activities throughout the watershed contribute to water quality conditions in both Lake Tapps and Fennel Creek.

As part of the City's adopted *Watershed Protection Plan* (WPP) and through implementation of the NPDES Phase II Municipal Stormwater Permit requirements, the City is pursuing activities and programs within the larger watershed to address flood protection, water quality improvement, and habitat protection and restoration. As a part of that effort, the regulatory element of the City's SMP is one critical component of implementing the WPP due to the fact that development within the shoreline jurisdiction upland of Lake Tapps has the potential to impact water quality conditions in both Lake Tapps and Fennel Creek either positively or negatively. Making sure that the regulations that require new development and re-development within the shoreline jurisdiction to properly treat and limit stormwater discharges contributes to ensuring consistency with the water quality and quantity monitoring metrics that are found in the WPP.

Policy SL-4.1: Manage storm water quantity to ensure protection of natural hydrology patterns and avoid or minimize impacts to streams.

Native forest communities with healthy soil structure and organic content control the amount and timing of run-off water that reaches streams by intercepting, storing, and slowly conveying precipitation. As these systems are impacted and forests are replaced by impervious surfaces (e.g. roads, parking areas, and rooftops), larger quantities of water quickly leave the watershed and drastically reduce the amount of water that seeps into the ground to replenish the groundwater.

If there is not enough water stored in the ground being slowly released back into streams during the dry months of summer, water temperatures become too high to support fish and fish can become isolated in small pools. Too much water in the winter causes unnaturally swift currents that can erode stream banks and scour stream channels, damaging fragile fish habitat.

Policy SL-4.2 Prevent impacts to water quality associated with septic systems.

Most of the residential buildings directly adjacent to Lake Tapps within the City are connected to the sanitary sewer system. However, there are pockets of residential development within the vicinity of Lake Tapps that still utilize septic systems. The City adopted a *Septic System Abatement Master Plan* in May of 2012 in order to move these pockets onto the City's sewer system.

Policy SL-4.3: Support public education efforts to reduce the use of pesticides and fertilizers in order to protect and improve water quality.

The shoreline adjacent to Lake Tapps is dominated by lawns maintained with chemical fertilizers, herbicides, and pesticides which can have a negative impact on water quality. Fertilizers and herbicides can affect aquatic vegetation communities by stimulating overgrowth of some plant species and suppressing growth of other species. Encouraging natural yard care practices can help to reduce chemical contaminants entering Lake Tapps, which ultimately discharges back to the White River. The City has also implemented development incentives for upland property owners to use during development or re-development that offer benefits for choosing to add water quality features as a part of their development projects.

3.4 SHORELINE VEGETATION PROTECTION AND INCENTIVES

Goal SL-5: Preserve, protect, and restore native shoreline vegetation.

Vegetation within the shoreline environment is essential for fish and wildlife habitat. Vegetation helps to support soil stability, reduce erosion, moderate temperature, produce oxygen, and absorb significant amounts of water, thereby reducing runoff and flooding.

Policy SL-5.1: New developments or substantial redevelopments along Lake Tapps should preserve and restore shoreline vegetation.

Lake Tapps Reservoir has a scarcity of emergent aquatic and shoreline vegetation due to the amount of shoreline armoring and the annual water level drawdowns.[12] Therefore, the City's efforts must primarily focus on restoration.

Policy SL-5.2: Preserve the existing native shoreline vegetation around Fennel Creek.

Fennel Creek is a high value riparian corridor having multiple vegetation layers with a predominance of native plant species providing high quality habitat for wildlife species.[13] Preserving the existing natural character and vegetative features of the shoreline areas adjacent to Fennel Creek is an important component of protecting the City's remaining undisturbed natural habitat areas and water quality for Fennel Creek generally.

Policy SL-5.3: Minimize tree clearing and thinning activities along the shoreline and require mitigation for trees that are removed.

Unnecessary tree removal or topping for the purposes of creating views should be prohibited. Limited thinning of trees to enhance views or for maintenance for health and vigor of the tree may be appropriate

in certain circumstances, provided that this activity does not adversely impact tree health and/or ecological functions.

Policy SL-5.4: Work with Cascade Water Alliance to provide outreach and education materials to lakeside property owners about the importance and role of shoreline vegetation.

The City should work with CWA to offer shoreline property owners workshops or other materials addressing invasive species, erosion control, and natural yard care practices.

Policy SL-5.5: Work with Cascade Water Alliance regarding the management of noxious aquatic vegetation to ensure the use of a mixture of control methods with emphasis the most environmentally sensitive methods.

Noxious weeds are non-native invasive plants that when established are highly destructive, competitive, and difficult to control. These plants have been introduced intentionally or unintentionally by human actions and typically have no natural enemies. As a result, these plants can often multiply rapidly.

The most common invasive species impacting Lake Tapps is Eurasian Water Milfoil which is an aquatic plant that lowers dissolved oxygen, increases pH, displaces native aquatic plants, and increases water temperature. In order to address the milfoil present in Lake Tapps, CWA developed the *Lake Tapps Integrated Aquatic Vegetation Management Plan* (2010) which calls for a combination of hand-pulling, spot herbicides applications, twice annual monitoring, mapping, and the winter drawdown as part of a long-term strategy for the eradication of milfoil.[14]

3.5 ARCHAEOLOGICAL, HISTORIC, AND CULTURAL RESOURCES

Goal SL-6: Identify, protect, preserve, and restore important archeological, historical, and cultural sites located in the shoreline area.

The plateau on which Bonney Lake sits has a long history, dating back to trails used by Native Americans traveling between Puget Sound and the Yakima territory east of Mt. Rainer. The plateau also contains many historic resources related to the Naches Trail which brought settlers over the Cascades to western Washington.

Policy SL-6.1: Prevent destruction or damage to historic, cultural, scientific or educational resources located along the shoreline.

Steps should be taken to identify and preserve archaeological, historic, and cultural resources that exist along the City's shorelines. The City should work with property owners and federal, state, and tribal governments to preserve historical, cultural, and archaeological resources in advance of planned development. Proposed development should be designed and carried out in a way that is compatible with the continued protection of the historic, cultural, and archaeological resources.

4. SHORELINE USES AND DEVELOPMENTS

4.1 GENERAL

Goal SL-7: Maintain and improve ecological functions by locating, designing, and managing shoreline uses to prevent significant adverse impacts and, where possible, restore degraded water quality, fish and wildlife habits, and ecological functions.

Policy SL-7.1: The City should periodically review conditions along the shoreline and conduct appropriate analysis to determine whether or not other actions are necessary to ensure no net loss of ecological functions, protect human health and safety, upgrade the visual qualities, and enhance residential and recreational uses on the City's shorelines in relation to the established baseline conditions.

Specific issues to address in such evaluations include, but are not limited to: water quality, conservation of aquatic and shoreline vegetation, control of noxious weeds, the visual character of the shoreline as a result of new residential development, and shoreline stabilization measures.

Policy SL-7.2: The City should establish development regulations that avoid, minimize, and mitigate impacts to the ecological functions association with allowed shoreline uses.

In deciding whether to allow uses and development in shoreline areas, the potential adverse impacts should be considered and avoided where possible. This can be done by carefully selecting allowed uses, providing policies and standards to prevent or minimize adverse impacts, and carefully reviewing development proposals to prevent or minimize adverse impacts.

Policy SL-7.3: Provide adequate vegetative conservation areas to protect natural features, ensure no net loss, and improve ecological functions.

Natural shoreline vegetative buffers perform a number of significant functions including reducing water temperature, filtering sediments and other contaminants, reducing nutrient loads to lakes, stabilizing shoreline soils, providing wildlife habitat, maintaining and protecting fish habitats, and forming aquatic food webs.

Policy SL-7.4: Limit parking facilities within the shoreline area.

Facilities providing public or private parking should only be permitted within the shoreline area to support water-oriented uses. Where feasible, parking for shoreline uses should be provided in areas outside of the shoreline jurisdiction. Where allowed within the shoreline jurisdiction, parking uses should be located as far landward as is feasible to ensure that contaminated runoff from pollution generating surfaces is minimized, and that pollutant-laden runoff is adequately treated and limited to the greatest extent possible.

Policy SL-7.5: Minimize the aesthetic impacts of parking facilities.

Parking areas should be placed, screened, and landscaped to mitigate the aesthetic impacts.

Policy SL-7.6: Limit outdoor lighting levels in the shoreline to the minimum necessary to support water-oriented uses.

Artificial lighting can be used for many different purposes along the waterfront (e.g. to aid in nighttime activities, security, or simply to make a property more attractive at night). However, the shoreline area is vulnerable to impacts of light and glare by interrupting the opportunity to enjoy the night sky, impacting views and privacy, and affecting the fish and wildlife habitat. To protect the scenic value, views, and fish and wildlife habitat, shoreline development should balance the ability to see at night with the need to preserve the scenic and natural qualities of the shoreline.

Policy SL-7.7: Signs should not block or otherwise interfere with public visual access to the water or shorelands.

Signs should be designed and placed so that they are compatible with the aesthetic qualities of the existing shoreline areas, and the adjacent land and water uses.

4.2 RESIDENTIAL

Goal SL-8: Protected private property rights while ensuring no net loss of existing ecological functions and, where feasible, restoring natural features along the shoreline.

At the time the SMA was passed, the Legislature recognized that many of the shorelines of the state and the adjacent uplands are in private ownership, and that while coordinated planning was necessary to protect the public interest associated with the shorelines it was just as important to protect private property rights.[15] In maintaining the SMP, the City must also carefully consider public and private property rights in balance with the long term public costs and benefits. The City must ensure that regulatory and administrative actions do not unconstitutionally infringe upon private property rights, while also ensuring no net loss of ecological functions.

Residential development around Lake Tapps began in the 1950's when the area was sold to the Lake Tapps Development Company. Often over the intervening years between then and now, minor developments were undertaken legally within the shoreline jurisdiction that did not require permits, reviews, or approvals from the City. The aggregate total of both permitted and unpermitted development that was in place during the City's SMP update that concluded in 2014 contributed to the baseline conditions by which 'no net loss' of ecological functions is judged. Today, approximately 201 acres or 96% of Lake Tapps' shoreline is privately owned and zoned for residential development, of which 191 acres is already developed with residential homes.

There is no existing or planned residential development within the shoreline area of Fennel Creek.

Policy SL-8.1: Continue to permit residential development and re-development in a manner that will result in no net loss of ecological function.

Single-family residences are identified as a preferred use when developed in a manner that controls pollution and prevents damage to the natural environment, pursuant to WAC 173-26-241(3)(j). With that in mind, the following management policies should guide residential development and re-development within the shoreline area:

- New development should be required to preserve existing shoreline vegetation, control erosion, and protect water quality using best management practices.

- The City should provide development incentives, including reduced shoreline setbacks and flexible impervious surface allowances, to encourage the restoration and establishment of shoreline vegetation.

- Adequate provisions should be made for protection of groundwater supplies, erosion control, stormwater drainage systems, aquatic and wildlife habitat, ecosystem-wide processes, and open space.

4.3 RECREATION

Goal SL-9: Water-oriented recreational activities should be provided to the public along the Lake Tapps and Fennel Creek shorelines.

Lake Tapps has been used for recreation since its completion in the earlier part of the twentieth century. Continuing to provide recreational opportunities, including both passive activities (e.g. walking, viewing and fishing) and active uses (e.g. swimming, boating, and other outdoor recreation uses), is a critical component of this SMP.



Figure 8-4: Swimming at Lake Tapps circa 1948 – photographer unknown

Policy SL-9.1: Maintain Lake Tapps as a regionally important recreational area.

While Lake Tapps was originally constructed to act as a reservoir for hydro-electric power, the Lake is now a regionally significant boating destination with nearly 250,000 people visiting each year.

Policy SL-9.2: Work with all federal, state, local agencies, the tribes, and the community to collaboratively manage and preserve Lake Tapps.

With its multifaceted history and numerous opportunities for the future, Lake Tapps is one of the region's greatest resources. Caring for and managing the Lake takes collaboration between several agencies and jurisdictional authorities, including the Army Corps of Engineers, Department of Fish and Wildlife, Department of Ecology, the City of Bonney Lake, Pierce County, CWA, the Lake Tapps Community Council (LTCC), the Muckleshoot Indian Tribe and the Puyallup Tribe of Indians, just to name a few.

Policy SL-9.3: Increase public access and water-oriented recreational opportunities along the shores of Lake Tapps.

The City's efforts to increase public access and recreational opportunities should focus on providing water-enjoyment recreational opportunities along the shores of Lake Tapps by establishing a continuous pedestrian corridor along the water's edge, constructing missing sidewalks between the City's Downtown and Lake Tapps, and increasing non-boat trailer parking to facilitate access to the lake's shores for non-boat users.

Policy SL-9.4: Recreational activities should be designed to avoid, minimize, and mitigate negative impacts on adjoining properties.

The primary source of negative impacts associated with recreational activities on adjacent property owners is related to boating on Lake Tapps. Over the last several years Lake Tapps has experienced an increase in rafting parties and unfortunately the participants are often engaged in illegal (drug use), immoral (live sex acts, nudity, urinating into the lake, etc.), noisy (music, bullhorns, etc.), environmentally destructive behavior (throwing objects out of the boats into the lake), and alcohol overconsumption as close as 10 to 15 feet from adjacent homeowners' docks.[16] In order to address these issues, the City should continue to work with CWA, Pierce County, and the LTCC to implement the recommendations of the *Lake Tapps Boat Management Plan* (2005).

Policy SL-9.5: Ensure that existing and new recreational uses do not adversely impact shoreline ecological functions.

Recreational facilities have the potential to adversely impact shoreline ecological functions; therefore, recreational uses should be appropriately sited and planned to minimize any resultant impacts.

Policy SL-9.6: Recreational plans should promote the conservation of Fennel Creek's natural character and ecological functions while expanding passive forms of recreation to facilitate the public's opportunity to enjoy the Fennel Creek shoreline areas.

The City is fortunate to own the undeveloped area around Fennel Creek at Victor Falls. The Fennel Creek corridor provides excellent habitat for birds, amphibians, mammals, and reptiles. The stream reach below

Victor Falls is known to support salmonids. Preserving wildlife habitat, water quality, and forested areas is an important aspect of good park resource management. The existence of this natural area offers a variety of opportunities for aesthetic enjoyment and passive low-impact recreational activities.

4.4 BOATING FACILITIES

Goal SL-10: Manage boat launch facilities to avoid or minimize adverse impacts.

One public boat launch facility (Allan Yorke Park) and two semi-public boat launch facilities (Church Lake and Inlet Island Parks) are located on Lake Tapps within the City. New private boat launches are prohibited throughout the City in the Shoreline Residential SED areas.

Policy SL-10.1: Maintain the current capacity of Lake Tapps for boating.

Lake Tapps supports many enjoyable boating activities such as water skiing, sailing, motor boating, and fishing; however, over the years overcrowding of motorized watercraft has become an issue. The Lake typically exceeds the minimum Recreational Boating Standard of one boat per acre of surface water. The development of additional boat launch facilities should be avoided and capacity on the Lake be controlled by limiting the number of available boat trailer parking stalls at the existing public boat launch facilities.[17]

Policy SL-10.2: Promote use of best management practices to control the introduction of invasive animals and vegetation.

Boat launch facilities can be a significant source for the introduction of exotic (non-native) animals and plants. Significant steps have been taken at all levels of government and the private sector to reduce the impacts of boating on the aquatic environment. The State Parks and Recreation Commission's boater education program provides technical assistance, signage, and other materials to boat facilities regarding the transportation of exotic species. The City should work cooperatively with state agencies, private boat launch owners, and boat owners to continue to minimize the impacts of boating on the aquatic environment.

4.5 OVER WATER STRUCTURES

Goal SL-11: Minimize impacts to the natural environment and neighboring uses from new or renovated over water structures.

Over water structures include docks, piers, boat facilities, swimming/diving platforms, inflatable recreational equipment, public access boardwalks, fishing piers, and viewpoints.

Policy SL-11.1: Limit and reduce the number of over water structures.

Shared docks and piers are preferred over single-user structures in order to reduce the number and potential long-term impacts of over water structures. New subdivisions and short subdivisions of two (2) or more lots and all new multi-family developments of more than two (2) dwelling units should be required to provide shared moorage facilities.

Policy SL-11.2: Design and locate private over water structures so that they do not interfere with shoreline recreational uses, navigation, or the public's safe use of Lake Tapps.

Over water structures should be spaced and oriented in a manner that minimizes hazards and obstructions to public navigation rights and corollary rights such as, but not limited to, fishing, swimming, and pleasure boating.

Recreational boaters are also largely unaware of the dangers of open-air carbon monoxide (CO) poisoning, and the boat manufacturing industry has not introduced emission control devices for recreational boats similar to catalytic converters on automobiles that can reduce exhaust CO content by more than ninety percent (90%).[18] This is one more reason that these over water structures should be sufficiently spaced to prevent carbon monoxide CO poisoning or negative impacts on neighbors due to exhaust from idling boats.

Policy SL-11.3: Design and construct new or renovated over water structures and their accessory components, such as boatlifts and canopies, to minimize impacts on native fish and wildlife and the corresponding habitat.

Over water structures including those accessory to single-family residences should be sited, designed, and constructed to prevent adverse impacts on water quality and aquatic habitat.

Policy SL-11.4: Minimize aesthetic impacts of piers and their accessory components.

To minimize aesthetic impacts, these structures should be made of non-reflective materials and lighting should be limited to the amount necessary to find these structures at night and focused downward and away from the surface of Lake Tapps.

4.6 IN-STREAM STRUCTURES

Goal SL-12: Limit in-stream structures to those needed to protect, preserve and restore ecosystem-wide functions.

Policy SL-12.1: In-stream structures should be allowed only for the purposes of environmental restoration.

4.7 TRANSPORTATION FACILITIES

Goal SL-13: Provide for safe and efficient movement of vehicles within the shoreline area while recognizing the unique, fragile, and scenic character of the shoreline area.

Transportation facilities are those structures and developments that aid in the movement of people, goods, and services: roadways, causeways, bridges, bikeways, trails, sidewalks, and other related facilities.

Policy SL-13.1: Maintain a roadway network which will efficiently and safely provide for vehicular circulation within the shoreline area.

The existing vehicular circulation system within Bonney Lake's shoreline area includes West Tapps Highway, Bonney Lake Boulevard, and Church Lake Drive, as well as neighborhood access streets and driveways. The City should undertake improvements, as necessary, to address needed safety, capacity, or efficiency improvements.

*Policy SL-13.2: Design transportation improvement projects within the shoreline to avoid, minimize, and mitigate environmental impacts***.**

Transportation facilities should be designed to have the least possible negative effect on shoreline ecology. When planning transportation facilities, the environmental impacts of the facility need to be evaluated, avoided, minimized, and appropriately mitigated as appropriate.

Goal SL-14: Provide a robust pedestrian and bicycle circulation system which provides opportunities for the public to view and enjoy the amenities of the shoreline area.

Policy SL-14.1: Provide a public access system that enhances and maintains pedestrian and bicycle infrastructure within the shoreline area.

The City should work to improve roadways to meet the needs of a broad variety of users including walkers, joggers, and bicyclist, while maintaining the scenic quality of the roadway network.

Policy SL-14.2: Prioritize the completion of the projects in Bonney Lake 2035's *Community Mobility Element which improve and provide multi-modal connections within and to the shoreline area.*

Providing multi-modal public access routes to the shoreline areas of the City for people of all ages and mobility levels is an important priority of the SMA and SMP. The City's "Non-Motorized Transportation" portion of the Community Mobility Element of *Bonney Lake 2035* discusses ways that the City's existing conditions, which features a transportation network that is heavily 'auto-centric,' can be adapted to better serve the needs of community members that choose to access the shorelines of the City by non-vehicular methods. The City should consider the community's physical and visual access to the shoreline as it prioritizes the projects found in the Community Mobility Element.

4.8 UTILITIES

Goal SL-15: Manage public and private utilities within the shoreline area to ensure that necessary utility services are provided, while protecting and enhancing water quality and the habitat value of the shoreline.

Policy SL-15.1: Locate new utilities outside of the shoreline area unless the location is reasonably necessary for the efficient operation of the utility.

Development of utility facilities for electric power, gas, sewage, water, and communications can create substantial impacts on the landscape and the function of the natural ecosystem. To minimize potential impacts, these facilities should be located outside of the shoreline area and, in particular, outside of the aquatic environment where feasible.

If utility facilities must be located in the shoreline, careful planning and design is required to address impacts such as soil disturbance and intrusion on the visual setting. Potential adverse impacts should be minimized through the location, design, and construction techniques. Upon completion of utility installation or maintenance projects, the shoreline area should be restored to pre-project configuration, replanted with native species, and provided with maintenance care until the newly planted vegetation is established.

Alternative energy use such as solar and wind-based energy systems should be encouraged within the shoreline environment, provided that any potential adverse impacts are minimized.

Policy SL-15.2: Encourage consolidation of utilities within existing rights-of-way or utility corridors.

In order to minimize the impacts from shoreline modifications, utility facilities should utilize existing transportation rights-of-way and utility corridors whenever practicable rather than creating new corridors in the shoreline environment.

Policy SL-15.3: Locate utility facilities and corridors to protect scenic views and prevent impacts to the aesthetic qualities of the shoreline.

Utility lines and facilities should be located so that they do not obstruct or destroy scenic views. Whenever feasible, these facilities should be placed underground or designed for minimal visual impact to the aesthetic qualities of the shoreline area.

5. SHORELINE MODIFICATIONS

5.1 GENERAL

Goal SL-16: Manage shoreline modifications to avoid, minimize, or mitigate significant adverse impacts.

Policy SL-16.1: Assure that shoreline modifications individually and cumulatively do not result in a net loss of ecological functions.

Accounting for the existing hydrological, vegetative, and habitat conditions within the shoreline surround Lake Tapps, the overall shoreline ecological function is considered low.[19] The City will utilize this determination as a baseline to ensure that there is "no net loss" of ecological functions. In addition, the City will attempt to incentivize ecological improvements (like planting native vegetation) for upland developers and property owners in order to improve site conditions where feasible.

The City also recognizes that the shorelines of the state are among the most valuable of its natural resources and that there is great concern throughout the state relating to the restoration of the shoreline. Through the implementation of the City's adopted restoration plan, the City will work to improve the overall ecological functions of Lake Tapps.

5.2 SHORELINE STABILIZATION

Goal SL-17: Reduce the use of structural shoreline stabilization measures.

Shoreline stabilization includes actions taken to address erosion impacts to property, dwellings, or essential structures primarily caused by wave action.

Policy SL-17.1: Structural shoreline stabilization measures should only be used when a need has been demonstrated and more natural, non-structural methods have been determined to be infeasible.

Shoreline stabilization should be based on the following hierarchy of preference:

- Nonstructural methods which include building setbacks, erosion and groundwater management, planning, and regulatory measures to avoid the need for structural stabilization.
- Soft structural shoreline stabilization which includes a mix of gravels, cobbles, boulders, logs and native vegetation placed to provide stability in a non-linear, sloping arrangement.
- Hard structural shoreline stabilization which includes concrete, boulders, dimensional lumber or other materials to construct linear, vertical or near-vertical faces (e.g. bulkheads, rip-rap, groins, dikes and similar structures).

Policy SL-17.2: Shoreline modifications, individually and cumulatively, shall not result in a net loss of ecological functions.

Where allowed, shoreline stabilization structures should minimize impacts on shoreline hydrology, navigation, habitat, and public access. Shoreline protective structures should be designed for the minimum height and extent necessary to address the identified hazard to an existing structure. As noted above, vegetation and nonstructural solutions should be used rather than structural bank reinforcement unless these methods are determined to be infeasible, as documented by a geotechnical analysis.

Policy SL-17.3: Locate and design new development to eliminate the need for new shoreline stabilization measures.

New shoreline development should be located in a manner so that bulkheads and other structural stabilization measures are neither required nor likely to become necessary in the future.

Policy SL-17.4: Regulatory flexibility or incentives should be developed to encourage shoreline property owners to voluntarily remove bulkheads and plant shoreline vegetation.

In recent years, many techniques have been developed to provide alternative shoreline protection methods which may employ the use of gravel substrate material, terraces, large flat rocks, shallow pools, logs, and vegetation to prevent erosion and provide an attractive, usable shoreline area. The aim of these techniques is to reduce bank hardening, restore overhanging vegetation, and replace bulkheads with sand beaches and gentle slopes.

5.3 FILLING

Goal SL-18: Ensure that fills, when allowed, either preserve current ecological functions or restore ecological functions of the shoreline.

Policy SL-18.1: Limit fills to either ecological restoration or to facilitate water-dependent public access.

Fill allows for the creation of dry upland areas by the deposition of sand, silt, gravel or other materials. Fill has traditionally been used in the shoreline area to level or expand residential yards and, in many cases, has been associated with armoring of the shoreline. This generally has a negative ecological effect, and as a result the use of fill in this manner should be prohibited.

In limited circumstances, fill can also be used as a part of an ecological restoration project, such as beach nourishment or to facilitate water-dependent uses and public access. This type of activity should be designed and located so there will be no significant ecological impacts and no alteration of local surface water drainage patterns which would result in a hazard to adjacent life, property, and/or natural resource systems.

5.4 CLEARING AND GRADING

Goal SL-19: Minimize impacts to ecological functions as a result of clearing and grading activities.

Policy SL-19.1: Limit clearing and grading activities in the shoreline area.

Clearing and grading activities are typically associated with upland development. These activities have the potential to cause erosion, siltation, surface water runoff, habitat damage, and reduce floodwater storage capacity. Therefore, clearing and grading activities should be designed with the objective of maintaining natural species diversity and ensuring that any potential adverse impacts are evaluated, avoided, minimized, and/or mitigated. Impacts from these activities should be avoided through proper site planning, construction timing practices, and use of erosion and drainage control methods.

5.5 DREDGING

Goal SL-20: Minimize impacts to ecological functions and aquatic vegetation as a result of dredging activities

Policy SL-20.1: Discourage dredging operations, including disposal of dredge materials.

Dredging operations should be planned and conducted to minimize interference with navigation and adverse impacts to other shoreline uses, properties, and values. When allowed, dredging and dredge material disposal should be done in a manner which avoids or minimizes significant ecological impacts. Impacts that cannot be avoided should be mitigated in a manner that assures no net loss of shoreline ecological function.

5.6 SHORELINE RESTORATION AND ECOLOGICAL ENHANCEMENT

Goal SL-21: Implement the projects, programs, and plans to restore areas that have been degraded or diminished as a result of past activities.

Restoration planning is an important component of the SMA. Continued improvement of shoreline ecological functions requires a comprehensive watershed approach that combines upland and shoreline projects and programs. The City of Bonney Lake has adopted a restoration plan for the City's shorelines that provides the framework for the community's efforts to restore the degraded portions of the City's shorelines.

Policy SL-21.1: Include provisions for shoreline vegetation restoration, fish and wildlife habitat enhancement, and low impact development techniques in projects located within the shoreline.

Shoreline habitat and natural systems enhancement projects include those activities proposed and conducted specifically for the purpose of establishing, restoring, or enhancing habitat in shorelines. Such projects may include shoreline modification actions such as installation of native shoreline vegetation, removal of nonnative or invasive plants, shoreline stabilization, dredging, and filling, provided that the primary purpose of such actions is clearly restoration of the natural character and ecological functions of the shoreline.

Policy SL-21.2: Minimize impacts from publicly initiated aquatic vegetation management efforts.

CWA has an obligation to monitor and manage milfoil, which is a noxious, invasive weed that poses environmental challenges to the ecosystem of Lake Tapps.[20] Aquatic vegetation management efforts could have potential negative impacts relevant to Lake Tapps environment if not conducted responsibly, and therefore approved efforts should be designed to use an approved mix of various methods, with an emphasis on the most environmentally sensitive methods.

5.7 PREEXISTING DEVELOPMENT

Goal SL-22: Provide the opportunity for property owners to legally repair and maintain existing nonconforming development.

The City understands that development and redevelopment of the properties within the City's shoreline jurisdiction upland of Lake Tapps has been underway for many years. These properties have had houses, docks, driveways, bulkheads, accessory buildings, and other site development features built and re-built over the course of the last 70 years, and permit records and documentation of approvals for those projects are not always available to the City in conducting review, or to the owner of a property in preparing an application. The lack of a reliable, accurate 'paper trail' to verify whether or not development on a site was permitted at a point in time in the past or not can complicate proposals related to normal maintenance and repair of existing structures when it comes time to apply for the necessary permits and approvals.

Policy SL-22.1: Development that was included in the 'no net loss' baseline study and can be demonstrated to have existed at the time the City's comprehensive SMP update was adopted (October 16, 2014) is determined to be conforming for purposes of the City's SMP.

As long as the City can determine during a permit application review process that development features on a site were existing as of the date that the comprehensive SMP update became effective (October 16, 2014), the City will consider the development to be "conforming," based on the fact that the development was considered as a part of the baseline against which 'no net loss' of ecological functions is judged.

6. SHORELINES OF STATEWIDE SIGNIFICANCE

The SMA designates certain shoreline areas as shorelines of statewide significance, and those shorelines that are so designated include all natural and artificial lakes with a surface acreage of one thousand acres or more. Lake Tapps meets this definition and as such is classified as a shoreline of statewide significance, which means that Bonney Lake's SMP must regulate the shorelines adjacent to Lake Tapps in a way that is consistent with the requirements of the SMA.

The State's SMA and the City's SMP, which together regulate shorelines of statewide significance within the City limits, give preference to uses and developments that meet the principles outlined below, listed in order of preference:

1. Recognize and protect the statewide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefits.
4. Protect the resources and ecology of the shoreline.
5. Increase public access to publicly owned areas of the shoreline.
6. Increase recreational opportunities for the public on the shorelines.
7. Provide for any other element as defined in the Shoreline Management Act deemed appropriate or necessary.

In the implementation of the City's SMP, the public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible, consistent with the overall best interest of the state and the people generally. To this end, uses shall be preferred that are consistent with control of pollution and prevention of damage to the natural environment, or that are unique to or dependent on use of the state's shorelines. Alteration of the natural condition of the shorelines of the state, in those limited instances when authorized, shall be given priority for single family residences, parks, boating facilities, and other improvements that will provide an opportunity for substantial numbers of the people to enjoy the shorelines of the state.

Permitted uses in the shorelines of the state shall be designed and conducted in a manner to minimize, insofar as practical, any resultant damage to the ecology and environment of the shoreline areas and interference with the public's use of the water.

Endnotes:

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[1] Kramer, A. (1986). *Among the Livewires, 100 Years of Puget Power*. Edmonds, WA: .Creative Communications.

[2] ibid.

[3] EnviroIssues. (Spring 2011). *Collaborative Community Plan for Managing Lake Tapps*. Prepared for Cascade Water Alliance, Bellevue, WA.

[4] The Cascade Water Alliance is a coalition including the Cities of Bellevue, Issaquah, Kirkland, Redmond, and Tukwila, the Sammamish Plateau Water and Sewer District, and Skyway Water and Sewer District.

[5] HDR Engineering, Inc. (January 29, 2010). *DRAFT Environmental Impact Statement: Lake Tapps Reservoir Water Rights and Supply* Project, Figure S-1. Prepared for Cascade Water Alliance, Bellevue, WA.

[6] The Watershed Company and Makers. (June 2010). *Final Shoreline Analysis Report for City of Bonney Lake's Shorelines: Lake Tapps Lake Tapps Reservoir and Fennel Creek*, p. 10. Prepared for the City of Bonney Lake Community Development Department, Bonney Lake, WA.

[7] ESA Adolfson, Coastal Geologic Service Inc., and Parametrix. (June 2009) *Final Pierce County Shoreline Inventory and Characterization Report*, p. 4-31. Prepared for Pierce County Planning and Land Services, Tacoma, WA

[8] The Watershed Company and Makers. (June 2010). *Final Shoreline Analysis Report for City of Bonney Lake's Shorelines: Lake Tapps and Fennel Creek*, Figure 8. Prepared for the City of Bonney Lake Community Development Department, Bonney Lake, WA.

[9] ibid.

[10] HDR Engineering, Inc. (January 29, 2010). *DRAFT Environmental Impact Statement: Lake Tapps Reservoir Water Rights and Supply Project*, p. 8-10. Prepared for Cascade Water Alliance, Bellevue, WA.

[11] Foster Wheeler Environmental Corporation. (1999). *Environmental Analysis of the Fennel Creek Corridor,* Pg. 2-75. Prepared for the City of Bonney Lake Community, Bonney Lake, WA.

[12] Washington State Department of Fish and Wildlife. (1997). *1997 Lake Tapps Survey: The Warmwater Fish Community of a Lake Tapps Reservoir Managed for Hydropower*, p. 1. Olympia, WA

[13] Foster Wheeler Environmental Corporation. (1999). *Environmental Analysis of the Fennel Creek Corridor*, Pg. 2-75. Prepared for the City of Bonney Lake Community, Bonney Lake, WA. .

[14] Tetra Tech. (2010). *Lake Tapps Lake Tapps Reservoir Integrated Aquatic Vegetation Management Plan*, p. iii. Prepared for Cascade Water Alliance, Bellevue, WA.

[15] RCW 90.58.010

[16] Pierce County Planning and Land Services. (2005). *Lake Tapps Lake Tapps Reservoir Boat Management Plan*, p. 24. Tacoma, WA.

[17] Pierce County Planning and Land Services. (2005). *Lake Tapps Lake Tapps Reservoir Boat Management Plan*. Tacoma, WA. and EnviroIssues. (Spring 2011) *Collaborative Community Plan for Managing Lake Tapps*. Prepared for Cascade Water Alliance, Bellevue, WA.

[18] Pierce County Planning and Land Services. (2005). *Lake Tapps Lake Tapps Reservoir Boat Management Plan*, pgs. 13-14. Tacoma, WA.

[19] The Watershed Company and Makers. (June 2010). *Final Shoreline Analysis Report for City of Bonney Lake's Shorelines: Lake Tapps Lake Tapps Reservoir and Fennel Creek*, Table 3 and p. 22. Prepared for the City of Bonney Lake Community Development Department, Bonney Lake, WA.

[20] EnviroIssues. (Spring 2011) *Collaborative Community Plan for Managing Lake Tapps*, p. 22. Prepared for Cascade Water Alliance, Bellevue, WA.

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Appendix A: Housing Equity Report

September 2024

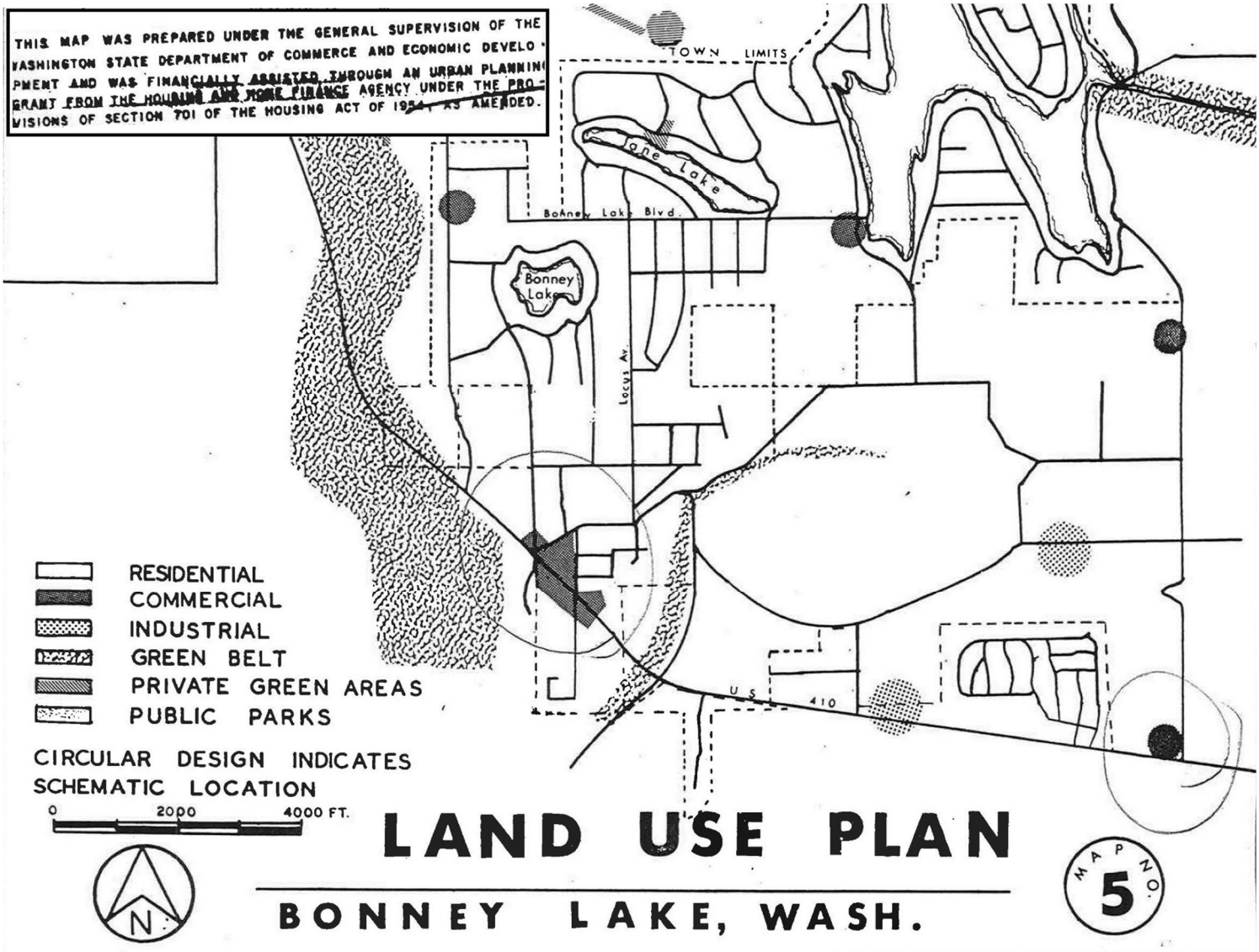
BONNEY Lake

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HOUSING EQUITY REPORT

An Analysis of Disparate Impacts, Exclusion, and Displacement in Bonney Lake

September 2024



Envision BONNEY LAKE

Celebrating 100 Years

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1. EXECUTIVE SUMMARY

A recent update to Washington's Growth Management Act (GMA, Revised Code of Washington (RCW) 36.70A.070) requires local jurisdictions to identify policies and regulations that could or may have resulted in racially disparate impacts, displacement, and exclusion in housing and to implement policies to address and undo these effects. Additionally, jurisdictions must identify areas that may be at a higher risk of displacement from market forces that occur because of changes to zoning, development regulations, and capital investments and establish anti-displacement policies.

The City of Bonney Lake is completing this Housing Equity Report as part of its periodic update to its Comprehensive Plan, due at the end of 2024. A Comprehensive Plan is a long-term vision and policy document that helps the City prepare for and manage project population and employment growth, as well as coordinate land use, transportation, parks, sewer and water systems, natural resources, and major public investments. It describes the City's future in broad terms and guides specific implementation, such as zoning, development standards, and infrastructure design.

This report analyzes data, evaluates policies, and recommended new or amended policies and regulations to achieve more equitable housing outcomes.

1.1 KEY FINDINGS

This Housing Equity Report broadly evaluates three major themes of racial inequity in housing – racially disparate impacts, exclusion, and displacement risk. Key findings include:

Intentional Discrimination in Housing

- Between the 1920s and the 1950s, the use of racially restrictive covenants was widespread and effectively segregated neighborhoods. No evidence of these covenants has been found in Bonney Lake as of this report.
- Between the 1930s and the 1960s, the practice of redlining denied people access to housing loans due to where they lived, even if they were personally qualified. No evidence of redlining has been found in Bonney Lake as of this report.

Racially Disparate Impacts in Housing

- Bonney Lake has significantly higher rates of homeownership than Pierce County amongst all but one racial and ethnic groups.
- American Indian, Other, and Hispanic owner-occupied housing units face a higher rate of housing cost burden. In renter-occupied units, White and Other

households have a higher rate of cost burden. Defined as total housing costs being greater than 30% of a household's income, cost burden can result in households being excluded from an area due to housing costs.

- As of 2021, Bonney Lake does not have a shortage of homes affordable to low income (households earning 30-50% of Area Median Income, or AMI) and very low income households (households earning less than 50% of AMI). The number of housing units affordable in each income category has increased since 2011. In communities where there are fewer affordable homes for households in an income band, higher income households may "down rent" into more affordable housing units, which prevents those units from being available for households in the lower income bands.
- American Indian households face a significant gap ($240,500) between the home price the household can afford and the cost of a median-priced home in Bonney Lake. Multi-racial households face a smaller gap of $77,000.
- The Hispanic median household income is higher than the citywide median; however, the homeownership rate lags 18% behind the citywide rate.

Displacement Risk

- The low rates of renter households and higher incomes relative to Pierce County indicates that there are no areas of higher displacement risk in Bonney Lake. Based on income and cost burden, however, American Indian and Alaska Native residents are at the highest risk of displacement.
- Foreclosures and evictions in Bonney Lake are lower than the national and county average. Overall housing quality is high, though there are a small number of units which have inadequate plumbing and heating sources.
- Existing lower densities, underutilized and vacant land suggest that Bonney Lake can continue to absorb new development without redevelopment of older housing that could cause displacement.

Exhibit 1: Summary of Observed Disparities

	White	Black	American Indian or Alaska Native	Asian	Native Hawaiian or Pacific Islander	Multi-Racial	Other	Hispanic[1]
Racially Disparate Impacts	○	○	○	○	Limited Data	○	●	◖ (gap is closing)
Exclusionary Housing	○	○	○	●	○	◖	◖	●
Displacement Risk	○							

Yes = ● Partial = ◖ No = ○

[1] Throughout this document and exhibits are references to the "Hispanic" population. This refers to "a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race…." *Census Glossary "Hispanic or Latino Origin"*. This data is shown adjacent to race data in exhibits, where available.

At a minimum, the Census uses five race categories (White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and two ethnicity categories (Hispanic or Latino and Not Hispanic or Latino) when asking questions about race and ethnicity, consistent with the Office of Management and Budget (OMB) "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity" (October 30, 1997). For full definitions, visit: https://www.census.gov/glossary

The use of the term "Hispanic" in any exhibit should be interpreted to mean "Hispanic, Any Race" unless otherwise noted.

1.2 COMPONENTS OF THE REPORT

This report includes the following sections:

- **Regulatory** Requirements describes the statutory framework for the analysis and provides definitions of key concepts terms in the legislation and this document.
- The **Impact** Assessment uses publicly available data to look at current housing patterns and assess whether there are racially disparate impacts, displacement, and/or exclusion in Bonney Lake's housing patterns. This assessment is based on the Washington State Department of Commerce's *Guidance to Address Racially Disparate Impacts* ("Commerce Guidance", April 2023)[2].
- The **Existing Policy** Evaluation evaluates the City's existing policies to determine whether they support GMA housing goals and whether they may contribute to racially disparate impacts, displacement, and exclusion in housing.
- **Recommended** Strategies describes policies and development regulations that should be considered in the City's Comprehensive Plan to address racially disparate impacts, displacement, and exclusion in housing.

[2] Available online at: https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-housing/updating-gma-housing-elements/

2. REGULATORY REQUIREMENTS

2.1 BRIEF HISTORY OF PLANNING IN BONNEY LAKE

In the 1920s, racially restrictive covenants became a widespread tool of discrimination before being ruled unenforceable by the U.S. Supreme Court in 1948[3]. Restrictive covenants were used by developers to increase the desirability of new neighborhoods to prospective white purchasers. This resulted in segregated residential neighborhoods and restricted people of color from homeownership. Staff reviewed major subdivisions and did not find evidence of racially restrictive covenants being used in Bonney Lake.

In 1933, Congress passed the Home Owners' Loan Act and created the Home Owners Loan Corporation (HOLC), which generated residential maps that rated investment risk in larger metropolitan areas across the country. The HOLC maps led to the term "redlining", since neighborhoods with the highest risk rating were outlined in red. The practice resulted in existing and potential homeowners being denied access to loans because of the location of the home, even though they may have otherwise qualified. In 1968, the Fair Housing Act outlawed racially motivated redlining and tasked federal agencies with enforcement. As of this report, there is no evidence that redlining occurred in Bonney Lake.

After incorporating in 1949, the Town of Bonney Lake adopted its first General Comprehensive Plan in 1964 ("1964 Plan", Ordinance No. 195). The development of the plan was funded, in part, by an urban planning grant associated with Section 701 of the Housing Act of 1954[4]. In addition to expanding the Federal Housing Administration (FHA) mortgage insurance program, Section 701 of the Act created a Comprehensive Planning Assistance Program to encourage the use of long-range and land use planning in local decision making. This program marked a shift from top-down land use planning and played a major part in the establishment of municipal, regional, and state levels[5].

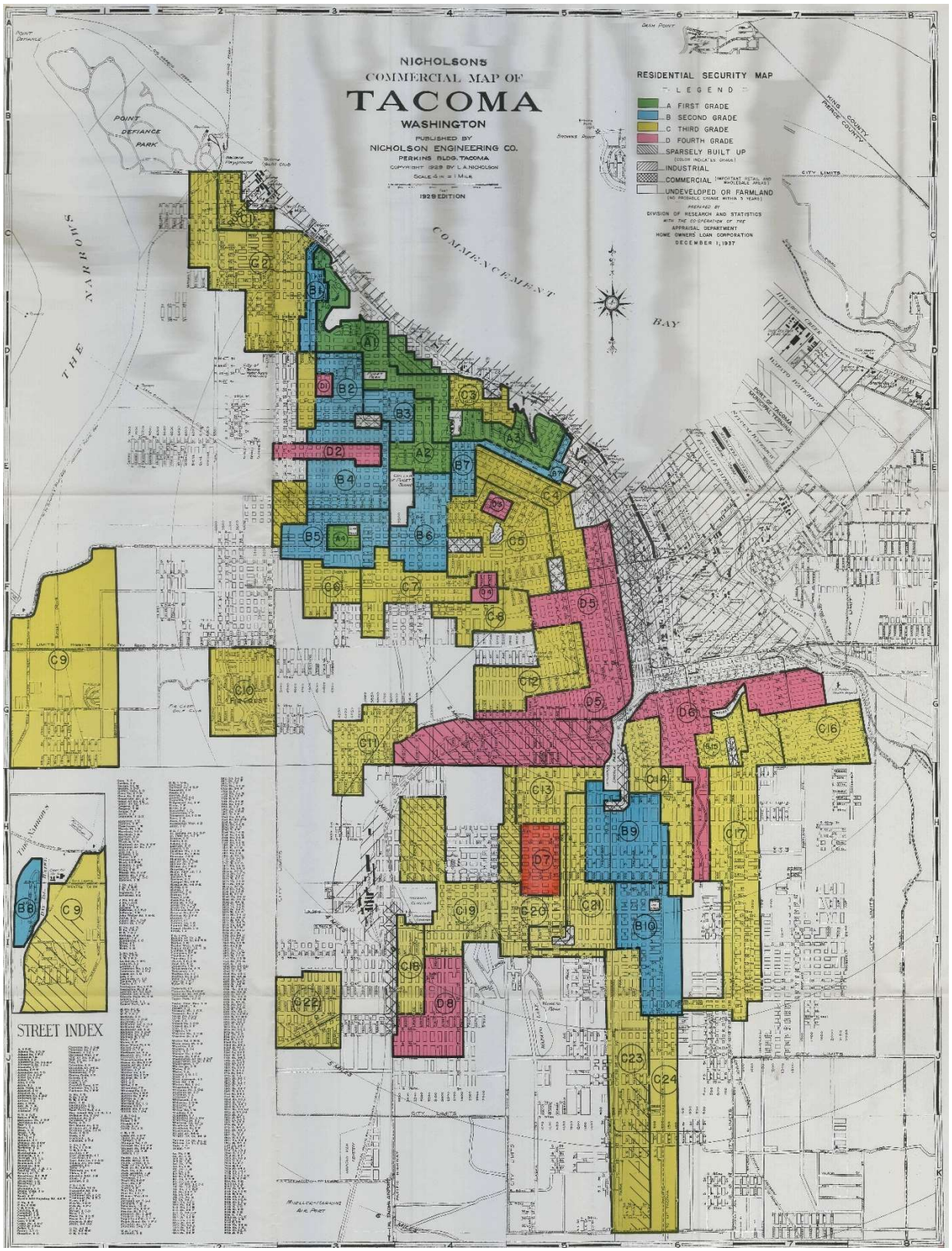
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[3] In 2021, Washington State passed Engrossed Second Substitute House Bill (E2SHB) 1335, which tasked Eastern Washington University and the University of Washington with finding all of the racially restrictive covenants in the state and informing property owners of how to remove them from their titles.

[4] The Housing Act of 1954 was an update to the Housing Act of 1949, which provided loans to cities to acquire and clear slums for private redevelopment. Communities of color were disproportionately impacted and displaced as a result. The 1954 update also prioritized housing for the displaced, construction of new public housing and reduced the income limit for public housing.

[5] Hammer, Greene, Siler Associates; "Planning Effectiveness and 701: An Evaluation. Prepared for the Department of Housing and Urban Development". October 13, 1967. Available online at: https://www.huduser.gov/portal//portal/sites/default/files/pdf/Planning-Effectiveness-and-701-an-Evaluation.pdf

Exhibit 2: Tacoma Redlining Map, 1937



The initial grants appear to have had few requirements associated with them. It was only after an update in 1968 that a housing element was required, including a requirement to plan for housing for all income and minority groups[6]. While the 1964 Plan preceded these requirements, the plan described existing and future conditions with a wide variety of housing forms:

> Residential Developments Goal 1: "The Town of Bonney Lake should have residential developments, at appropriate locations, allowing for choice and variety… it is the desire to provide for some integration of different types of residences such as apartments in low and high rise buildings and town houses together with single family dwelling units" (pg. 2).
>
> "Permitted in some areas of Bonney Lake are mobile homes (house trailers) which are a significant part of the Town's housing. Mobile homes can be bought for a low down payment and placed upon a lot being bought under contract. Thus almost 5% of the housing in Bonney Lake consists of mobile homes" (pg. 6).
>
> "… well built apartment houses should be encouraged… apartment houses away from commercial areas can add diversity to the Town… Town house developments should be encouraged in Bonney Lake" (pg. 14).

In 1985, the Comprehensive Plan was updated and included two goals that supported equitable housing (pg. 11)[7]:

> Residential Development Goal 3. Assure good housing and promote a safe healthful and decent living environment for all residents of Bonney Lake.
>
> Residential Development Goal 4. Provides for a variety of residential types and densities to meet the needs of, and provide for, affordable choices for citizens of varied income levels within the community.
>
> Residential Development Policy 7. Provide equal opportunities for people seeking adequate housing. Encourage innovative housing programs for low and moderate income families within the community.

The timing of incorporation and the foundation of land use planning in Bonney Lake likely played some role in minimizing the discrepancy in outcomes amongst various racial and ethnic groups observed in this report.

---

[6] Roger J. Dennis and Leonard S. Rubinowitz; "School Desegregation Versus Public Housing Desegregation: The Local School District and the Metropolitan Housing District". Urban Law Annual, Volume 10, 1975. Available online at: https://openscholarship.wustl.edu/law_urbanlaw/vol10/iss1/4

[7] While some goals and policies in the 1985 encouraged planning for all, others served assign greater importance to single-family dwelling units and burden new multi-family housing development with absorbing the sole cost of buffers between the uses.

2.2 CURRENT PLANNING CONTEXT

In 2021, the Washington State Legislature changed the planning requirements for housing through Engrossed Second Substitute House Bill (E2SHB) 1220[8]. The updated statute in Revised Code of Washington (RCW) 36.70A.020(4) strengthened the GMA housing goal from "encourage affordable housing" to "plan for and accommodate" housing affordable to all income levels.

This means that local governments now must go beyond simply encouraging affordable housing and must actively "plan for and accommodate housing" affordable to all economic segments of the community. E2SHB 1220 also updated how jurisdictions must plan for housing in the Housing Element section of their comprehensive plans, requiring local governments to make more detailed plans for housing, especially for the lowest income segments, and to address zoning that may have a racially disparate or exclusionary effect and address patterns of disinvestment.

Specifically, the new requirements in RCW 36.70A.070(2) state that jurisdictions must now adopt a housing element that:

> *(e) Identifies local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing, including:*
>
> > *(i) Zoning that may have a discriminatory effect;*
> >
> > *(ii) Disinvestment; and*
> >
> > *(iii) Infrastructure availability;*
>
> *(f) Identifies and implement policies and regulations to address and begin to undo racially disparate impacts, displacement, and exclusion in housing caused by local policies, plans, and actions;*
>
> *(g) Identifies areas that may be at higher risk of displacement from market forces that occur with changes to zoning development regulations and capital investments; and*
>
> *(h) Establishes anti-displacement policies, with consideration given to the preservation of historical and cultural communities as well as investments in low, very low, extremely low, and moderate-income housing; equitable development initiatives; inclusionary zoning; community planning requirements; tenant protections; land disposition policies; and consideration of land that may be used for affordable housing.*

[8] Available online at: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session%20Laws/House/1220-S2.SL.pdf?q=20240516102013

This report supports Bonney Lake in demonstrating that it has taken reasonable steps to satisfy the requirements of E2SHB 1220 and the GMA by:

- **Analyzing data** to better understand current housing patterns in Bonney Lake and determine if there are racially disparate impacts, displacement, and exclusion in housing.
- **Identifying local policies and regulations** that result in racially disparate impacts, displacement, and exclusion in housing.
- **Recommending new policies and regulations** to prevent housing displacement and begin to undo the impacts of local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing.

2.3 DEFINITIONS FROM COMMERCE GUIDANCE

The following terms used in E2SHB 1220 and this report are defined as follows:

- **Discriminatory effect**: The effect, regardless of intent, of differentiated outcomes for a group based on a protected classification. May be an action or failure to act. Protected classifications include race/color, national origin, religion/creed, sex/gender/domestic violence status, familial status, disability, marital status, sexual orientation, and military/veteran status.
- **Disinvestment**: A process by which a community is not prioritized for investment, or by which a system, policy, or action disincentivizes investment in a specific area. Disinvestment processes occur over time, often in the long term.
- **Displacement**: The process by which a household is forced to move from its community because of conditions beyond their control.
    - Physical displacement: Households are directly forced to move for reasons such as eviction, foreclosure, natural disaster, or deterioration in housing quality.
    - Economic displacement: Households are compelled to move by rising rents or costs of home ownership like property taxes.
    - Cultural displacement: Residents are compelled to move because the people and institutions that make up their cultural community have left the area.

- **Displacement risk**: The likelihood that a household, business, or organization will be displaced from its community.
- **Exclusion in housing**: The act or effect of shutting or keeping certain populations out of housing within a specified area, in a manner that may be intentional or unintentional, but which leads to non-inclusive impacts.
- **Inclusionary zoning**: A regulatory tool that requires permanent affordable units to be included within new residential development projects or requires payment for construction of such units elsewhere (fee-in-lieu). "Permanent" refers to affordable unit availability in the long term, specifically, for 50 years as defined by Washington code.
- **Infrastructure**: The facilities and systems that serve a country, city, or area, such as transportation, parks, communication systems, energy and utility systems, and schools.
- **Land disposition policies**: Conversion of underutilized and surplus public land for other uses, guided by state law. State law has identified affordable housing as a public benefit and allows cities to sell or lease land at a reduced cost, or donate it altogether, for development of affordable housing.
- **Market forces**: Economic factors that impact the provision, price and/or demand for housing.
- **Racially disparate impacts**: When policies, practices, rules, or other systems result in a disproportionate impact on one or more racial groups.
- **Tenant protections**: Includes legal projections protections for people who pay rent for the place where they live. In Washington state, legal projections are established under the Residential Landlord-Tenant Act (RCW 59.18). Local governments can establish additional protections for people who rent the place they live.

3. IMPACT ASSESSMENT

This section of the report provides an assessment of current housing and demographic conditions in Bonney Lake using multiple data sources and approaches, based on the Commerce Guidance. The assessment provides valuable information on the nature and degree of impacts, as well as factors contributing to disparities and areas at a higher risk of displacement.

By understanding these impacts, community members, and policymakers can develop policies and regulations to address racially disparate impacts, displacement, and exclusion in housing.

3.1 COMMUNITY PROFILE

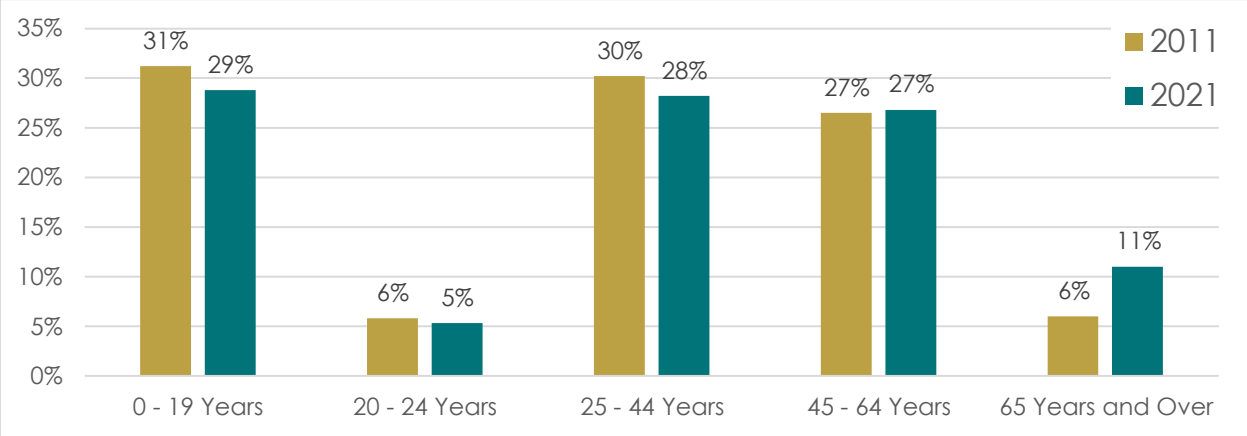
As of 2021, the estimated population of Bonney Lake was 23,510. Since 2011, the city has grown at an average annual rate of 2.97%, over double the countywide rate of 1.42%.

Exhibit 3: Population in Bonney Lake and Pierce County, 2011-2021

	2011	2021	Change	Annual Average Growth Rate
Bonney Lake	17,545	23,510	5,965	2.97%
Pierce County	806,190	928,200	122,010	1.42%

Source: Washington State Office of Financial Management (OFM), April 1 Population of Cities, Towns and Counties, 2011, 2021.
Note: Bonney Lake 2021 estimate Includes an estimated 188 persons added due to annexations.

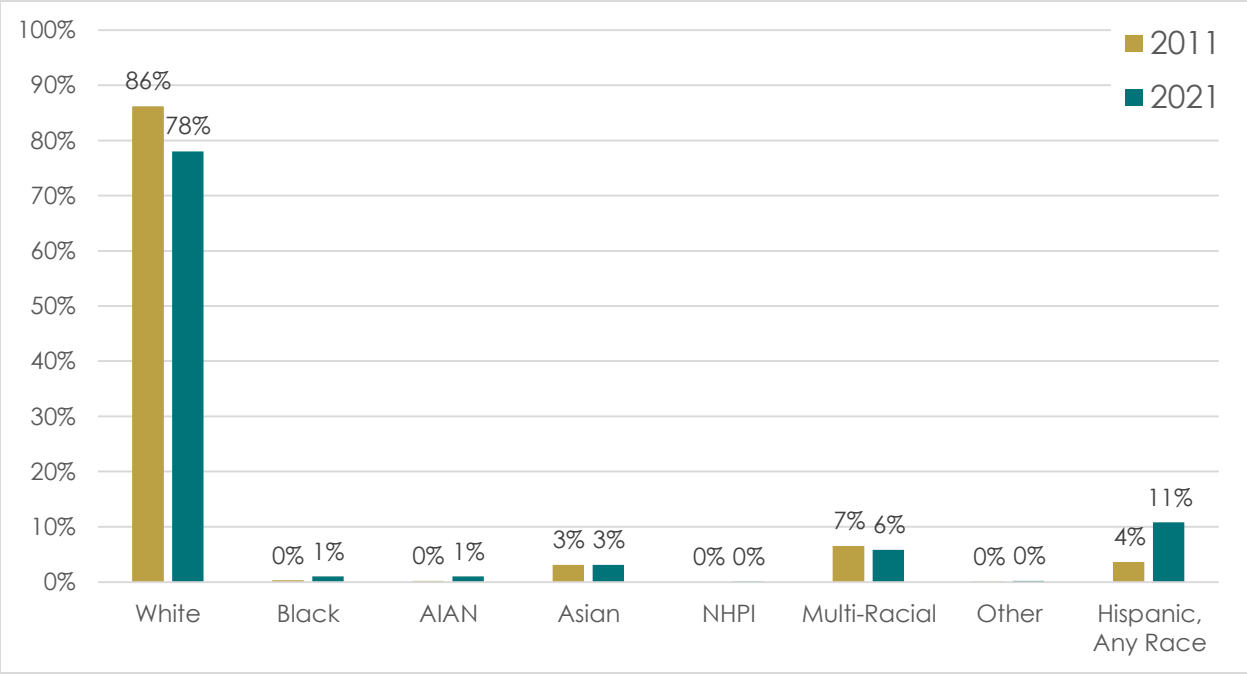
Exhibit 4: Population by Age, Bonney Lake, 2011 and 2021



Source: American Community Survey (ACS) Table DP05, 2011, 2021

Overall, Bonney Lake residents have gotten older from 2011 to 2021 (**Exhibit 4**). Residents 24 years and under, children and young adults, account for 34% of the population, decreasing from 37% in 2011. Adults between 25 to 64 years account for 55% of the population and show a slight decrease from 57% in 2011. Seniors, or adults aged 65 and over, almost doubled to 11%. In 2021, the median age of Bonney Lake residents was 36.7, just slightly older than the median age in Pierce County of 36.4.

Exhibit 5: Race and Ethnicity of Residents, Bonney Lake, 2011 and 2021

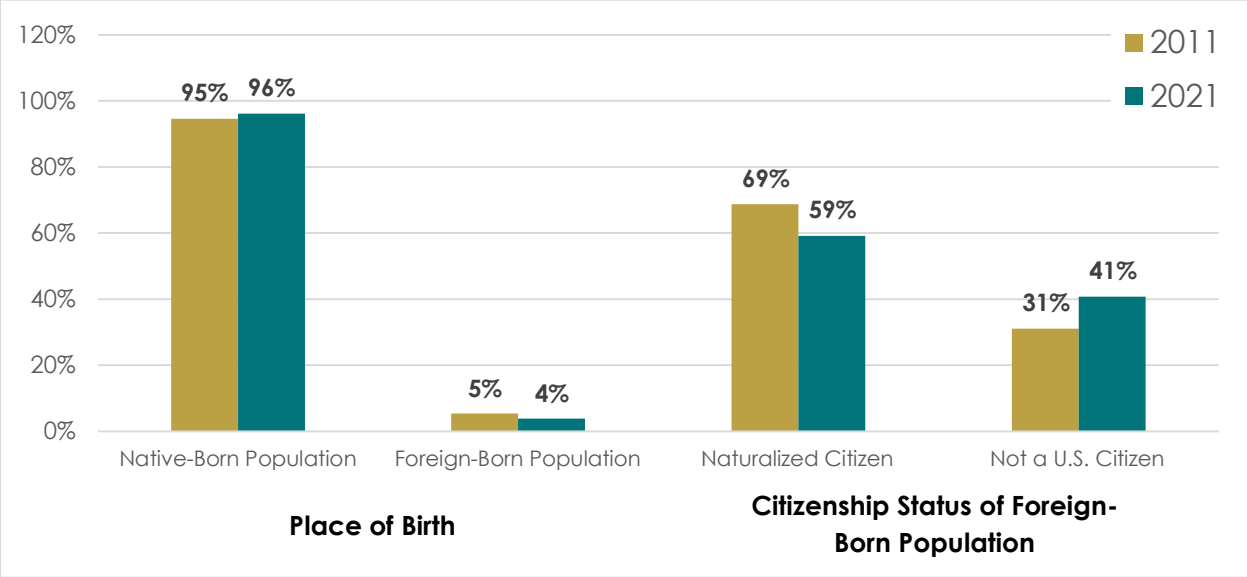


Source: ACS Table DP05, 2011, 2021
AIAN: American Indian and Alaskan Native
NHPI: Native Hawaiian and Pacific Islander

Exhibit 5 shows the racial and ethnic makeup of Bonney Lake's residential population. Between 2010 and 2021, the share of residents who are Black, Hispanic, American Indian, or Alaskan Native increased. White and multi-racial residents experienced an 8% and 1% decrease in populations, respectively. The share of Native Hawaiian, Pacific Islander, and residents who identify as a race not included here stayed consistent.

As of 2021, the majority (96%) of Bonney Lake's population was born in the United States, Puerto Rico, a U.S. territory or to a U.S. citizen (see **Exhibit 6**). Of the remaining 4% of residents who are foreign-born, or approximately 1,200, a majority (59%) are naturalized citizens, although this proportion decreased 10% since 2011.

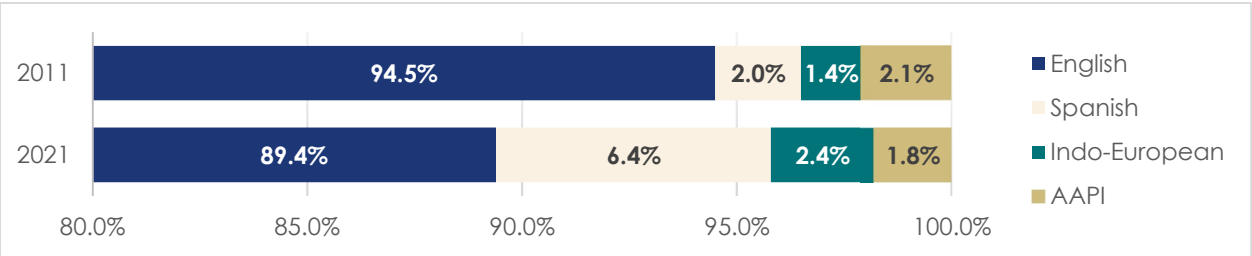
Exhibit 6: Place of Birth and Citizenship Status of Residents, Bonney Lake, 2011 and 2021[9]



Source: ACS Table DP02, 2011, 2021

Exhibit 7 shows that the approximately 89% of Bonney Lake's population are primarily English speakers. Increasing shares of residents speak Spanish (6.4%, an increase of 4.4% from 2011) and Indo-European languages (2.4%, up from 1.4% in 2011), while Asian and Pacific Island languages saw a decrease of approximately 0.3% from 2011 to 1.8% in 2021.

Exhibit 7: Language Spoken at Home, Bonney Lake, 2011 and 2021[10]

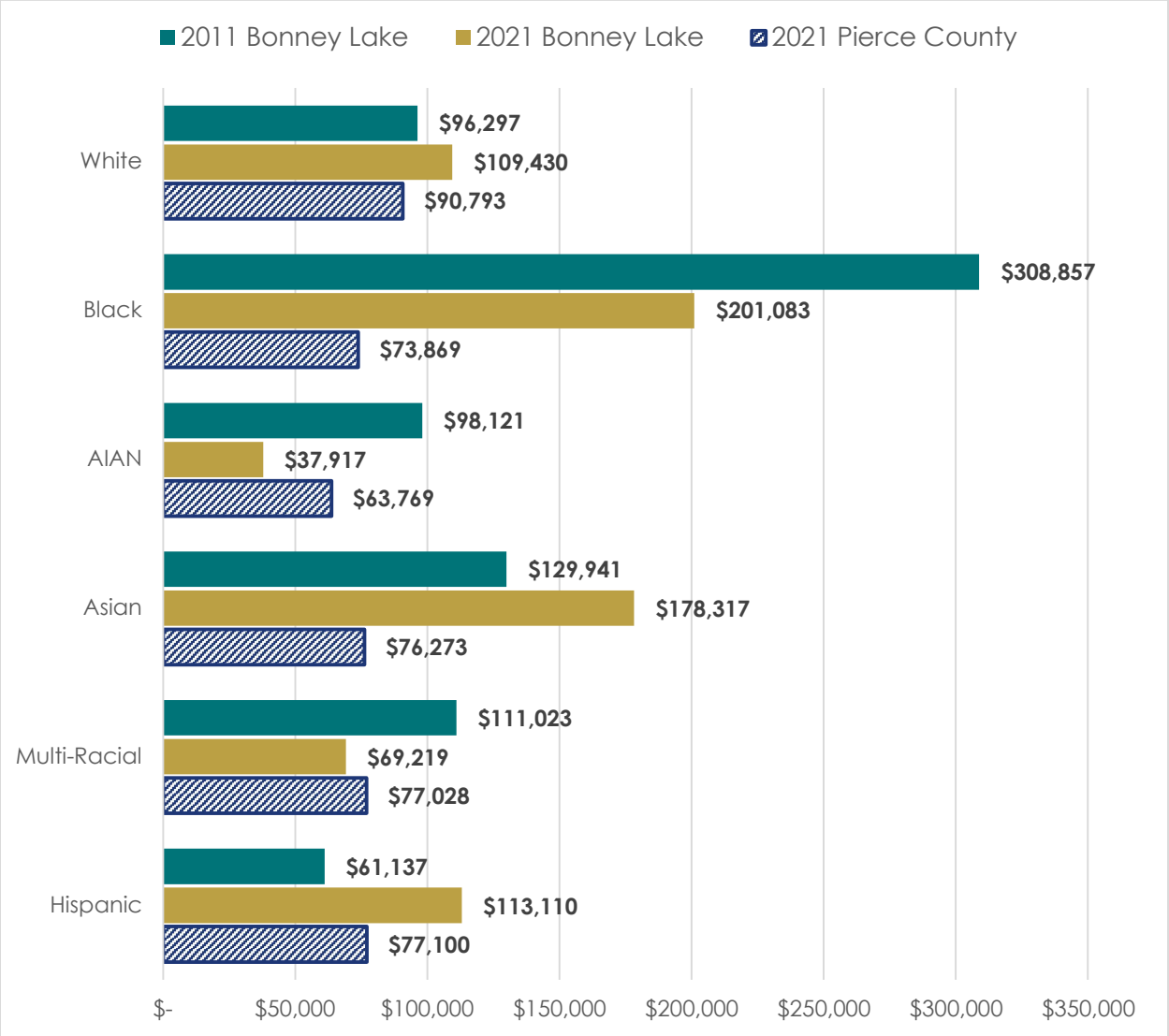


Source: ACS Table S1601, 2011, 2021
AAPI: Asian and Pacific Island languages

[9] **Naturalized Citizen** is an individual born outside of the United States who has completed a voluntary legal process to become a U.S. citizen. **Not a U.S. Citizen** includes lawful permanent residents (immigrants), temporary migrants (such as foreign students), humanitarian migrants (such as refugees), and persons illegally present in the United States.

[10] Other languages listed at a rate of 0.0% in both the 2011 and 2021 data sets are not shown. Indo-European languages include languages of Germanic, Scandinavian, Slavic, Indic, Celtic, Baltic, Iranian, or Indic origin, along with French, Italian, Portuguese, and Greek.

Exhibit 8: Annual Median Household Income by Race and Ethnicity, Bonney Lake, 2011 and 2021, and Pierce County, 2021, in 2021 Inflation-Adjusted Dollars[11]



Source: ACS Table S1903, 2011, 2021
Data is not available for the Native Hawaiian and Pacific Islander and Other groups in Bonney Lake and is not shown.

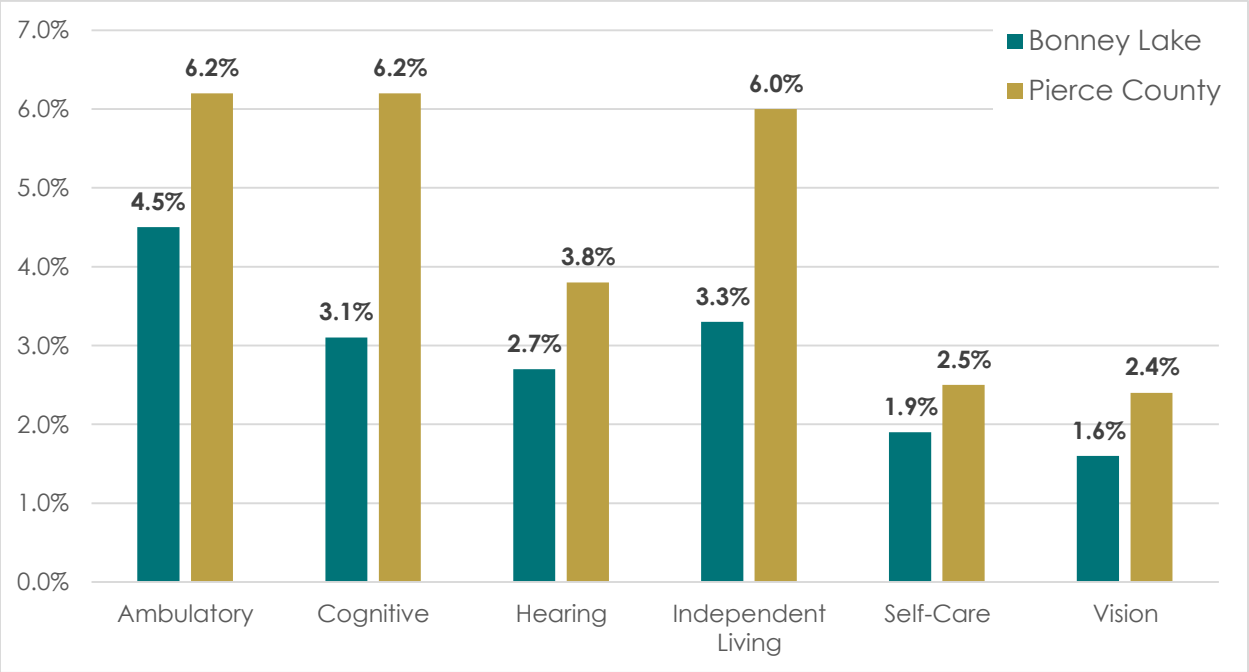
Exhibit 8 shows the change in annual median household income by race between 2011 and 2021. Black and Asian households are the highest earners, with annual median household incomes of $201,083 and $178,317, respectively. Black, Asian, Hispanic, and

[11] Data for NHPI and Other populations unavailable due to an insufficient sample size.

White households all earned above or near the citywide annual median household income for all households of $108,705. Asian and Hispanic households saw significant gains in annual median household income, with increases of $48,376 and $51,973, respectively.

American Indian, Alaska Native, and Multi-Racial households earned significantly less than the median, with annual median household incomes of $37,917 and $69,219, respectively. These are equivalent to 34.9% and 63.7% of the citywide annual median household income, and represent decreases of $60,204 and $41,804, respectively, between 2011 and 2021.

Exhibit 9: Rate and Type of Disability in Bonney Lake and Pierce County, 2021



Source: ACS Table S1810, 2021

As of 2021, 8.1% of Bonney Lake residents (1,795) live with one or more disabilities, which is lower than Pierce County as a whole (14.7%). The most common types of disabilities are ambulatory (difficulty walking or climbing stairs), independent living (difficulty completing errands alone), and cognitive (difficulty remembering, concentrating, or making decisions). Of the 1,795 Bonney Lake residents with one or more disabilities, 61.4% are aged 18-64, compared to 51.0% in Pierce County as a whole, indicating a need for accessible housing units and supportive services for young and middle-aged adults. This need will increase as the city's population ages to allow residents to age in place without being displaced.

3.2 RACIALLY DISPARATE IMPACTS

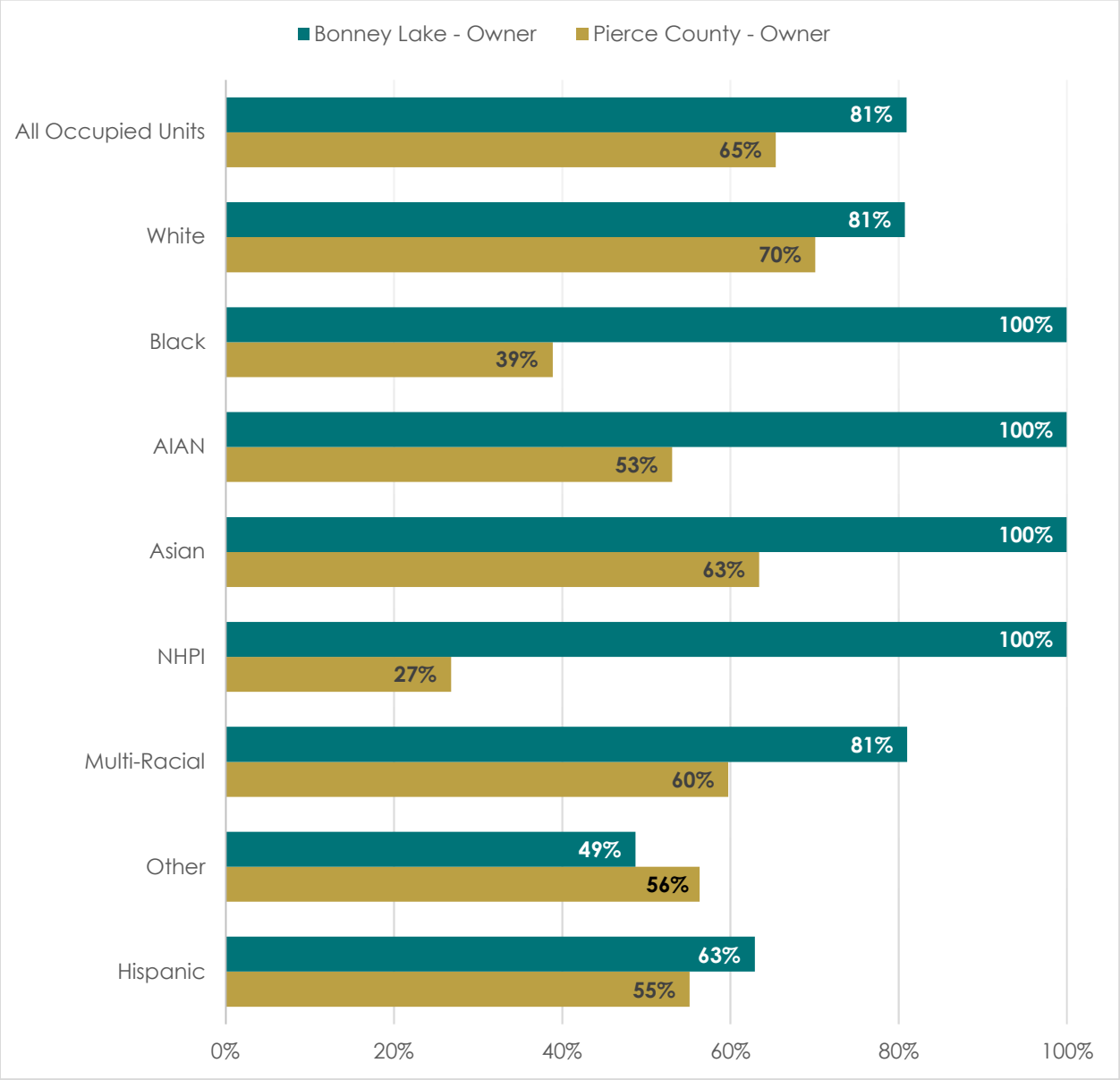
Racially disparate impacts occur when policies, practices, rules, or other systems intentionally or unintentionally result in a disproportionate effect on one or more racial groups. Racial disparities exist when policies disproportionally grant benefits to one group and burdens to another. This section examines certain metrics and data to identify racially disparate impacts among residents and groups in Bonney Lake.

Homeownership and Renter Rates

Homeownership is an important pathway to wealth building and economic stability. It can lead to intergenerational wealth transfer, improved access to credit, and greater stability in housing expenses. Understanding the disparities in homeownership rates among different racial and ethnic groups can provide insight to the challenges and opportunities faced by each group.

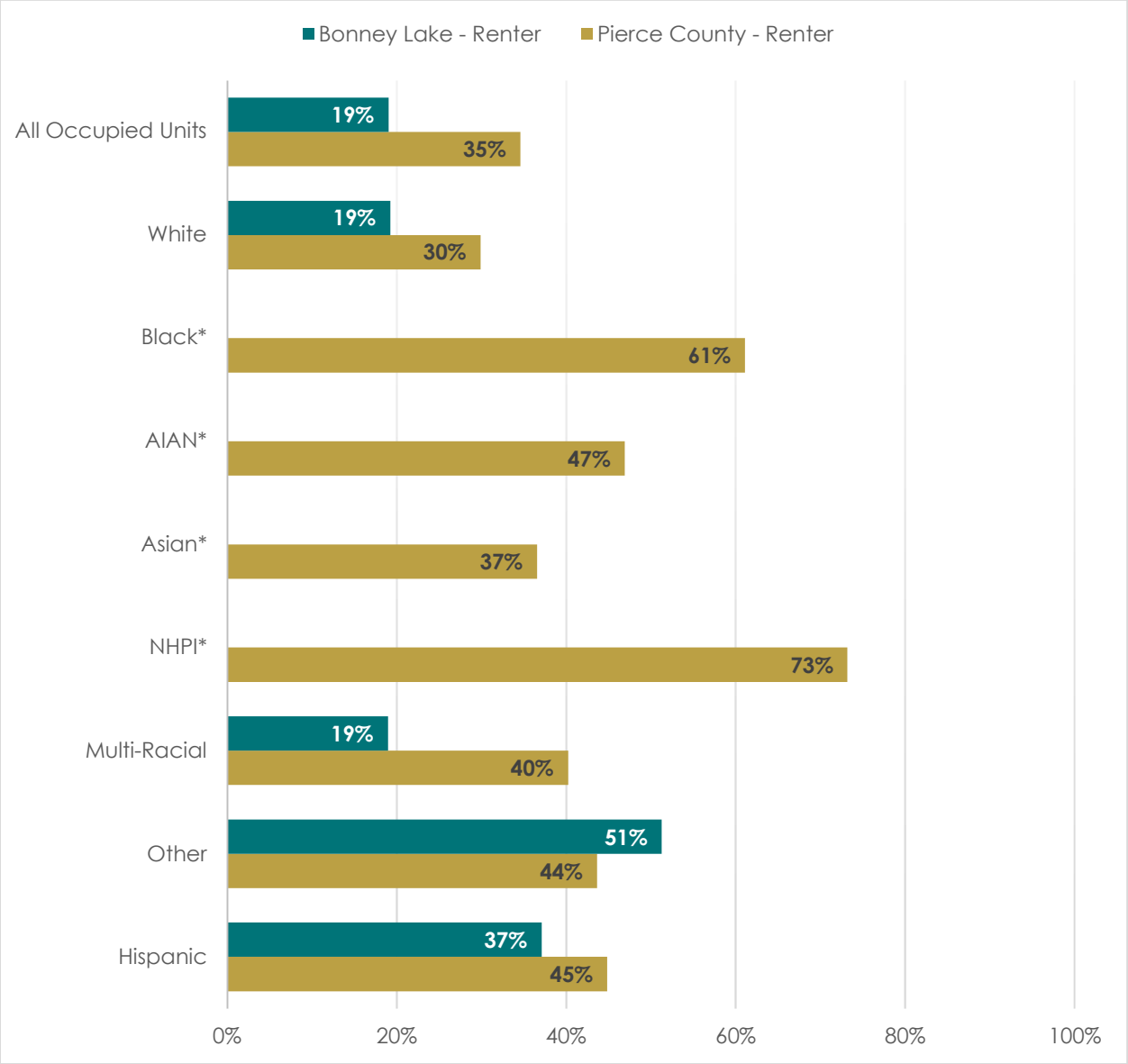
Bonney Lake has high homeownership rates compared to Pierce County overall (see **Exhibit 10**). While Hispanic owners of any race have higher homeownership rates than the County overall, there is a large disparity relative to other groups in Bonney Lake. Owners in the Other alone group are the least likely to own their homes in Bonney Lake.

Exhibit 10: Ownership by Race and Ethnicity, Bonney Lake and Pierce County, 2021



Source: ACS Table S2502, 2021
Note: White, Black, AIAN, Asian, and NHPI households include both Hispanic and non-Hispanic ethnicity.
AIAN: American Indian and Alaskan Native
NHPI: Native Hawaiian and Pacific Islander

Exhibit 11: Renter Occupancy by Race and Ethnicity, Bonney Lake and Pierce County, 2021



Source: ACS Table S2502, 2021
Notes: White, Black, AIAN, Asian, and NHPI households include both Hispanic and non-Hispanic ethnicity.
** Data for Black, AIAN, Asian, and NHPI households is 0.0%.*

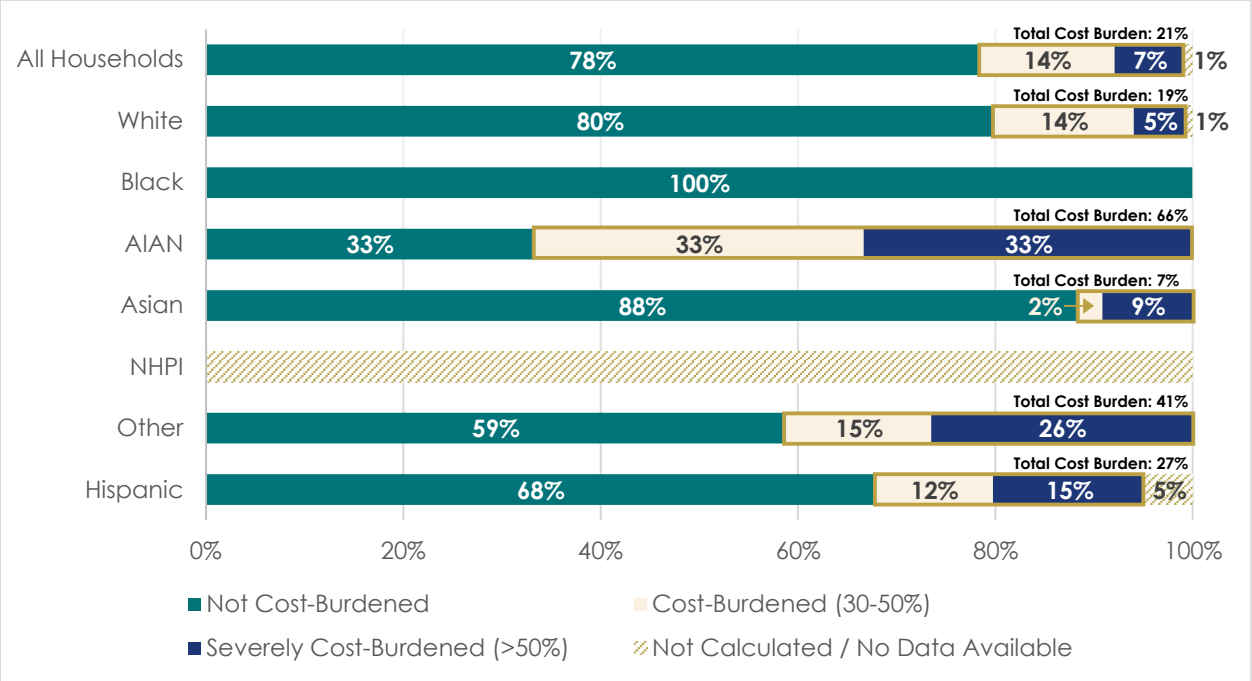
As of 2021, only 19.1% of households rent (**Exhibit 11**), almost 15% less than Pierce County overall. This share decreased 1.6% from 2011, meaning that even as Bonney Lake has added new housing units, the share of homeownership has increased.

Housing Costs and Affordability

Housing costs and affordability determine if and where households can live within a community, based on their income. They impact who has access to "areas of opportunity" in a community, including access to healthy environments, safety, recreational opportunities, education, jobs, nutrition, and other basic needs. Housing costs can be affected by the existing housing stock and are heavily impacted by land use policies, which help to determine the cost of producing housing as well as define the types and sizes of homes allowed to be built.

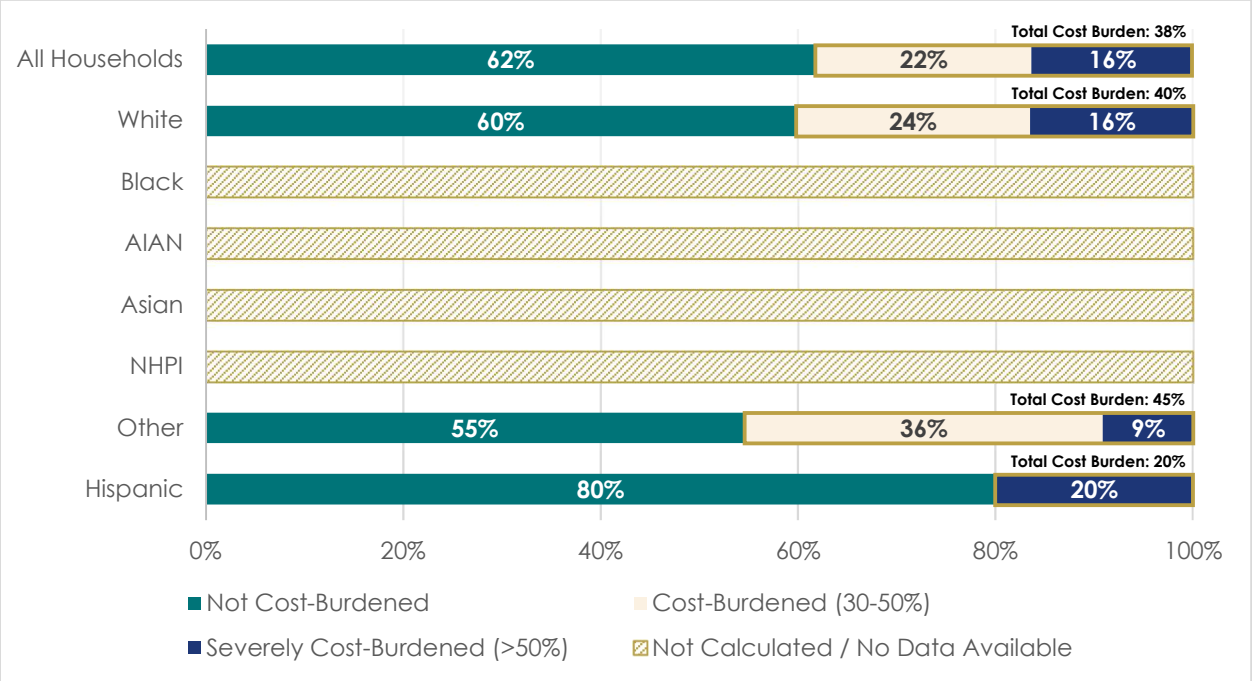
The United States Department of Housing and Urban Development defines cost burden as those households spending between 30% and 50% of total income on housing costs, including utilities. Severe cost burden is defined as households spending more than 50% of total income on housing. Understanding housing cost burdens for different racial groups, as well as the availability of suitable housing stock for different income levels, helps to illuminate racial disparities in accessibility to places of opportunity.

Exhibit 12: Rates of Cost Burden by Race and Ethnicity for Owner-Occupied Units, Bonney Lake, 2020



Source: United States Department of Housing and Urban Development (HUD) Comprehensive Housing Affordability Strategy (CHAS) Table 9, 2016-2020
Note: Other includes multi-racial households and households that identify as another race not listed.

Exhibit 13: Rates of Cost Burden by Race and Ethnicity for Renter-Occupied Units, Bonney Lake, 2020



Source: HUD CHAS Table 9, 2016-2020
Note: Other includes multi-racial households and households that identify as another race not listed.

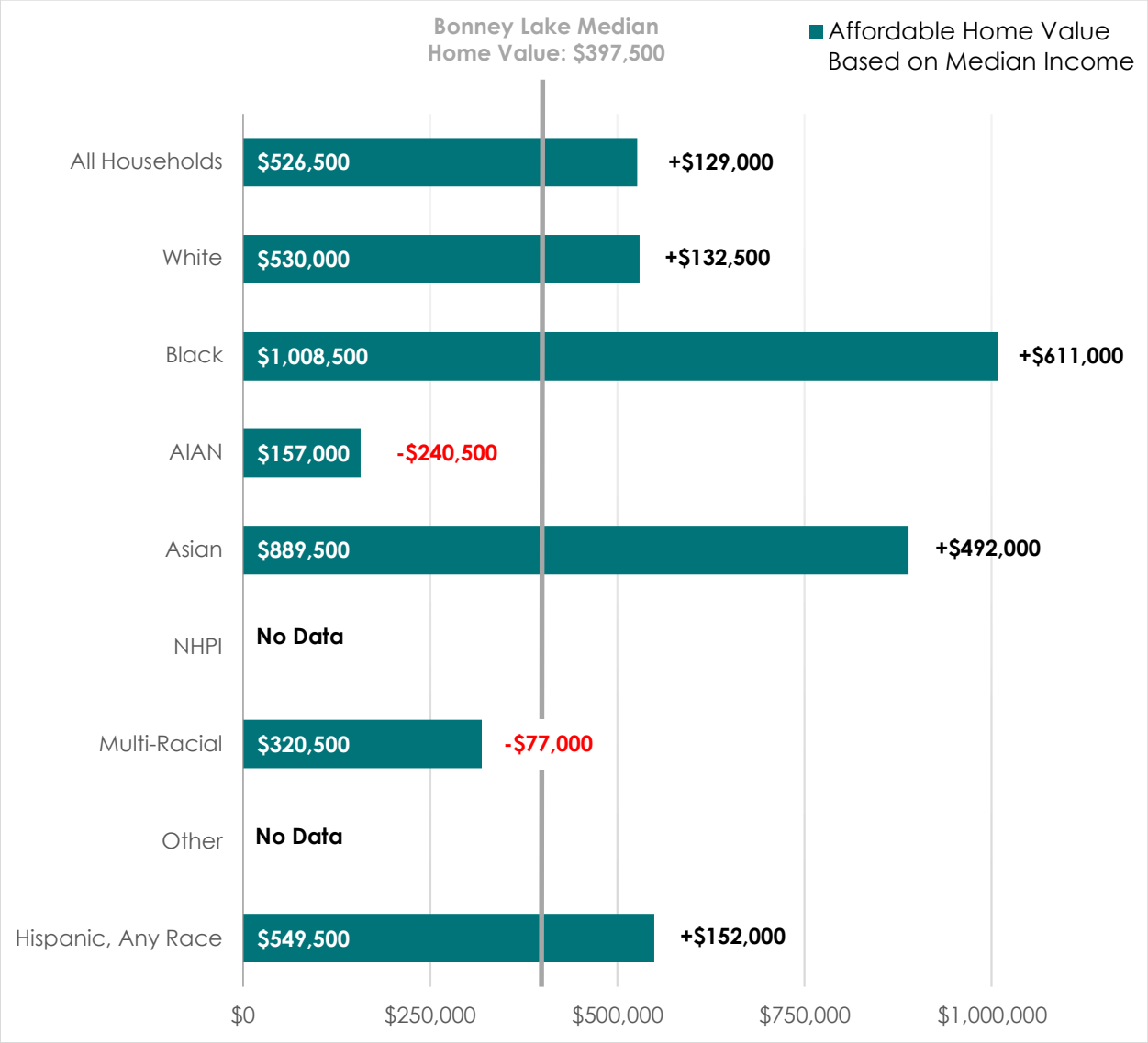
Exhibit 12 and **Exhibit 13** show the proportion of owners and renters experiencing cost burden by racial and ethnic group. The American Indian, Other, and Hispanic groups show a higher rate of cost-burden and severe cost-burden than the city overall. Under these conditions, affording routine necessities, such as food or healthcare, is a challenge, and a household that suffers a loss of income due to illness or other crisis is at greater risk of displacement due to insufficient housing options.

Exhibit 14 shows the maximum affordable home value for each racial and ethnic group based on their median household income as of 2021. This calculation assumes:

- The homebuyer will offer a 20% down payment;
- The loan will be a 30-year fixed rate mortgage with an interest rate of 3.85% (the average of weekly interest rates between June 2011 – June 2021);
- A property tax rate of 12.999% per $1,000 (based on Pierce County Assessor 2021 Average Levy Rate for Bonney Lake);
- Annual homeowner insurance costs of $1,141 (based on the average cost of homeowner insurance in Washington in 2021);
- Homeowner's association dues of $100 per month; and

- A maximum monthly payment of 28% and a maximum debt-to-income ratio of 36%, consistent with mortgage lender guidelines. No debt was assumed as part of the calculation.

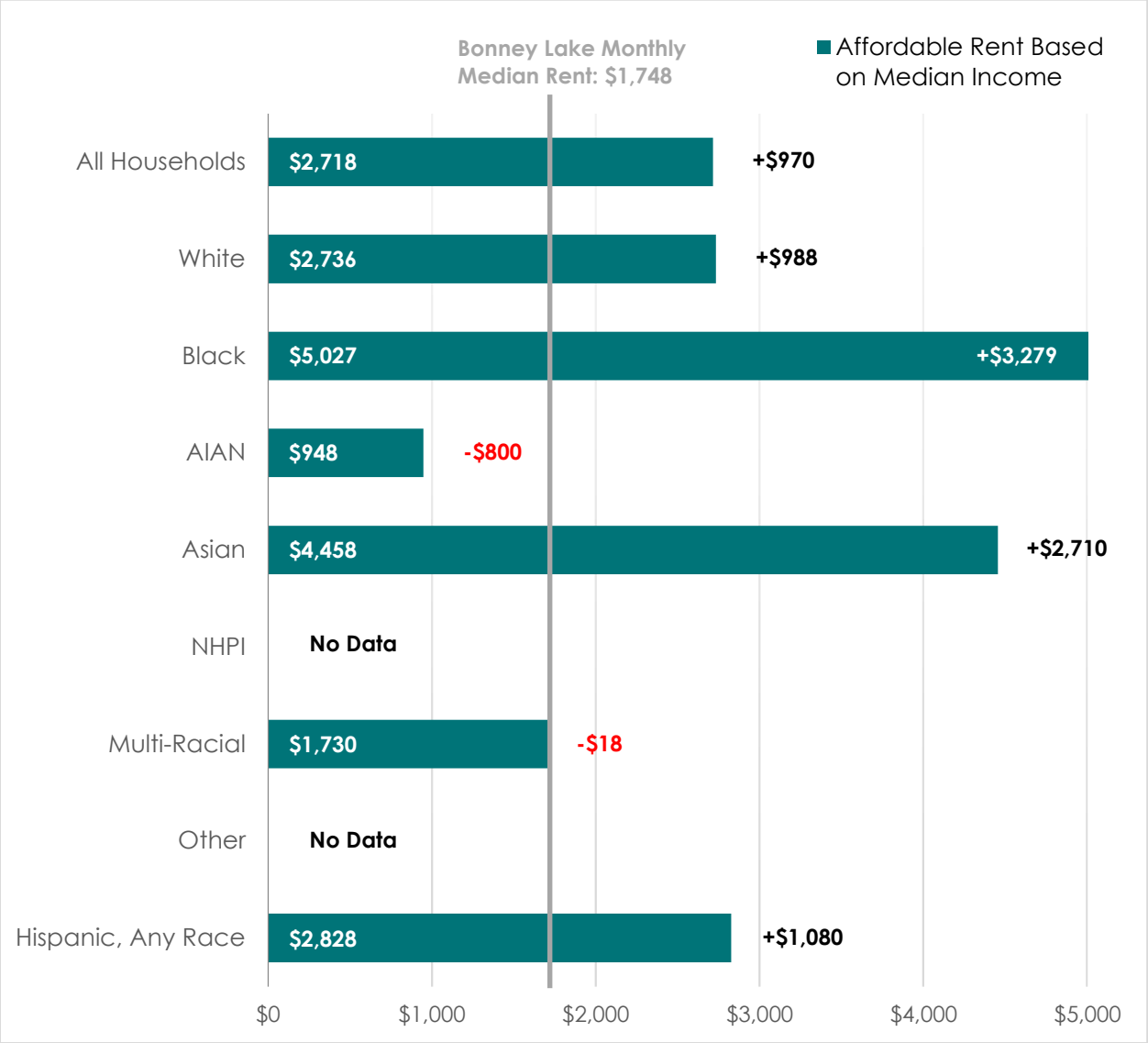
Exhibit 14: Affordable Owner-Occupied Housing Cost Compared to Median Home Value by Race and Ethnicity, Bonney Lake, 2021



Sources: ACS Tables S1903, S2506 and S2507, 2021
Pierce County Tax Rates for 2021
Federal Reserve Bank of St. Louis 30-Year Fixed Rate Mortgage Average in the United States, 2011-2021
NerdWallet Average Home Insurance Cost, 2021
Federal Housing Administration Mortgage Calculator (http://usmortgagecalculator.org)
Note: Amounts are rounded to the nearest $500 for display purposes.

The median home value in Bonney Lake in 2021 was $397,500. White, Black, Asian, and Hispanic households can afford a median home in Bonney Lake based on their household income and the above assumptions. Multi-racial households can afford up to $327,500, approximately $77,000 below median home values. American Indian and Alaska Natives (AIAN) households have the largest disparity in the median affordable home and Bonney Lake Home value by a margin of approximately $240,500. There was inadequate data to evaluate the Native Hawaiian or Pacific Islander and Other race categories.

Exhibit 15: Affordable Monthly Renter-Occupied Housing Cost Compared to Median Rent by Race and Ethnicity, Bonney Lake, 2021



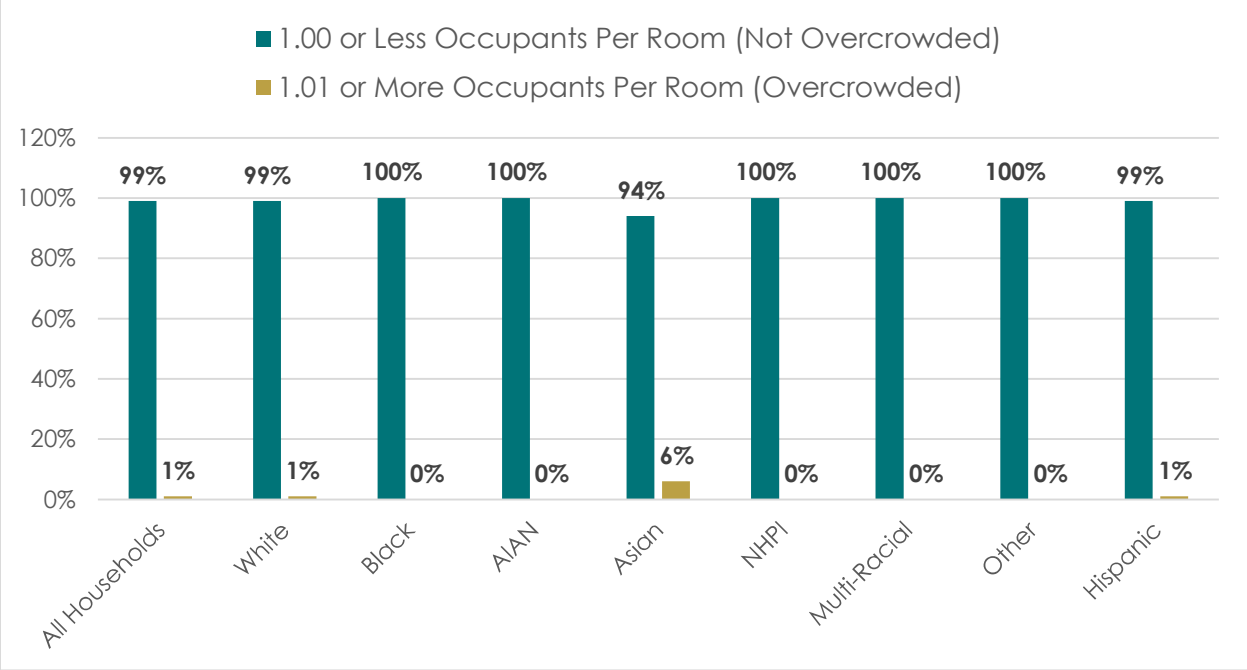
Source: ACS Table S1903 and S2503, 2021

Exhibit 15 shows the maximum affordable monthly rent for each racial and ethnic group based on their median household income as of 2021. That year, the median rent in Bonney Lake was $1,748. White, Black, Asian, and Hispanic households can afford units at or above median rent in the city. AIAN and multi-racial households earn lower median household incomes and cannot afford the median monthly rent in Bonney Lake. There was inadequate data to evaluate the Native Hawaiian or Pacific Islander and Other race categories.

Overcrowding

Lack of affordable, suitable housing can lead to overcrowding, or the relationship between the number of people and the size of a housing unit. In the United States, multi-generational households are more common among non-white families, particularly among Asian, Black, and Hispanic Americans. Overcrowding can be an indication that the available housing stock is too expensive relative the purchasing power of households or does not match household sizes. A dwelling unit is considered overcrowded when there are more than 1.00 persons per room.

Exhibit 16: Rate of Overcrowding by Race and Ethnicity, Bonney Lake, 2021



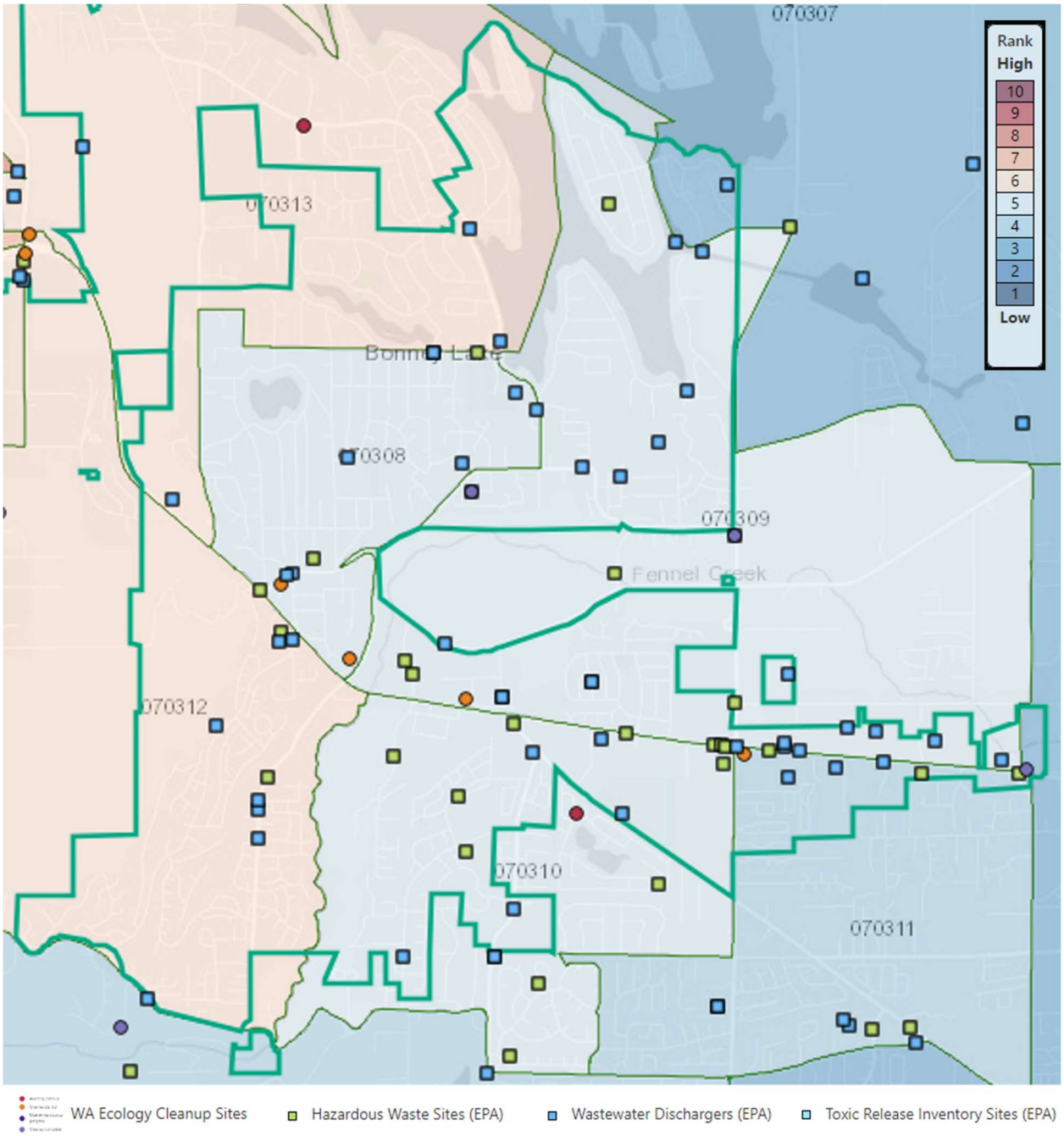
Source: ACS Tables B25014 and B25014B-I, 2021

As of 2021, overcrowding is present in approximately 113 households, or 1% of the dwelling units in Bonney Lake (see **Exhibit 16**), primarily in Asian (17) and White (96)

households. Overcrowding can be an indicator of multi-generational, extended family, or other shared housing. These housing outcomes are not inherently bad and can be a preference or a response to a housing market that does not provide adequate housing or housing in preferred configurations.

Environmental Health Hazards

Exhibit 17: Environmental Exposure Risk Index, Bonney Lake, 2024



Source: Washington Environmental Health Disparities Map, 2024 (variable data) [12]

[12] https://fortress.wa.gov/doh/wtnibl/WTNIBL/

The Washington State Department of Health, together with the University of Washington Department of Environmental & Occupational Health Sciences (DEOHS), compiles information on environmental health and hazard risk information for each census tract in Washington. The data identifies areas that are most impacted by environmental pollution.

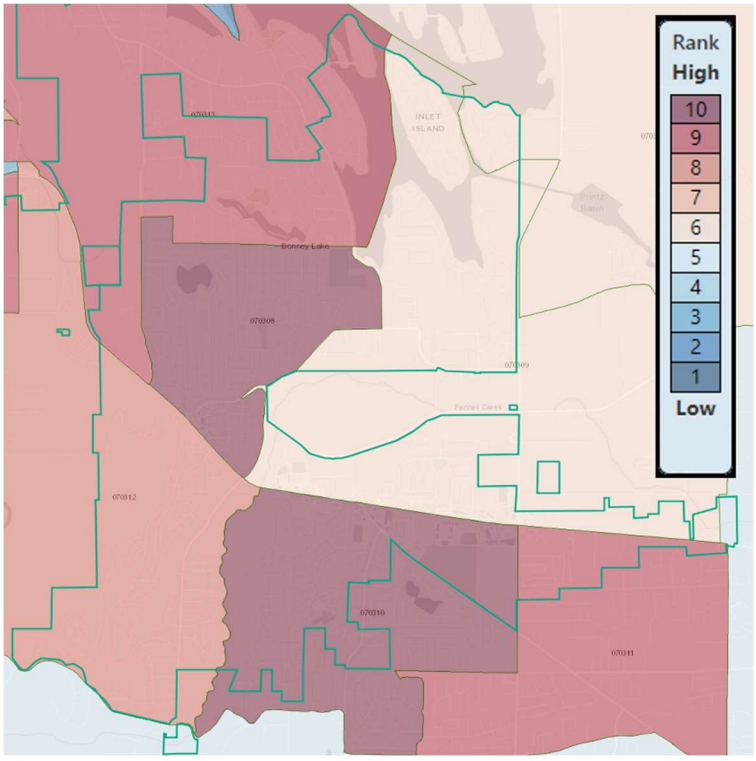
Exhibit 17 displays the environmental exposure ranking for each census tract in Bonney Lake along with locations of known environmental hazard sites. Specific environmental exposures ranked in the risk index include the following inhalable sources:

- Diesel Exhaust Emissions
- Ozone Concentration
- Particulate Matter (PM) $_{2.5}$ Concentration (fine particulate matter 2.5 microns or less in diameter)
- Proximity to Heavy Traffic Roadways
- Toxic Releases from Industrial Facilities

Overall, residents in Bonney Lake have a moderate rate of exposure to airborne pollutions, especially compared to Pierce County overall. The data also shows moderate risk from environmental hazard sites, moderate to low risk for low birth weight, and low to very low overall risk from socioeconomic factors (language, education, race, poverty, unaffordable housing, unemployment).

Bonney Lake does exhibit high to very risk for death from cardiovascular disease (CVD), a life-long health condition that includes coronary heart disease, strokes, aortic disease, and peripheral arterial disease. CVD has many risk factors, including diet, lack of exercise, smoking, and air pollution (see **Exhibit 18**).

Exhibit 18: Death from Cardiovascular Disease, Bonney Lake, 2024

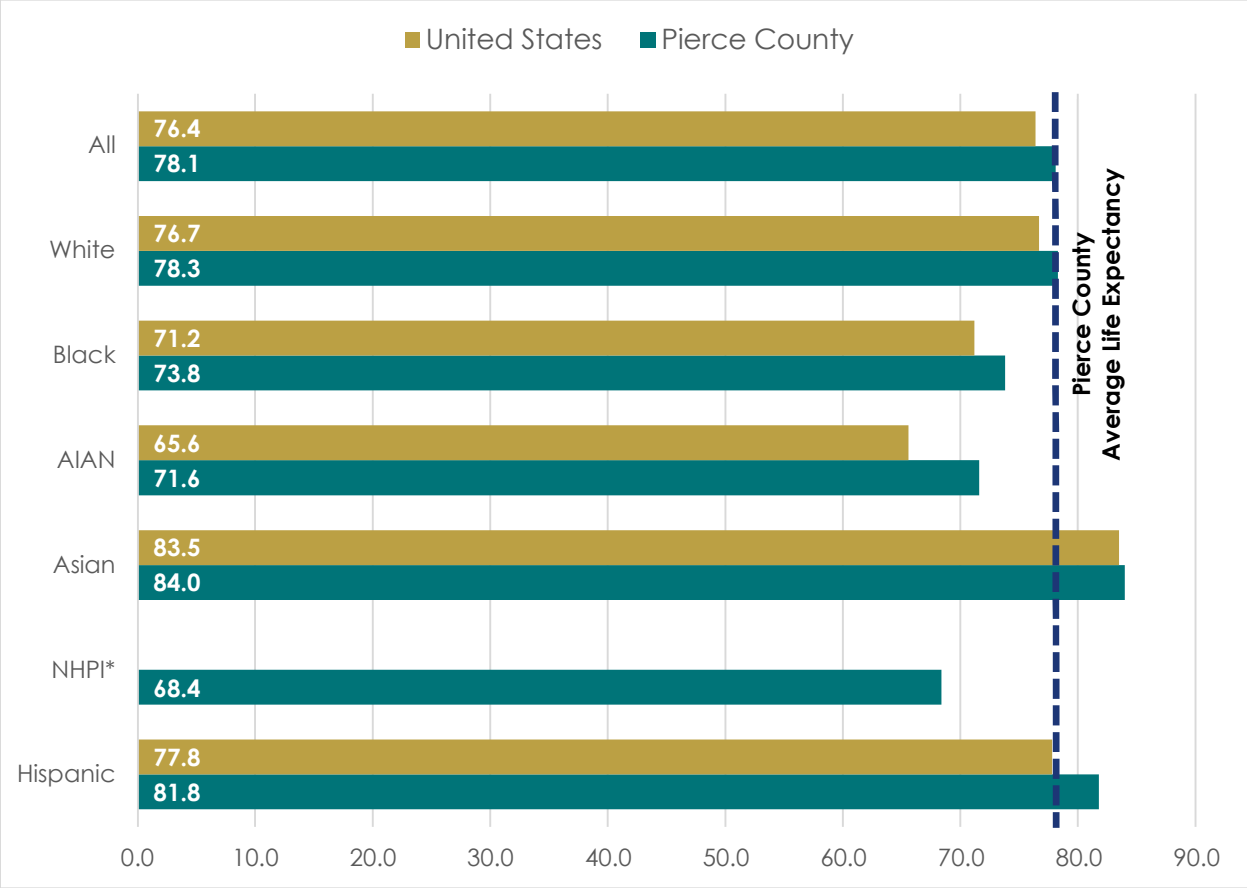


Source: Washington Environmental Health Disparities Map, 2024 (variable data)

Life Expectancy

As of 2015, life expectancy at birth of residents in Bonney Lake was approximately 78.2 years, lower than the Pierce County average of 78.5 and the Washington average of 80.3[13]. By 2021, the overall trend for Pierce County showed a decline in life expectancy; however, all racial and ethnic groups in Pierce County are living longer than in the United States as a whole. Data is unavailable at the census tract level as of the writing of this report; it is unclear how much of the decline is associated with the COVID-19 pandemic.

Exhibit 19: Life Expectancy from Birth by Race and Ethnicity, Pierce County and United States, 2021[14]



Source: County Health Rankings & Roadmaps (CHR&R), University of Wisconsin Population Health Institute, Washington, 2021; United States Life Tables, 2021, National Vital Statistics Reports (Volume 72, No. 12, November 7, 2023)
Note: Data unavailable for NHPI population for United States as a whole.

[13] U.S. Life Expectancy at Birth by State and Census Tract - 2010-2015, National Center for Health Statistics: https://data.cdc.gov/NCHS/U-S-Life-Expectancy-at-Birth-by-State-and-Census-T/5h56-n989/about_data
[14] Data unavailable for Multi-Racial and Other Groups for both Pierce County and the United States.

Educational Access

The Washington School Improvement Framework (WSIF) identifies how schools can improve the education of all students. The Framework combines multiple indicators of students' educational experiences, such as graduation rates, attendance, and proficiency on state tests in math and English language arts, into an overall score for each school. This score is used to determine the level of school improvement funding and support a school receives from the state to improve their performance and close achievement gaps.

The WSIF assigns schools within four primary categories:

- **Foundational Supports** represents a school with a strong instruction model but possibly needing focused support.
- **Tier 1** represents a school with a relatively strong instruction model but needing targeted support on improving the outcomes of one or two student groups.
- **Tier 2** represents a school needing targeted support for three or more student groups and/or for English learners.
- **Tier 3** represents a school needing comprehensive support for all student groups and/or needing support to improve the average, four-year, graduation rate to more than 67%.

Schools which are assigned a Tier and do not improve are moved to a higher Tier in the next cycle. Public schools in Bonney Lake are generally performing well and receiving minimal to targeted support. No schools require Tier 3 support as of this report.

Exhibit 20: OPSI Support Status for Public Schools within City Limits, Bonney Lake, 2021

	WSIF Support Tier	
	2017	2023
Bonney Lake Elementary	Foundational	Foundational
Emerald Hills Elementary	Foundational	Foundational
Victor Falls Elementary	Foundational	Tier 1
Lakeridge Middle School	Tier 1	Foundational
Mountain View Middle School	Foundational	Tier 2
Bonney Lake High School	Foundational	Foundational

Source: Washington Office of Superintendent of Public Instruction (OSPI), Washington School Improvement Framework Report Card[15]

[15] https://washingtonstatereportcard.ospi.k12.wa.us/ReportCard/ViewSchoolOrDistrict/102192

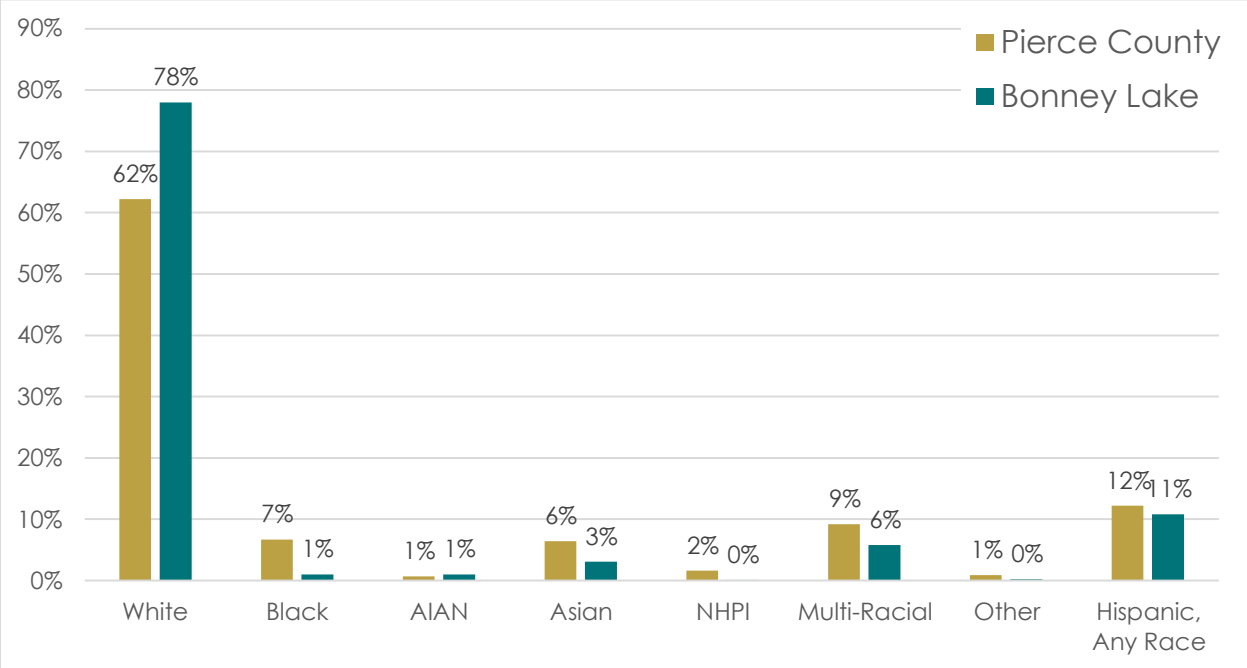
3.3 EXCLUSIONARY HOUSING

Exclusion is the act or effect of shutting or keeping certain populations out of housing within a specified area, in a manner that may be intentional or unintentional. Historically, racially restrictive covenants and redlining were forms of explicit exclusion. Exclusion did not end when federal courts found restrictive covenants unconstitutional. Regulations such as large lot zoning and lending practices, among other local, state, and federal policies, all served to further segregation. Exclusion may extend beyond race to income, ethnicity, or other sociodemographic characteristics. This section examines certain metrics and data to identify exclusionary housing impacts among residents and groups in Bonney Lake.

Residential Racial Composition

Land use regulations may be creating an exclusionary effect when the racial composition of a city varies dramatically from the racial composition of the county in which it is located. Pierce County and Bonney Lake are both majority-white, however there is a discrepancy of 16 percentage points between the city and the county. The City is proportionally overrepresented by white residents and underrepresented particularly by Black, Asian, and multi-racial residents.

Exhibit 21: Race and Ethnicity of Residents, Bonney Lake and Pierce County, 2021

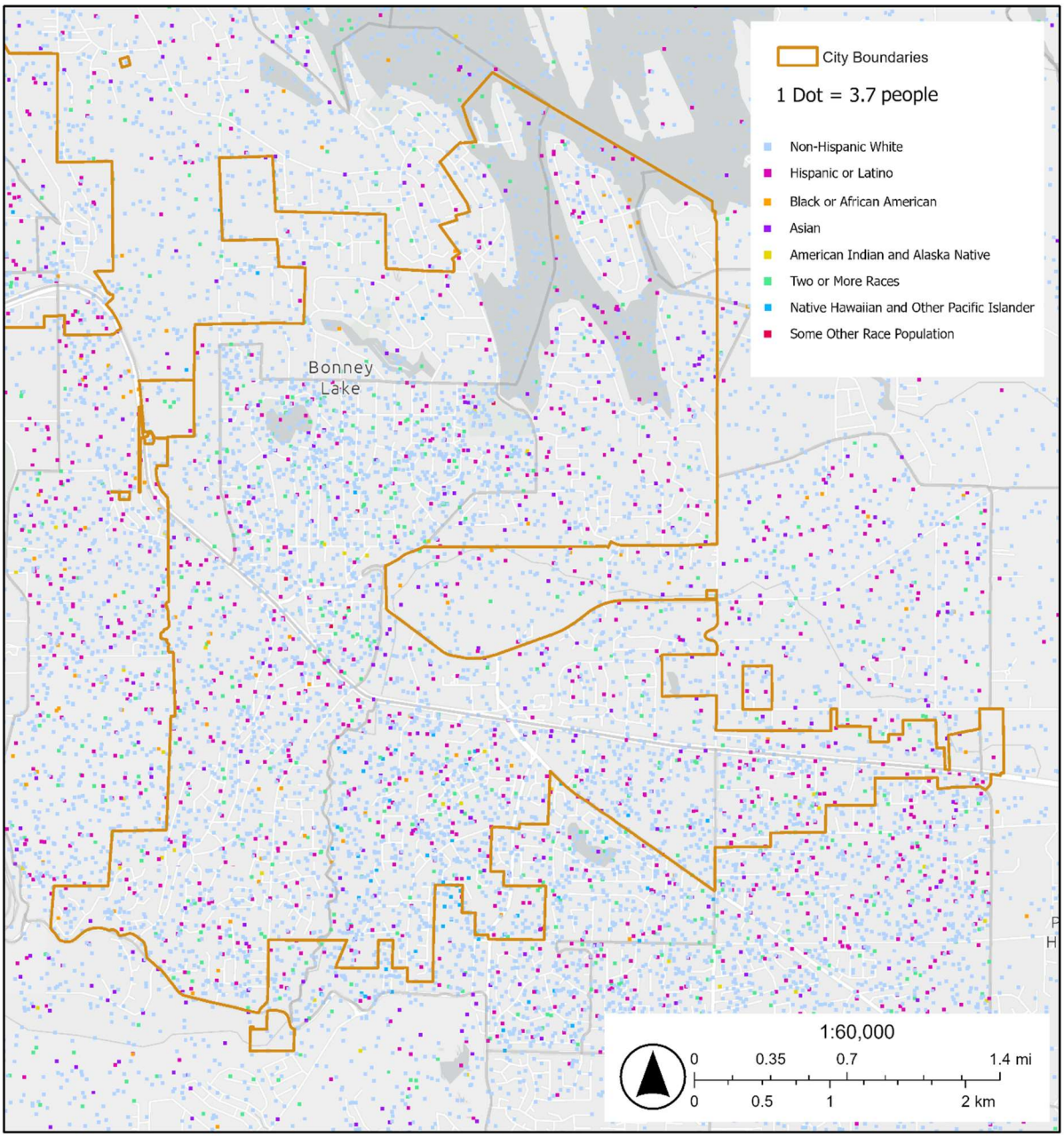


Source: ACS Table DP05, 2011, 2021

Racial Density

Many housing patterns, as products of historical housing or other policies, display racially segregated communities. By identifying an over- or under-representation of a racial group relative to the city, patterns can be illuminated. Segregation is not observed in Bonney Lake (see **Exhibit 22**).

Exhibit 22: Race and Ethnicity by Dot Density, Bonney Lake, 2022



Note: Location of dots are randomized within Census blocks.

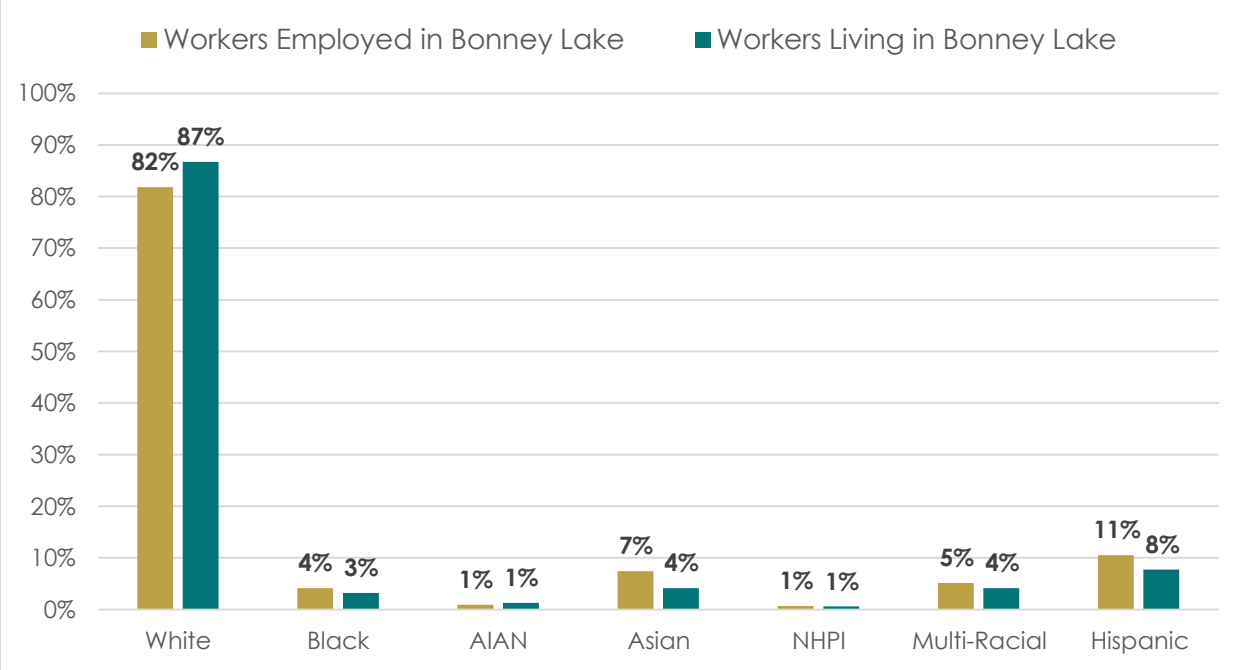
Jobs Housing Balance

A balance between available jobs and housing means that a community can provide adequate housing for those working the City and adequate jobs for those living in the city. There is adequate housing to support local employment when the ratio of total jobs to total housing units nears 1.0. An imbalance results in longer commutes (either to homes or jobs), traffic congestion, air emissions, deterioration of physical and mental health and community strength. Typically, lower-income workers absorb the costs of longer commutes. As of 2021, Bonney Lake has a jobs-to-housing ratio of 1.35.

Comparison of Workers and Working Residents

One approach to assess whether there is evidence of exclusion is to compare the demographic profile of the local workforce (the people who work in a jurisdiction) to the workers who live in a jurisdiction (the working residents). This is a more accurate comparison than comparing the workforce to the residential population since many residents do not participate in the labor force, such as children and the retired. Since people tend to make residential choices based on proximity of their employment, if there is a large disparity between the profiles, it may indicate an exclusionary effect in housing.

Exhibit 23: Composition of Workers and Residential Workforce by Race and Ethnicity, Bonney Lake, 2021

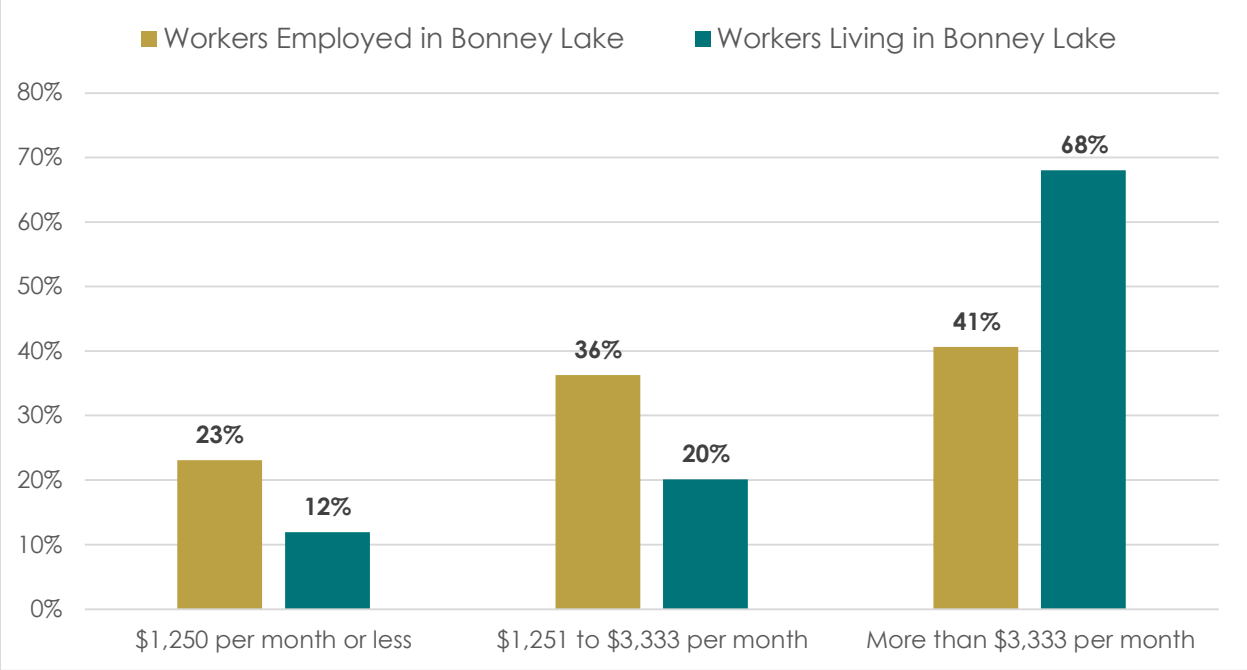


Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Exhibit 23 shows that the workers who live in Bonney Lake proportionally more likely to be White than the people who work in Bonney Lake. The data also shows that workers in Bonney Lake are proportionally more likely to be Black, Asian, multi-racial, and/or Hispanic than those who live in Bonney Lake.

Exhibit 24 provides a comparison of wages amongst workers. Minimum wage in Washington State in 2021 was $13.69, or approximately $2,473 per month for a full-time worker. Up to 59% of workers are making minimum wage, indicating the presence of low-wage and/or part-time work. The highest density of workers traveling to Bonney Lake originate from within Bonney Lake, immediately southwest of the City in unincorporated Pierce County, Buckley, and Sumner (see **Exhibit 28**), a distance of five miles or less, indicating that the exclusionary effect based on wages may be low to moderate.

Exhibit 24: Wage Groups of Workers and Residential Workforce, Bonney Lake, 2021



Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Commute Burden

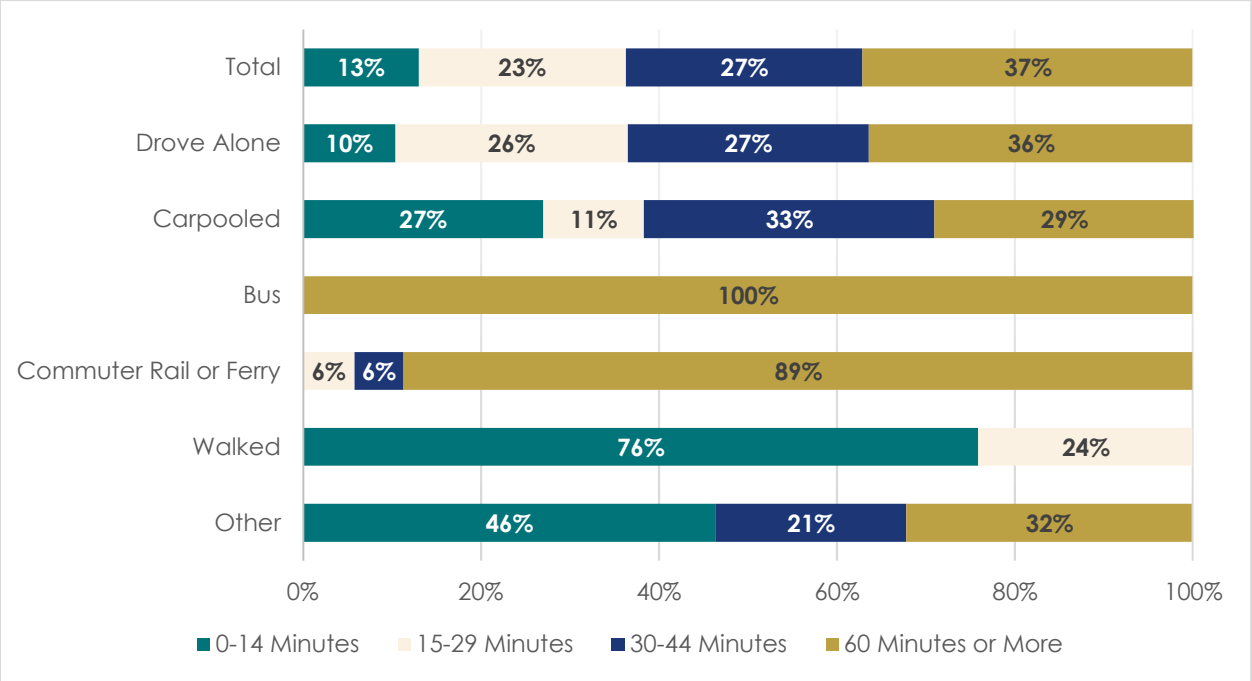
Commute patterns describe how well the existing housing serves the local workforce. When there is inadequate housing for workers, or the housing is not affordable, workers may be excluded from the communities they work in. In Bonney Lake, most workers travel 10 or more miles to work in Bonney Lake, and most residents travel 10 or more miles to work outside of the city (see **Exhibit 25**).

Exhibit 25: Distance Traveled by Workers, Bonney Lake, 2021

	Distance Traveled by Workers Employed in Bonney Lake		Distance Traveled by Workers Living in Bonney Lake	
	Count	%	Count	%
Total All Jobs	5,376	100.0%	10,147	100.0%
Less than 10 miles	2,212	41.1%	3,098	30.5%
10 to 24 miles	1,464	27.2%	3,850	37.9%
25 to 50 miles	833	15.5%	2,417	23.8%
Greater than 50 miles	867	16.1%	782	7.7%

Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

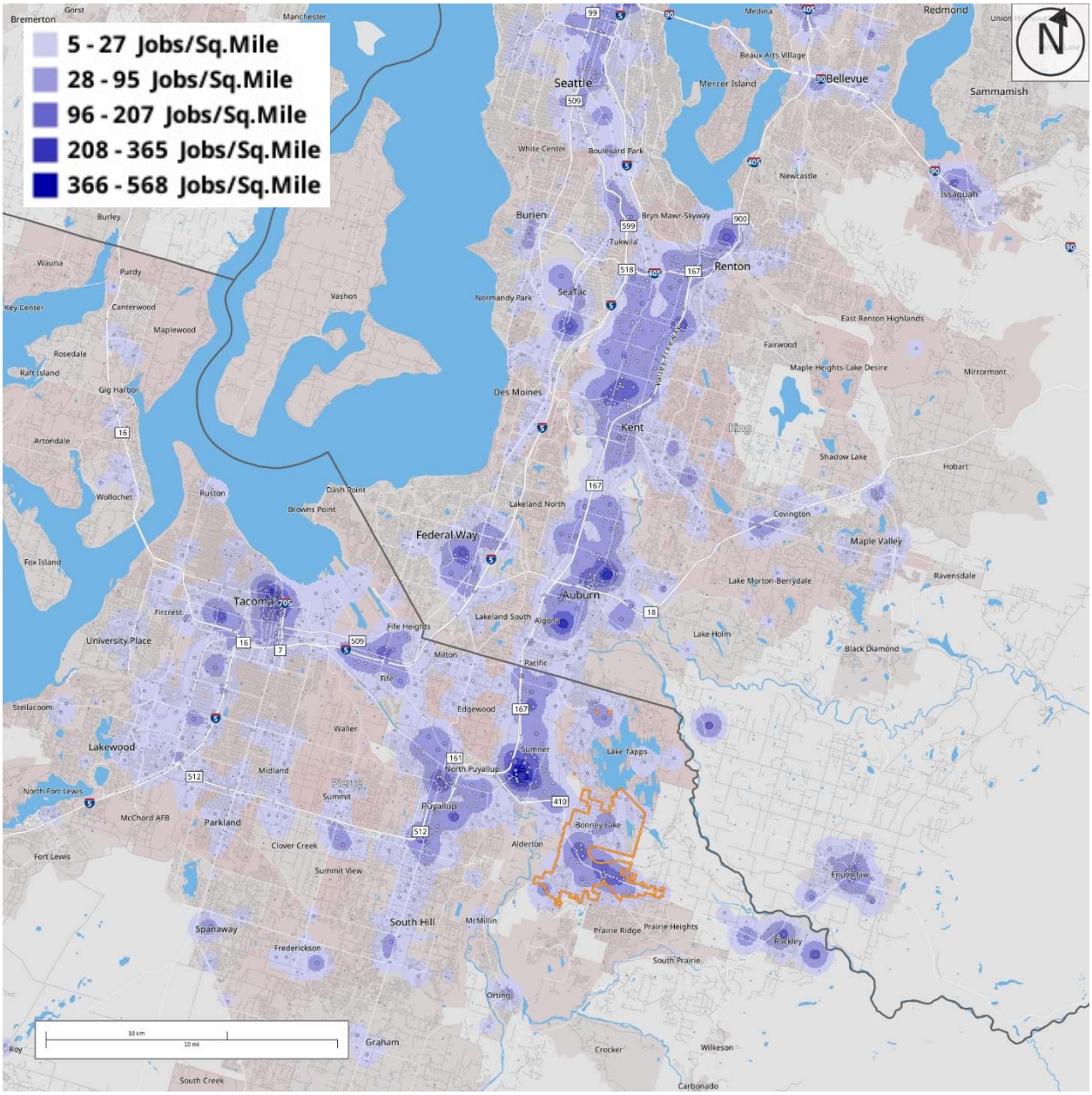
Exhibit 26: Commute Times by Means of Transportation, Bonney Lake, 2021



Source: ACS Table B08134, 2021

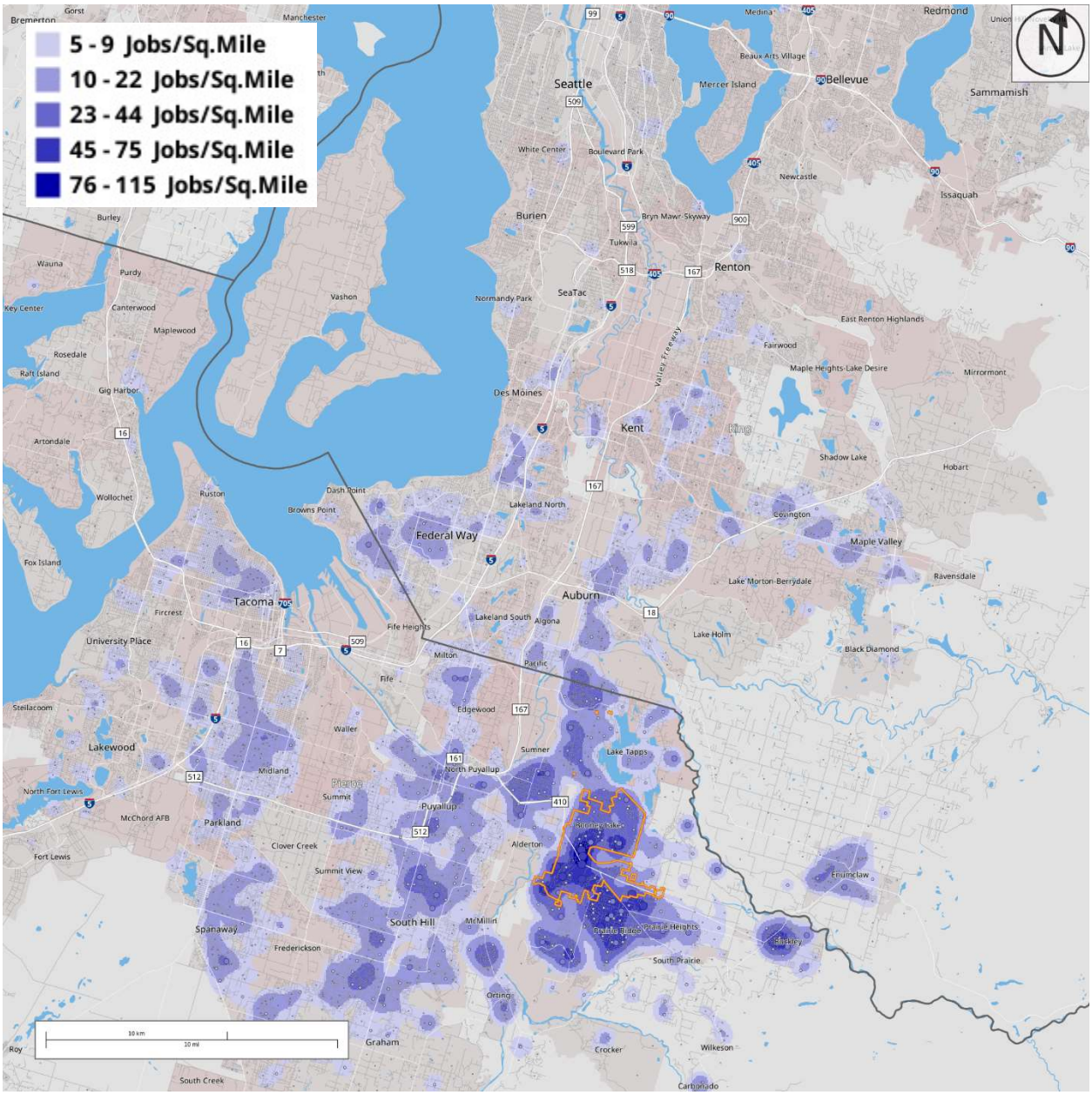
Exhibit 26 shows how workers are commuting. The proportion of commuters driving alone or carpooling are experiencing similar commute times to workers overall. Workers commuting by bus are all experiencing commutes of 60 minutes or more; as of the date of this report, bus service is only available westbound in the morning and eastbound in the evening during peak hours. Commuters connecting to light rail are also experiencing long commutes. This data is consistent with the destinations shown in **Exhibit 27**, which shows concentrations along the SR 167 and I-5 corridors at major transportation hubs.

Exhibit 27: Work Destinations from Bonney Lake, 2021



Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Exhibit 28: Originating Location of Workers Commuting to Bonney Lake, 2021



Source: US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap, 2021

Workers commuting to Bonney Lake are primarily traveling from locations 25 miles or less from Bonney Lake, particularly from nearby unincorporated areas, Buckley, Sumner, and Puyallup. The ability of workers to commute to Bonney Lake may be limited by the lack of transit service to and from the City during peak commute hours.

3.4 DISPLACEMENT

Displacement is when a household is forced or pressured to move from their community by factors outside of their control. Displacement can have a life-changing negative effect on households that are directly impacted. Displacement can happen to households, businesses, and community institutions. Knowing the type of displacement that has or is occurring is important for identifying policy or regulatory options to reduce the adverse impacts of displacement.

While displacement due to rising costs is the most common form, there are many forms of displacement, including:

- **Physical displacement**: Households are directly forced to move for reasons such as eviction, foreclosure, natural disaster, or deterioration in housing quality.
- **Economic displacement**: Households are compelled to move by rising rents or costs of home ownership like property taxes.
- **Cultural displacement**: Residents are compelled to move because the people and institutions that make up their cultural community have left the area.

This section examines certain metrics and data to identify displacement risks in Bonney Lake.

Foreclosures

Foreclosures affect homeowners who are no longer able to maintain mortgage payments or renters whose property owners face foreclosure. The lender must initiate a foreclosure process, which typically happens when the borrower has missed three payments and the fourth is due (typically called the 90-Day Delinquency Rate). A mortgage foreclosure should not be confused with a tax foreclosure, which typically requires the property owner to be in default on property taxes for more than three years.

Under normal circumstances, the foreclosure rate in the United States is typically low, averaging less than 0.5% of all mortgages. The rate peaked in 2010 at 2.23% as part of the sub-prime lending crisis. In 2021, only 0.11% of all mortgages were in foreclosure[16].

In Bonney Lake, five properties had foreclosure documentation recorded with the Pierce County Auditor between January 2020 and May 2024, or approximately 0.03% of housing units with a mortgage in Bonney Lake annually over this period.

[16] Statista Research Department, 2022: https://www.statista.com/statistics/798766/foreclosure-rate-usa/

Evictions

Eviction is the process by which a household is forced to leave their housing due to a failure to meet the conditions of the leasing contract and results in displacement of that household. An eviction filing is a legal notice of an eviction suit filed by a property owner against a renter. People who have experienced eviction are at a greater risk of housing insecurity, vulnerability to exploitation and homelessness. In Bonney Lake, renters are at lower risk of eviction than in Pierce County overall (see **Exhibit 29**).

Exhibit 29: Eviction Filing Rate, Bonney Lake and Pierce County, 2018

BONNEY LAKE WASHINGTON		PIERCE COUNTY WASHINGTON	
0.03 EVICTIONS PER DAY	0.7% EVICTION RATE -1.07 U.S. average	4.3 EVICTIONS PER DAY	1.3% EVICTION RATE -0.52 U.S. average
Eviction Judgments	10	Eviction Judgments	1.6k
Eviction Filings	14	Eviction Filings	2.4k
Eviction Filing Rate	1%	Eviction Filing Rate	2%
Households Threatened	12	Households Threatened	2.3k
Households Threatened Rate	0.9%	Households Threatened Rate	1.9%

Source: Eviction Lab, Princeton University, www.evictionlab.org, 2021

Loss of Housing Units

Over time, housing units may need to be demolished due to disrepair and functional obsolescence. Ideally, lost housing would be replaced by new housing in better condition. However, with this change in housing stock, households can be displaced if they are not able to afford the new housing, or the new housing is in a form or configuration that does not meet their needs.

Exhibit 30 analyzes whether there was a loss of housing units in Bonney Lake between 2011-2021. There was a net increase of 1,926 units, and an increase in each category, indicating that populations were likely not displaced due to loss of housing options.

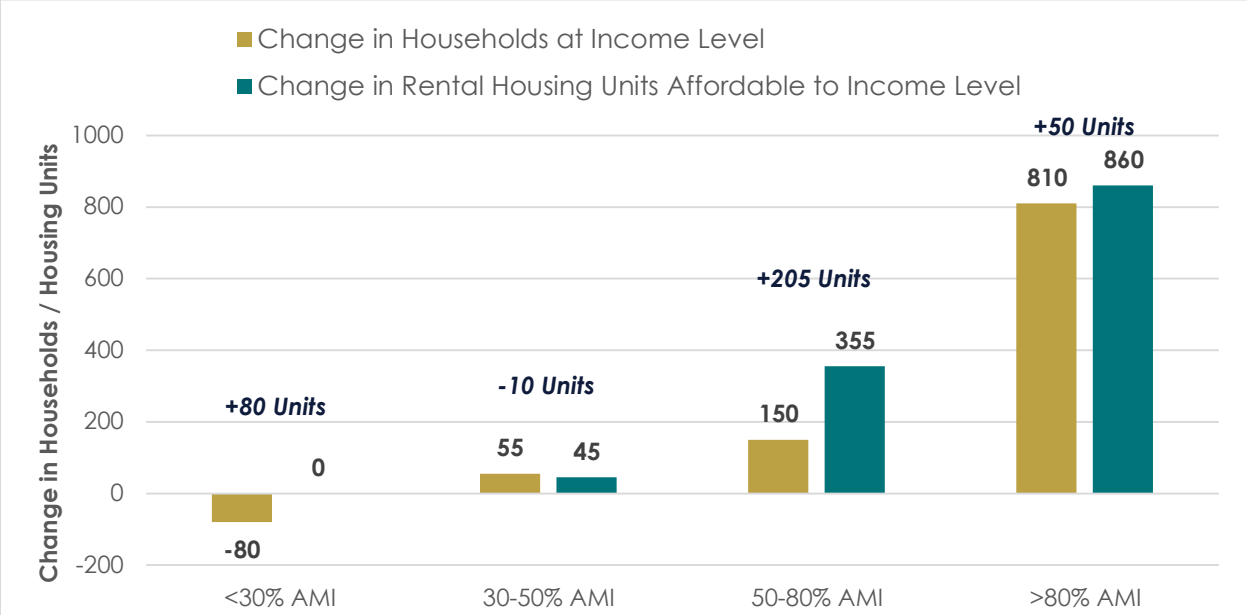
Exhibit 30: Net Change in Housing by Type, Bonney Lake, 2011 – 2021

Housing Type	2011	2021	Change
Single-Family Detached	5,182	6,525	**+1,343**
Townhouses / Multi-Family (2-4 Units)	420	666	**+246**
Multi-Family (5+ Units)	221	448	**+227**
Mobile Homes / Other	415	525	**+110**
Total	***6,238***	***8,164***	***+1,926***

Source: ACS Table B25024, 2011, 2021

Exhibit 31 compares the estimated change in the number of households in each income group and the number of housing units in each affordability group. The change in households could be new households in the jurisdiction or households switching between income groups due to an increase or decrease in income relative to countywide patterns. Changes in rental units could indicate a loss of housing units, new housing units, or the relative affordability of the housing unit over time. In Bonney Lake, access to affordable units improved for all income levels between 2014 and 2020.

Exhibit 31: Change in Renter Households by Income and Rental Units by Affordability, Bonney Lake, 2014 – 2020



Source: HUD CHAS Tables 14B and 15C, 2010-2014 and 2016-2020

Mobile, Manufactured, and Recreational Vehicle (RV) Parks

Mobile, manufactured, and recreational vehicle (RV) parks contain housing units that are often more affordable than similarly located and sized site-built housing. These units offer some of the benefits of homeownership with lower cost points; however, are disproportionately occupied by older adults compared to other housing types and may have fixed incomes. The primary benefit to the homeowner is that by owning the housing unit, the monthly costs are less expensive than similarly sized homes elsewhere. Many residents value the configuration of smaller, detached units, private exterior spaces, parking close to their home, and lack of through traffic.

Once mobile or manufactured units are sited, they are largely immobile, and owners often lack the ability to safely move their home to another park. Moving a unit is costly and could potentially damage the unit. Since market rate housing are often out of the price range for many unit owners, they are functionally captive and vulnerable to increased fees and displacement if the park is closed or converted to other uses. Residents are frequently displaced out of the community when parks close, particularly if the park is small, owned by an individual, and/or is in a non-residential zone.

Park owners are required to register the park with the Washington State Department of Commerce (Commerce). State law also requires that park owners provide twelve months' notice to Commerce when they plan to close the park. Commerce can then provide support to impacted tenants through existing programs.

No parks in Bonney Lake have been closed since at least 2009[17], and while all three parks are zoned commercial, the City is unaware of any redevelopment plans as of this report.

Exhibit 32: Manufactured / Mobile Home Communities, Bonney Lake, 2024

Park Name	Zoning	Ownership	Last Sold	Spaces
Firview Manor	Commercial	LLC (WA)	2005	**26**
Quiet Meadow	Commercial	LLC (WA)	1981	**62**
Woodside Manor	Commercial	INC (CA)	2018	**96**
Total				***184***

Source: Pierce County Assessor Data; Commerce Registered Manufactured / Mobile Home Communities in Washington.

[17] Commerce Community Closure List: https://app.box.com/s/d07sr6q93xj8ejrg5y0gmksw8oahxk0h

Affordable Housing Covenants

Bonney Lake currently has two properties with affordable housing covenants (see **Exhibit 33**). Affordable housing covenants in multi-family housing units limit the rental prices of a certain number of units to local AMI levels. Depending on the subsidy mechanism, owners of affordable housing can convert their properties to market rate rentals when those covenants expire. Expiring affordable housing covenants can lead to the displacement of households who are no longer able to afford their rent.

Exhibit 33: Active Affordable Housing Covenants, Bonney Lake, 2024

Property Name	Funding Type	HUD ID	Expiration	Assisted Units	Total Units
Cedar Ridge Retirement	WA 80/20 Bonds	WA-04-93A	08/31/2028	**25**	123
The View by Vintage	LIHTC 4% Tax Credit	WAA2020024	01/01/2050	**408**	408

Source: National Housing Preservation Database, https://nhpd.preservationdatabase.org/Data
LIHTC: Low Income Housing Tax Credit

Deterioration of Housing Quality

As housing ages, units that have not been well maintained or remodeled over time or which lack complete plumbing or kitchen facilities may indicate a need for housing assistance or rehabilitation loans to prevent displacement.

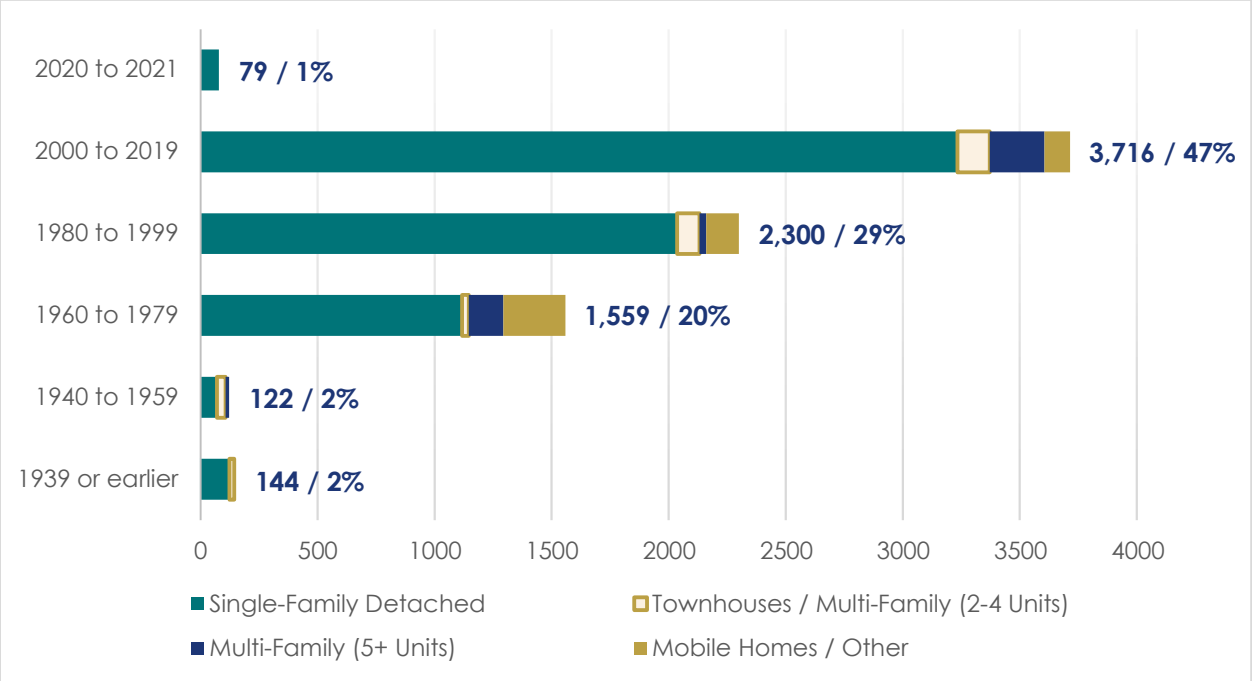
In Bonney Lake, almost 50% of the available housing has been constructed since 2000, and approximately 96% of the available housing is less than 50 years old (see **Exhibit 34**). Overall, the housing stock is very new, however several units have indicators that may be related to a substandard unit. In 2021:

- 74 housing units (1%) did not have complete kitchen facilities, defined as having a sink with a faucet, a stove or range, and/or a refrigerator. These units all included meals in the rent and are likely located within care facilities[18].
- 70 housing units (1%) did not have complete plumbing facilities, defined as having hot and cold running water, a flush toilet, and/or a bathtub or shower. These may indicate substandard units or units within a care facility[19].

[18] ACS Table B25054, 2021
[19] ACS Table B25050, 2021

- 11 housing units (0.1%) indicated "no fuel used", meaning the homes do not use any fuel or do not have heating equipment. These may indicate substandard units or vacant units where utilities are shut off[20].

Exhibit 34: Housing Units by Type and Year Built, Bonney Lake, 2021



Source: ACS Table B25127, 2021

[20] ACS Table B25040, 2021

4. EXISTING POLICY EVALUATION

This section applies a framework based on the Commerce Guidance to assess whether existing housing goals and policies in Bonney Lake's adopted 2015 Comprehensive Plan and existing development regulations may have contributed to racially disparate impacts, displacement, or exclusion in housing.

4.1 METHODOLOGY

The adopted 2015 Comprehensive Plan was screened using the following questions:

1. Does the goal or policy support access to housing and construction and/or rehabilitation of housing to meet identified housing needs?
2. Does the goal or policy have the potential to disproportionally impact, displace, or exclude a group of people, either intentionally or unintentionally? If so, can this be mitigated through policies or actions?
3. Does the goal or policy support outcomes that are distributed equitably throughout the City?
4. Does the goal or policy contain words that may be interpreted as exclusionary? This may include use of vague terminology such as "character", "family housing" or "appropriate" when referring to housing and household types.
5. Does the goal or policy prioritize certain types of households and housing types over others, by using words or phrases such as "citizen" instead of "resident" or "single-family" instead of "single unit" or "low-density" housing?

Using the outcome categories below, the current goals and policies were evaluated to identify which could have contributed adversely to inequity and inequality in home ownership, availability, and affordability.

- **S / Supporting** = The policy is valid and supports meeting the identified housing needs. The policy is needed and addresses or does not contribute to identified racially disparate impacts, exclusion or displacement in housing.
- **N / Neutral or Approaching** = The policy can support meeting the identified housing needs but may be insufficient or does not address racially disparate impacts, exclusion or displacement in housing.
- **C / Challenging** = The goal or policy challenges Bonney Lake's ability to meet the identified housing needs and may be contributing to racially disparate impacts, exclusion or displacement.

4.2 POLICY EVALUATION

2015 Goal / Policy:	Goal CD-2
Current Language:	Develop dynamic and vibrant centers accommodating housing, shopping, services, civic activities, entertainment facilities, and recreational opportunities in a manner that harmoniously blends the natural and built environments.
Finding:	Neutral
Why:	Could be strengthened by expanding the language to accommodate a variety of housing forms.
2015 Goal / Policy:	**Policy CD-2.2**
Current Language:	Policy CD-2.2: Encourage the development of mixed-use, senior housing, high density residential, and public services uses such as education, health care, libraries, childcare, governmental facilities in the centers to create vibrant activity nodes, provide housing choices, advance sustainable development principles, support transit, and preserve the City's existing residential neighborhoods.
Finding:	Challenging
Why:	Preservation or rehabilitation of existing housing stock should be a separate policy. Strengthen the policy by promoting a wider variety of middle- and high-density housing forms.
2015 Goal / Policy:	**Policy CD-4.1**
Current Language:	Planning and land use decisions should recognize residential neighborhoods as the basic "building blocks" of the community, ensure compatibility with existing detached homes, protect neighborhoods from incompatible uses, and maintain a range of residential zones corresponding to the prevailing neighborhood densities.
Finding:	Challenging
Why:	Consider rephrasing to: "Planning and land use decisions should recognize residents as the foundation of the community, by promoting compatibility between existing and new housing units, protecting residential uses from adverse impacts and uses, and maintaining a range of residential zones to support the identified housing needs."

2015 Goal / Policy:	Policy CD-4.2
Current Language:	Allow home occupations in Bonney Lake's residences, if impacts are mitigated and the business does not alter the residential character of the neighborhood.
Finding:	Neutral
Why:	Home occupations can be an important part of the economic and cultural fabric of the community and can improve the affordability and/or accessibility of housing. Strengthen this policy by focusing on "when all applicable regulations can be satisfied" rather than assuming negative impacts.
2015 Goal / Policy:	**Policy CD-4.3**
Current Language:	Allow schools, day care centers, senior centers, group homes, public and semi-public facilities (e.g. churches), and nursing care facilities in residential areas, subject to conditions which limit the impacts of these uses on nearby properties. To the extent permitted by state and federal law, conditions of approval may be placed on such uses to ensure that they are operated in a manner that is sensitive to neighborhood concerns, and that maintains residents' quality of life. In addition, such uses should be sited in a way that minimizes the exposure of future occupants to noise, localized air pollutions sources, and other environmental hazards.
Finding:	Neutral
Why:	Delete this policy – these issues are addressed via permitting procedures and development standards.
2015 Goal / Policy:	**Policy CD-4.3[21]**
Current Language:	Provide healthy and safe neighborhoods free of nuisances, environmental hazards, and visual blight (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.) that disrupt and impact Bonney Lake residents' quality of life.
Finding:	Neutral
Why:	Nuisances are often coupled with a lack of financial or physical ability to address an issue, and can disproportionately impact low-income, elderly, or disabled populations. Consider updating to: "Support healthy and safe neighborhoods by developing and implementing programs to address nuisances and environmental hazards (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.)."

[21] Policy number duplicated in adopted Comprehensive Plan.

2015 Goal / Policy:	Policy CD-9.2
Current Language:	Use development regulations to direct growth, ensure sufficient opportunities for new development, improve Bonney Lake's quality of life, preserve existing neighborhoods, reduce nuisances, achieve compatibility between adjacent properties and uses, address land use conflicts, and protect the health and safety of residents, visitors, and workers.
Finding:	Neutral
Why:	Consider clarifying this policy by rephrasing to: "Adopt and routinely update development regulations to direct growth, ensure sufficient opportunities for new development, maintain and improve Bonney Lake's quality of life, preserve and rehabilitate existing housing stock, mitigate nuisances, achieve compatibility between adjacent properties and uses, and protect the health, safety and welfare of residents, workers, and visitors."
2015 Goal / Policy:	**Policy CD-9.11**
Current Language:	Redevelop Bonney Lake's underdeveloped or vacant sites in a manner that balances providing an array of housing, jobs, retail, recreational, and entertainment opportunities, with the need to respect the scale and form of surrounding properties and neighborhoods.
Finding:	Challenging
Why:	Policies with the potential to displace existing households should be paired with policies to support these households with relocation or opportunities to participate in the new development. This policy should be updated to respect the planned scale and form of surrounding properties; as written it prioritizes individual existing development over the needs of the community overall
2015 Goal / Policy:	**Goal CD-10**
Current Language:	Provide a variety of housing options that will meet the needs of all Bonney Lake's residents and are affordable to all economic segments of Bonney Lake.
Finding:	Supporting
Why:	Could be strengthened to include the identified housing needs of current and future residents.

2015 Goal / Policy:	Policy CD-10.1
Current Language:	Encourage the development of a diverse and high quality housing stock that provides a range of housing types (including family and larger-sized units) to accommodate the diverse needs of Bonney Lake's residents through changes in age, family size, and various life changes.
Finding:	Neutral
Why:	Focuses on families instead of households; could be updated to support a variety of life changes such as age, household size, income, and mobility; and does not also encourage preservation and rehabilitation of existing housing stock.
2015 Goal / Policy:	**Policy CD-10.2**
Current Language:	Encourage the development of special-needs housing, especially for seniors, such as independent living facilities, various degrees of assisted living facilities, and skilled nursing care facilities.
Finding:	Neutral
Why:	Bonney Lake has a higher proportion of individuals under the age of 65 with disabilities; the policy currently emphasizes seniors with disabilities over other special-needs populations.
2015 Goal / Policy:	**Policy CD-10.3**
Current Language:	Actively promote community awareness and education campaigns regarding affordable housing in order to engender acceptance throughout the community.
Finding:	Challenging
Why:	This policy inadvertently reinforces stigma around the term "affordable housing", instead of more accurately referring to housing affordable to the residents who live here. This policy can be strengthened by promoting community awareness of homeownership programs, tenant protections, rehabilitation / preservation programs, and rental assistance available in Pierce County.
2015 Goal / Policy:	**Policy CD-10.4**
Current Language:	Explore methods and partnerships to reduce the costs associated with developing housing.
Finding:	Supporting
Why:	This policy could be clarified to indicate whether this is supported throughout the City or just in specific zoning districts or for specific housing types.

2015 Goal / Policy:	Policy CD-10.5
Current Language:	Ensure that there is a sufficient supply of housing affordable to all income levels by maintaining a supply of housing that is currently affordable to median-income, low income and very low-income households, and work to increase the supply of housing affordable to households within Bonney Lake that make eighty percent (80%) of the Pierce County Median Income by 702 housing units[22].
Assessment:	Supporting
Why:	This policy could be clarified to indicate whether this is supported throughout the City.
2015 Goal / Policy:	**Policy CD-10.6**
Current Language:	Actively participate in regional responses to housing needs and issues.
Assessment:	Supporting
Why:	This policy lacks specificity. Consider updating the policy to: "Work with Pierce County and other local governments to investigate and implement regional funding options to support the development and/or maintenance of affordable housing such as a regional housing trust fund, regional housing tax levy, real estate excise tax or other mechanisms."
2015 Goal / Policy:	**Policy CD-10.7**
Current Language:	Allow the use of recreational vehicles (RVs) as a primary residence within mobile home parks when all applicable regulations can be satisfied.
Assessment:	Neutral
Why:	While RVs can be an excellent temporary housing option, they depreciate in value quickly and can be difficult to repair, sell, and insure. Consider pairing this policy with support for transitioning into alternative, permanent housing options, if desired by the occupant.
2015 Goal / Policy:	**Policy CD-10.8**
Current Language:	Allow manufactured homes in all residential zones that allow single-family residences.
Assessment:	Supporting
Why:	This policy assumes the type of household occupying the unit. Consider updating the policy to reference single-unit dwellings instead of single-family residences.

[22] Pierce County's Countywide Planning Policy (CPP) AH-3.3 provides that it should be the goal of every City that a minimum of twenty-five percent of the growth allocated to a jurisdiction is satisfied through affordable housing. CPP-AH-3.1.1 defines "affordable housing" as households making less than eighty percent of the countywide median income. Twenty-five percent of the growth allocated to the City of Bonney Lake by Pierce County pursuant to Ordinance No. 2011-36s as amended by Ordinance No. 2017-24s is 702 housing units.

2015 Goal / Policy:	Policy CD-10.9
Current Language:	Regulate residential structures occupied by persons with handicaps no differently than similar residential structures occupied by a family or unrelated individuals.
Assessment:	Challenging
Why:	Disabilities can by physical or cognitive, and disabled customers may need additional reasonable accommodation to ensure an equitable permitting process. Consider clarifying the policy to ensure there are no functional barriers to permitting associated with housing units occupied by disabled persons.
2015 Goal / Policy:	**Appendix C, Centers Plan, Policy CP-1.1**
Current Language:	Adopt land use and zoning that supports housing and employment growth within the centers.
Assessment:	Neutral
Why:	This language could be clarified to clearly support a variety of housing forms to meet the identified housing need allocated to the Centers.

5. RECOMMENDED STRATEGIES

Based on the **Impact** Assessment and **Existing Policy** Evaluation, this section summarizes recommended strategies to address the identified racially disparate impacts, displacement and exclusion in housing. To meet the housing needs of all community members, Bonney Lake will need to use a range of policies, incentives, strategies, actions and regulations.

1. Revise existing policy language to clarify the policy intent.

Using language that accurately describes the policy intent helps ensure that policy implementation is aligned with its intent. Subjective terms create confusion for interpretation and implementation and can introduce uncertainty that creates barriers to development. Historically, subjective and normative terms such as "character" have been used across the United States to prevent housing development associated with people of color and may contribute to segregation and exclusion.

In Washington, the comprehensive plan of every city and county must be internally consistent (RCW 36.70A.070) and aligned to the goals of the GMA, including encouraging the availability of affordable housing for all economic segments of the population, promoting a variety of residential densities and housing types, and encouraging the preservation of the existing housing stock. Recommended strategies include:

1-A. Define subjective terms such as "character", "quality" and "appropriate" in the housing policies or use alternative language that is specific and accurate to the policy intent. **Remove outdated language such as "blight",** which is associated with historic harm to communities of color. Alternative terminology could include "structures in disrepair" or "structures with deferred maintenance."

1-B. Avoid the use of "single-family". Descriptive terms such as "detached housing units", "low-density housing" or "house-scale development" more accurately describe the intended land use and scale of development and avoid stigmatizing housing types that are not single-family.

1-C. Revise policy language to specify **buffering incompatible land uses** for the health and safety of all residents. Requiring buffers between different residential uses contributes to stigma around people who live in multi-family and middle housing and increases development costs.

1-D. Revise language about "harmonious blending". Consider emphasizing the importance of site design in terms of walkability and access to open space, instead of in terms of visual impacts alone.

1-E. Balance preservation, rehabilitation, and infill policies to meet identified housing needs. Preservation of existing units prefers single-family types by default. Preservation policies are still important but could be balanced by adding language that also supports higher-density development, which helps meet all economic needs in the community and address racially disparate impacts.

1-F. Ensure that policies do not reinforce stigmas around affordable housing and instead emphasize that "affordable housing" refers to any housing that is affordable to the household that is occupying it.

1-G. Clarify language about **planning for all income bands** to the Housing sub-element to reflect new GMA requirements.

2. Add policies to address racial disparities in homeownership.

The Racial Equity Analysis identifies a disparate impact in homeownership amongst the Hispanic and Latino community. VISION 2050[23] Policy AH-7 calls for jurisdictions to support and encourage homeownership opportunities for low-income and middle-income families and individuals while recognizing historical inequities in access to homeownership opportunities for communities of color. Recommended strategies include:

2-A. Conduct additional community engagement with communities of color, particularly the American Indian and Alaska Native, Other, and Hispanic communities to reveal specific barriers to homeownership experienced by these groups. Policy and strategy updates should prioritize the needs and solutions expressed by this disproportionately impacted community for implementation.

2-B. Inform the community about down payment and assistance programs, which offer no-interest or low-interest capital for qualified buyers. These programs typically pair with homeownership education courses to encourage financial preparedness for participants. To address disparities in homeownership in the Hispanic community, promote these programs in Spanish, partner with providers to bring more classes to Bonney Lake, and support programs by providing meeting rooms and outreach.

2-C. Dedicate surplus or underutilized land for affordable housing production.

[23] Available online at: https://www.psrc.org/planning-2050/vision-2050

2-D. Consider a **density bonus ordinance** to allow for increased density when income-qualified housing units are provided.

2-E. Review **tree retention requirements** for clarity and potential flexibility. Tree retention codes can be particularly costly to housing development.

2-F. Review impact fees for potential flexibility and/or waive fees for development of low-income and very low-income housing units.

2-G. Review height limits in each zone for potential flexibility. Height limits are a common barrier to developing some low- and moderate-density housing types.

3. Add policies to reinforce existing practice codified in the Bonney Lake Municipal Code, guide the expansion of municipal services in the urban area and ensure the benefits of infrastructure improvements are equitably distributed.

3-A. Unintended displacement impacts could occur when sanitary sewer conversion costs are passed on to property owners. Displacement impacts could be minimized through **flexibility in fees for low-income homeowners or affordable units**.

3-B. Develop and update the Capital Improvement Plan with a goal of providing **equitable access to municipal services** such as roads, pedestrian and bicycle facilities, park facilities, street trees, and utilities.

4. Add policies and regulations to address displacement risk.

4-A. Require tenant relocation assistance. The City could pass an ordinance that requires developers to provide relocation funds for households displaced by new development. This could be limited to tenants earning below a certain income level.

4-B. Require mobile home park relocation assistance. The City could require an evaluation and mitigation of displacement impacts, including relocation assistance, for any proposals to redevelop a mobile, manufactured, or recreational vehicle park.

4-C. Pass a notice of intent to sell ordinance. The City could require owners of multi-family buildings or mobile, manufactured, or recreational vehicle parks to notify tenants and the City in advance of a sale. The ordinance could be written to apply to buildings with rents below certain income levels.

4-D. Support the acquisition of housing developments by private, non-profit, and public low-income housing groups, by acting as a facilitator between the groups and property owners to aid in the preservation of low- and very low-income housing.

4-E. Connect residents to local and state need-based rehabilitation assistance programs. This assistance helps qualifying households (such as senior residents and those with disabilities or low incomes) get favorable financing terms or tax abatements for home repairs and upgrades.

4-F. Encourage expansion of programs that result in home repair, weatherization, and other energy-efficient improvements to owner-occupied and rental housing and promote additional funding for these programs at the state and federal level.

4-G. Provide information on Pierce County's property tax assistance program. Residents who own their homes may struggle to afford property tax increases. Pierce County provides some exemptions for senior citizens and people with disabilities. The City could send mailers and/or provide information on the City website to connect residents to County resources.

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Appendix B: Land Capacity Analysis

September 2024

BONNEY Lake

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printing purposes.

Land Capacity Analysis Memo

To: Jason Sullivan – Interim Public Services Director, City of Bonney Lake

From: Dane Jepsen, Associate Planner, LDC Inc.

CC: Kim Mahoney, Principal Planner, LDC Inc.

Date: March 29, 2024; Updated September 18, 2024

Re: City of Bonney Lake 2024 Land Capacity Analysis

Executive Summary

This Land Capacity Analysis (LCA) assesses an inventory of the vacant and underutilized land within a city's jurisdiction and determines whether the city can accommodate its projected growth targets. This assessment allows the city to gain a better understanding of how much land is available for development, how the city can utilize the available land to meet the projected growth targets, and highlights potential changes needed to achieve the land capacity necessary to accommodate all housing and employment needs projected for the city.

This LCA found the City of Bonney Lake (City) has ample capacity to meet its employment and Emergency Housing growth targets and has an excess of housing capacity for Low-to-High income households but has a housing capacity deficit for those within very low and extremely low-income households. This housing capacity deficit is due to the lack of low-income-serving housing solutions and would require the City to plan to provide an additional 423 residential units by 2044. Given the shortfall in housing capacity, the City has evaluated growth alternatives to accommodate its housing target; these are outlined in the Growth Alternatives memorandum and support the City's commitment to meeting its adopted growth targets.

This memorandum further details the background, methodology, and findings that inform an update to the City's capacity for housing and employment previously established by the Pierce County Buildable Lands Report (BLR).

Background

The City is required to estimate its land capacity to support anticipated growth over the planning period in the land use element[1] of its comprehensive plan (WAC 365-196-405).

In cities within Pierce County, the LCA relies on findings from the BLR. The BLR is an assessment completed by Pierce County that helps determine the amount of land suitable for development within the County, evaluates each city's capacity for growth, and projects the future housing and employment capacity for each city. The BLR bases its findings on recent development activity data provided by the cities within Pierce County. This report is known as the Buildable Lands program (RCW 36.70A.217) and was last updated in 2021[2]. These data form the basis for updating the analysis of land capacity.

[1] The City has chosen to combine the required land use element and housing element into one element due to the significant interrelatedness of these elements, and the significant role these elements play in the lives of Bonney Lake residents.

[2] The 2021 Buildable Lands Report is based on an inventory of permits and property status as of January 2020 (Pierce County Buildable Lands Report – Fourth Edition, Revised Version pg. 17).

Land Capacity Analysis Overview

Washington Department of Commerce (Commerce) has developed guidance on conducting LCAs; see Evaluating Land Capacity to Meet All Housing Needs, which is specific to housing capacity related to House Bill (HB) 1220, and Urban Growth Area Guidebook, which addresses both housing and employment capacity in relation to the Growth Management Act (GMA).

In partnership with LDC, the City has analyzed development capacity for the 2020-2044/49 planning periods according to Commerce guidance. In this summary, findings from the LCA are reported according to Commerce guidance with underlying analysis performed based on the Pierce County BLR methodology.

Land Capacity Analysis Methodology

The 2021 Peirce County BLR methodology can be broken into two stages: Stage One - Buildable Lands Inventory and Stage Two - Buildable Lands Capacity Analysis. The lists below outline the general stages of this methodology[3]:

Stage One - Buildable Lands Inventory:

- Pre-Processing
- Step One – Land Use Look-Up
- Step Two – Inclusions and Exclusions
- Step Three – Feasibility
- Step Four – Overrides

Stage Two - Buildable Lands Capacity Analysis:

- Housing Capacity
- Employment Capacity

The two stages and their associated steps were incorporated into this LCA as indicated below:

Stage One - Buildable Lands Inventory

Stage One of the Pierce County Buildable Land Analysis was performed through a county-wide parcel dataset being processed through a scripted model in a Geographic Information System (GIS) setting; this would have been necessary due to the scope of the County's analysis. This LCA also worked from a continuous parcel dataset including all parcels in the City's jurisdiction; considering the decreased scale of this analysis, the analysis was performed in an Excel workbook rather than a GIS. A series of formulas and lookup tables used the following data inputs to compile a Buildable Lands Inventory for the City:

- Parcel data (Pierce County Assessor, May 2023)
- Property Improvement Data (Pierce County Assessor, May 2023)
- Use Code Table (Pierce County 2021 Buildable Lands Report p. 353-358)
- Parcel Critical area coverage (Pierce County 2021 Buildable Lands Inventory[4] "ENV_ACRES")
- Traffic Analysis Zone Map (Pierce Transit, 2023)
- Zoning and future land use maps (City of Bonney Lake)
- Recent permitted development (01/2020-04/2023) and pipeline projects (City of Bonney Lake)
- Zone Assumptions (Appendix ACity of Bonney Lake)

[3] Documentation of the 2021 BLR methodology is fragmented and only addresses the Buildable Lands Inventory process. This description of the methodology is based on LDC's interpretation of the data produced by each analysis.

[4] https://piercecowa.maps.arcgis.com/home/item.html?id=361d44275b464dceba4758c0c9635ae0

Pre-Processing

Prior to beginning the analysis, the continuous parcel dataset including all parcels in the City's jurisdiction needed to be assembled and all base data required for the analysis needed to be joined to it. This process was performed in a GIS using spatial and attribute-based data joins. This process was executed over several review cycles which continuously compared the inventories results to the 2021 Buildable Lands Inventory; the final dataset was compiled using the following sub-steps:

1. Filter parcels to only "Base Parcel" tax parcel type.
2. Join recent permitted development and pipeline projects to base parcels.
3. Spatially join critical area encumbrances from 2021 Buildable Lands Inventory to base parcels.
4. Spatially join current zoning and future land use map designations to base parcels.
5. Join Property Improvement Data current city parcels, then spatially to base parcels.

After these sub-steps were performed, the base dataset for the Buildable Lands Inventory was compiled and exported into an Excel workbook for further analysis. Every parcel in the base dataset was processed through the following steps resulting in the parcels classification of one of the following Buildable Lands Inventory designations:

Buildable Lands Inventory designation	Description
Vacant	Land that is vacant of any improvements or existing use. Can be identified by Pierce County Assessor use code or by improvement value.
Vacant Single Unit	Vacant land that is too small to develop more than one Single-Family Residential unit on. This designation is specific to residential zones.
Underutilized	Land that is not vacant and is identified to have potential for redevelopment. This is identified based on existing development compared to the redevelopment potential.
Pipeline	Land that is associated with an existing land use/civil project being permitted by the City of Bonney Lake that has not yet received approval as of April 2023.
Built Out/Undevelopable	Vacant or developed land that is identified to not likely have any development or redevelopment potential. Some reasons include presence of critical areas, public property, improvement value too high, or not enough space to redevelop.

Table 1 – Buildable Lands Inventory Designations

Step One – Land Use Look-Up[5]

All parcels in the base dataset have their designated Pierce County Assessor Use Code compared against the Use Code Table which defines the development potential of properties based on their use. Possible designations from this table are as follows:

- Unbuildable
- Redevelopable
- Vacant
- Aircraft Land
- Gov Land
- School Land
- Golf Course

[5] The Pierce County Buildable Lands Methodology refers to this as "Stage 1A".

Parcels designated "Vacant" or "Redevelopable" are again evaluated in Step Two - Inclusions and Exclusions.

Step Two – Inclusions and Exclusions[6]

Based on other base data, parcels designated "Vacant" or "Redevelopable" in Step One are evaluated to either be included or excluded from future analysis.

Possible designations from this step are as follows:

- Exclude
- Vacant
- Pipeline
- Redevelopable

Some parcels will be excluded in this step if they fit any of the following criteria:

- Use type designations in the Use Code Table of "GOV" or "EDUC".
- Use type designation in the Use Code Table of "RES SFR" with a Pierce County Assessor property improvement value over $500,000.
- Use type designation in the Use Code Table other than "RES SFR" with a Pierce County Assessor property improvement value over $1,500,000.
- Any recent[7] permitted development was reported for the parcel.

Some parcels will be included in this step if they fit any of the following criteria:

- Use type designation in the Use Code Table other than "RES SFR" with a Bonney Lake zone type of "MIX COM" or "COM".
- Any pipeline projects were reported for the parcel.

Any parcels that were not explicitly included or excluded by one of the above conditions are advanced to Step Three with the parcel designation they received in Step One.

Step Three – Feasibility

In Step Three, parcels designated "Vacant" or "Redevelopable" had the feasibility of potential development capacity evaluated based on the Bonney Lake Zone Assumptions 9Appendix A), presence of critical areas, and existing residential units or commercial space. This step concludes with a Preliminary Capacity Designation aligning with the final output of the Buildable Lands Inventory (Vacant, Vacant Single Unit, Underutilized, Pipeline, Built Out/Undevelopable).

Net parcel area is determined by subtracting the parcel critical area coverage from the Pierce County Assessors listed parcel size. In some cases, the parcels that had been evaluated for critical areas in the 2021 Buildable Lands Inventory have since had their parcel area updated in the assessor's data or parcels had a listed acreage of 0, resulting in negative values for net parcel area; because of this, net parcel area is limited to 0.

Vacant Parcels

Only residential Step Two - "Vacant" parcels were evaluated for subdivision feasibility; if the net parcel area was smaller than the minimum lot size for that parcel's zone, the parcel was designated as "Vacant Single Unit"; otherwise, the parcel was designated "Vacant". All Step Two - "Vacant" parcels in mixed use or commercial zones were designated as "Vacant".

Redevelopable Parcels

All "Redevelopable" parcels were evaluated for redevelopment potential by comparing the build potential (based on zone assumptions and net parcel area) to the existing development. All parcels are evaluated

[6] The Pierce County Buildable Lands Inventory table shows this as "Stage 1B"
[7] Building activity that was permitted in the City between January of 2020 and April of 2023

for both residential and commercial development build potential using the zone assumptions for residential density, mixed-use split, and minimum lot size and commercial density and mixed-use split; see zone assumptions (Appendix A). Parcel redevelopment was deemed feasible for residential or commercial development if the net development to existing development ratio exceeded the following feasibility threshold:

Development	Feasibility Threshold
Residential	>2.5 (Net units/existing units)
Commercial	>5 (Net jobs/existing jobs)[8]

Table 2 – Stage One, Step Three, Redevelopable Feasibility Thresholds

After residential and commercial feasibility was evaluated, a Preliminary Capacity Designation was assigned based on the parcels zoning. Parcels in residential and commercial zones that were deemed feasible for redevelopment were designated "Redevelopable" and those that were deemed infeasible were designated "Built Out/Undevelopable". Parcels in mixed-use zones needed to meet two conditions to be designated "Redevelopable":

1. Have either commercial or residential redevelopment feasibility, and
2. Neither commercial nor residential have a negative net development to existing development ratio.

This ensures that parcels in mixed-use zones, with substantial residential or commercial development, were not included for redevelopment potential. Parcels were designated "Built Out/Undevelopable" if either of these conditions were not met.

Pipeline Parcels

All parcels with the Step two designation of "Pipeline" received a Preliminary Capacity Designation of "Pipeline".

Excluded Parcels

All parcels with the Step two designation of "Exclude" received a Preliminary Capacity Designation of "Built Out/Undevelopable".

Step Four – Overrides

Following Preliminary Capacity Designation, parcels were exhaustively reviewed by LDC and City staff to identify unique circumstances such as parcels with inaccurate assessor's use designations, parcels owned by the City, and parcels that served some other incompatible use, such as access tracts or stormwater infrastructure. This review closely considered previous designations from the 2021 Buildable Lands Inventory. Any exceptions or discrepancies identified in this review were corrected by directly overriding the assigned designation with one determined to be accurate by LDC and City staff, resulting in a Final Capacity Designation.

Stage Two - Buildable Lands Capacity Analysis

Stage Two of the 2021 Pierce County Buildable Land Analysis was performed within an Excel workbook through a progressive calculation table applying zone assumptions and summarizing development capacity by each zone of each jurisdiction. This LCA worked from a progressive calculation table of the same structure, but summarized capacity by zone and by Traffic Analysis Zone (TAZ) for a total of 484 rows of zone/TAZ combinations of summarized capacity.

[8] Existing jobs were estimated based on Property Improvement Data commercial building square-footage and Use type designations in the Use Code Table. Commercial Properties (Use Type "FIRES" or "RETAIL") had an assumed 500 square-feet per employee, Manufacturing Properties (Use Type "MANU" or "WTCU") had an assumed 900 square-feet per employee.

While Stage One involved the estimation of development capacity for the purposes of determining site feasibility, none of the counts of residential or commercial capacity are directly included in this stage of analysis other than those counts from recent development, Pipeline projects, and Vacant Single Unit parcels; all remaining capacity is calculated strictly based on the base dataset and Final Capacity Designation from Stage One.

The progressive calculation table summarized components of residential and commercial capacity in steps; the added the steps together yield a final residential and commercial capacity for each zone/TAZ combination. This Final Capacity (employment and housing) becomes the input for Step 1 of the Commerce LCA guidance (discussed on page 12 of this memorandum).

Housing Capacity

Housing capacity was calculated for each zone/TAZ combination. The diagram below shows the basic progressive steps that are incorporated in the calculation of Final Housing Capacity. Details of each step are provided beneath the diagram.

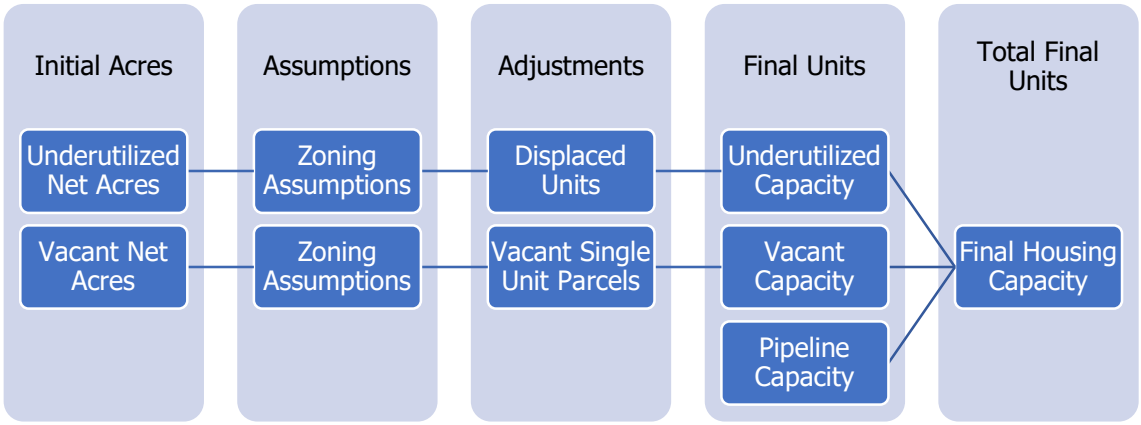


Figure 1 – Stage Two, Housing Capacity Calculation

Initial Acres

Housing capacity's initial acres are net acres (total acres minus any critical areas). Only the acres of parcels with a Stage One Final Capacity Designation of "Vacant" or "Underutilized" are totaled in initial acres.

Assumptions

Housing zone assumptions include:

- Density
- Mixed-Use Split
- Market Factor
- Plat Deductions
- Non-residential Use in Residential Zone

Assumptions are unique to each zone. Mixed-Use Split only applies to Mixed-Use zones, the split divides the available land in a zone between housing and employment. Market factor applies a reduction to the total land area available to account for the likelihood of a property being developed given the local real estate market; generally, "Underutilized" land will have a higher market factor than "Vacant" land. Single-family residential zones have a 5% deduction "Non-residential Use in Residential Zone" to plan for the co-location of residences and jobs and future housing; this is deducted from both "Vacant" and "Underutilized" land in applicable residential zones.

Adjustments

Housing adjustments include displaced units and vacant single unit parcels. Any existing dwellings on underutilized land (in all zones) are considered "displaced" in this analysis; actual redevelopment of a

specific site might include the preservation of existing units; regardless, they are subtracted from the total units of underutilized capacity to represent net housing growth. Parcels with a Stage One Final Capacity Designation of "Vacant Single Unit" are counted and added in to vacant housing capacity after zone assumptions are applied; since these parcels will not subdivide, they are not expected to have substantial changes to their future housing dependent on market factor or public dedications.

Final Units

Final units from vacant and underutilized land, as well as those to be provided by pipeline development, are compiled.

Total Final Units

All final units from vacant and underutilized land, as well as those to be provided by pipeline development, are summed to represent total housing capacity for each zone/TAZ combination.

Employment Capacity

Employment capacity was calculated for each zone/TAZ combination. The diagram below shows the basic progressive steps that are incorporated in the calculation of Final Employment Capacity. Details of each step are provided beneath the diagram.

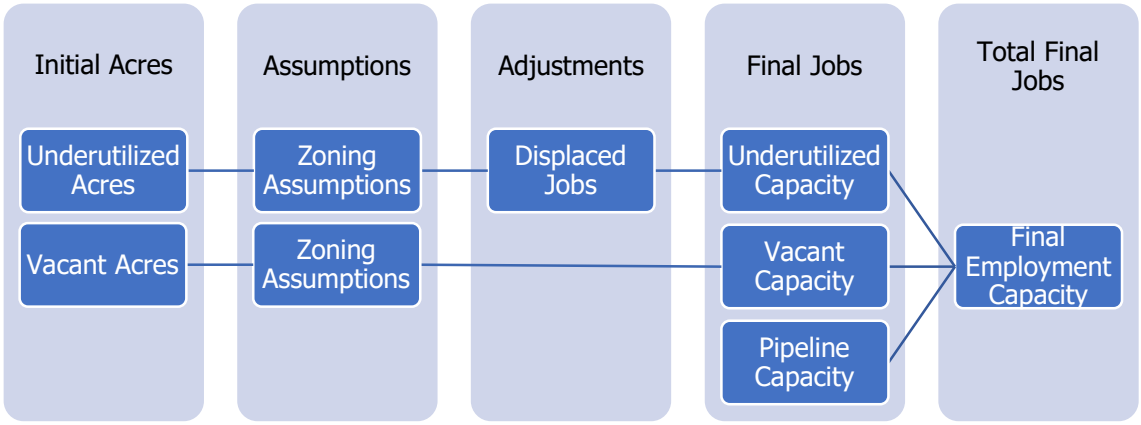


Figure 2 – Stage Two, Employment Capacity Calculation

Initial Acres

Employment capacity's initial acres are gross acres; the 2021 BLR included an employment density survey that recommended a base rate of jobs/acre be applied to gross acreage; this differs from housing initial acres in that critical areas are not considered. Only the acres of parcels with a Stage One Final Capacity Designation of "Vacant" or "Underutilized" are totaled in initial acres.

Assumptions

Employment zone assumptions include:

- Density
- Mixed-Use Split
- Market Factor
- Non-residential Use in Residential Zone

Employment assumptions function very similarly to the housing assumptions, including density, mixed-use split, and market factor assumptions. According to the 2021 BLR methodology, employment density is broadly applied at a rate of 20 employees per acre for commercial/mixed use zones and 9 employees per acre for industrial zones; in Bonney Lake the only industrial zone is the Eastown zone. Non-residential

Use in Residential Zone, calculated in housing capacity, is added to vacant and underutilized employment capacity after acreage deductions are applied but before density is applied.

Adjustments

Employment adjustments include displaced jobs. Displaced jobs work mostly the same as displaced units except they utilize the existing jobs calculation made in Stage One – Step Three of the Buildable Lands Inventory.

Final Jobs

Final jobs from vacant and underutilized land, as well as those to be provided by pipeline development, are compiled.

Total Final Jobs

All final jobs from vacant and underutilized land, as well as those to be provided by pipeline development, are summed to represent total employment capacity for each zone/TAZ combination.

Land Capacity Analysis Results

The LCA produced projections of future capacity for housing and employment. The remainder of this memo will review the LCA's outcomes and options related to the City's 2024 Comprehensive Plan update.

Housing and Employment Targets 2020-2049

On July 7, 2023, the City was assigned housing and employment growth targets for the 2020-2044 planning period (Pierce County Ordinance No. 2023-22s). The planning horizon for the City's periodic update will be extended out to 2049 to coincide with the centennial for the City. The assumed growth rates to achieve the 2044 target for each category were extended at a constant rate to establish an estimated target for the 2049 planning horizon.

Growth Targets	2020-2044	2020-2049
Population Target	Growth: 3,880 Total: 26,367	Growth: 5,042 Total: 27,529
Housing Target	Growth: 1,451 Total: 9,055	Growth: 1,977 Total: 9,582
Employment Target	Growth: 1,717 Total: 8,082	Growth: 2,129 Total: 8,494

Table 3 – Bonney Lake Growth Targets

Current Development

The City provided data for land development that has occurred since the 2021 BLR. The following tables summarize the amount and type of building activity that was permitted in the City between January of 2020 and April of 2023. Any development applications not yet permitted by this date will be incorporated later in the LCA as Pipeline Projects.

2020-2023 Permits	
Development	**Quantity**
Single-Family Detached	170 Units
ADU	7 Units
Multi-Family	505 Units
Total Residential	**682 Residential Units**
Commercial Building	395,340 Square-feet
Total Commercial	**504 Estimated Jobs**

Table 4 – 2020-2023 Permit Summary

Permitted units and jobs can be directly counted against the City's current growth targets because they have effectively increased the City's capacity for housing and employment.

Growth Targets	2020-2044	2020-2049
Housing Target	*1,451*	*1,977*
2020-2023 Permitted Growth	682	682
Target Remaining	**769**	**1,295**
Employment Target	*1,717*	*2,129*
2020-2023 Permitted Growth	504	504
Target Remaining	**1,213**	**1,625**

Table 5 – Remaining Growth Targets

Employment Capacity

Employment capacity includes potential jobs from vacant and underutilized land, known pipeline projects, and the loss of jobs from development activities (Residential or Commercial) removing existing commercial space. Note that even residential zones have employment capacity since the zone assumptions for Bonney Lake include a 5% "Non-residential Use in Residential Zone" to plan for the co-location of residences and jobs for future housing.

Employment Capacity (Jobs)				
Zone	**Initial**	**(Displaced)**	**Pipeline**	**Total**
(C-1) Neighborhood Commercial District	0	(0)	0	0
(C-2) Commercial District	203	(3)	24	224
(DC) Downtown Core District	39	(37)	0	2
(DM) Downtown Mixed Use District	55	(23)	64	96
(E) Eastown District	260	(2)	533	791
(MC) Midtown Core District	429	(7)	63	485
(PF) Public Facilities District	0	(0)	0	0
(R1) Low-Density Residential District	246	(0)	0	246
(R2) Medium-Density Residential District	53	(0)	0	53
(R3) High-Density Residential District	43	(0)	0	43
(RC-5) Residential/Conservation District	36	(0)	0	36
Total	**1,364**	**(72)**	**684**	**1,976**

Table 6 – Employment Capacity Summary

The City has net employment capacity for approximately 1,976 jobs, considering current zoning provides approximately 1,364 jobs (of which, approximately 72 jobs exist on underutilized properties, resulting in Zoned Employment capacity of 1,292 jobs), and approximately 684 jobs will be provided by pipeline development.

Employment capacity in the City is more than sufficient to satisfy its employment growth targets. The table below shows the employment outcomes of the LCA against the 2044 and 2049 targets showing a surplus of 763 and 351 jobs, respectively.

Employment	**2020-2044**	**2020-2049**
2020-2023 Permitted Growth	504	504
Pipeline projects	684	684
Zoned Employment capacity	1,292	1,292
Total Employment Capacity	**2,480**	**2,480**
(Employment Target)	(1,717)	(2,129)
Employment Capacity Surplus (or deficit)	**763**	**351**

Table 7 – Employment Growth Target Progress

Housing Capacity

Per the GMA, the LCA needs to take into consideration capacity for Affordable Housing, Permanent Supportive Housing, and Emergency Housing, as well as needs for traditional market rate housing[9]. These housing types will be referenced throughout the LCA; their definitions from the GMA are available in the table below:

Housing type	Definition from RCW
Affordable Housing RCW 84.14.010	Residential housing that is rented by a person or household whose monthly housing costs, including utilities other than telephone, do not exceed thirty percent of the household's monthly income. For the purposes of housing intended for owner occupancy, "affordable housing" means residential housing that is within the means of low or moderate-income households.
Permanent Supportive Housing (PSH) RCW 36.70A.030	Subsidized, leased housing with no limit on length of stay that prioritizes people who need comprehensive support services to retain tenancy and utilizes admissions practices designed to use lower barriers to entry than would be typical for other subsidized or unsubsidized rental housing, especially related to rental history, criminal history, and personal behaviors. Permanent supportive housing is paired with on-site or off-site voluntary services designed to support a person living with a complex and disabling behavioral health or physical health condition who was experiencing homelessness or was at imminent risk of homelessness prior to moving into housing to retain their housing and be a successful tenant in a housing arrangement, improve the resident's health status, and connect the resident of the housing with community-based health care, treatment, or employment services.
Emergency Housing RCW 36.70A.030	Temporary indoor accommodations for individuals or families who are homeless or at imminent risk of becoming homeless that is intended to address the basic health, food, clothing, and personal hygiene needs of individuals or families. Emergency housing may or may not require occupants to enter into a lease or an occupancy agreement.

Table 8 – GMA Housing Definitions

The City has adopted targets to add an additional 1,451 residential units and 334 emergency beds by 2044. These targets incorporate needs for Affordable Housing, PSH, and Emergency Housing, as well as needs for traditional market rate housing. As is previously stated, Pierce County Ordinance No. 2023-22s (adopted July 7, 2023) establishes the City's housing growth target allocations; the table below outlines permanent housing targets by income and emergency housing target in beds.

Permanent Housing Target (Units) by Affordability (AMI)								Emergency Housing Target (Beds)
0 – 30%		30 – 50%	50 – 80%	80 – 100%	100 – 120%	120% Plus	Total	
Non-PSH	PSH							
187	253	269	213	92	83	354	1,451	334

Table 9 – Affordable and Emergency Housing Targets

In 2021, the GMA was amended to reflect the passing of HB 1220, requiring local government to plan for and accommodate affordable housing to all economic segments. The GMA was later amended in 2023 to reflect the passing of HB 1337, requiring eased barriers to the construction and use of ADUs.

[9] RCW 36.70A.070(2)(c)

To demonstrate compliance with HB 1220, housing capacity is reported according to Commerce guidance[10]; this guidance outlines the demonstration of housing capacity through the following steps:

1. Summarize land capacity by zone.
2. Categorize zones by allowed housing types and density level
3. Relate zone categories to potential income levels and housing types served
4. Summarize capacity by zone category
5. Compare projected housing needs to capacity
6. (If deficit is found) Implement actions to increase capacity for one or more housing needs. Then re-assess capacity (Step 1) based on actions.

1. Summarize land capacity by zone

In the context of recent HBs (HB 1220 and HB 1337), the City has identified capacity for all housing needs in three areas:

1. Zoned capacity – Capacity from vacant and redevelopable land or from pipeline development projects.
2. Accessory Dwelling Unit Capacity (HB 1337) – Potential capacity for the construction of ADUs on existing and future residential lots based on assumed production rates.
3. Emergency Housing Capacity (HB 1220) – Capacity for the City to provide for emergency housing needs based on available land and other opportunities.

Zoned Capacity

The table below summarizes zoned housing capacity identified in Stage 2 of the LCA.

Housing Capacity (Units)				
Zone	**Initial**	**(Displaced)**	**Pipeline**	**Total**
(C-1) Neighborhood Commercial District	0	(0)	0	0
(C-2) Commercial District	0	(0)	0	0
(DC) Downtown Core District	8	(0)	0	8
(DM) Downtown Mixed Use District	27	(1)	24	50
(E) Eastown District	0	(6)	48	42
(MC) Midtown Core District	0	(1)	0	(1)
(PF) Public Facilities District	0	(0)	0	0
(R1) Low-Density Residential District	576	(175)	71	472
(R2) Medium-Density Residential District	180	(74)	12	118
(R3) High-Density Residential District	320	(68)	672	924
(RC-5) Residential/Conservation District	37	(2)	1	36
Total	**1,148**	**(327)**	**828**	**1,649**

Table 10 – Housing Capacity Summary

[10] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), p.19

Accessory Dwelling Unit Capacity (House Bill 1337)

HB 1337 was passed during the 2023 legislative session. The provisions of this bill must be implemented by the City no later than June 30, 2025. The bill states that if a city or county does not amend their rules to be consistent with the law, the provisions of the law "**supersede, preempt and invalidate any conflicting local development regulations.**" (Session law adopting HB 1337, p. 5, lines 14-15).

Recent changes to state law require cities to allow up to two Accessory Dwelling Units (ADUs) on all lots[11] zoned to allow single-family homes, provided the lots meet or exceed the minimum lot size for the zone; in Bonney Lake, this includes the R1, R2, and RC5 zones. There are 7,188 parcels in the R1, R2, and RC5 zoning districts. After excluding various land uses, parcels with critical areas, and parcels with capacity as determined in the LCA, 3,719 lots are eligible for 2 ADUs per HB 1337. Including lots that could add an ADU that have LCA capacity (vacant, underutilized, or vacant single unit) brings the total ADU-eligible lots to 4,261.

Commerce recommends basing estimated ADU production on an estimated participation rate based on the Real Estate market of the jurisdiction[12]. The estimated participation rate was inferred from analysis of recent development in the City. Seven ADUs were permitted in the last three years, which equates to approximately 2.3 ADUs per year. For this LCA, the City assumed that ADU production would increase due to regulation changes required by HB 1337 and expects approximately 5.35 ADUs per year in the 2024-2044 planning period. Extrapolated out over the next 20 years, the City could plan for an additional 107 ADUs by 2044.

Based on an analysis of ADUs built in the last five years, the City assumed a 2% participation rate; this accounts for owners who do not have the means or the desire to build ADUs. Additionally, the City assumed an average of 1.25 ADUs per lot; currently, there are no lots identified in the City that have more than one ADU, but considering the new requirements of HB 1337, lots with two ADUs could exist in the future. Applying this analysis, the City has capacity for 107 ADUs on 85 lots.

ADU Development Capacity				
Available Lots	Participation Rate	Potential ADU Lots	ADUs per Lot	2044 ADU Capacity
4,261	2.00%	85	1.25	107

Table 11 – HB 1337 ADU Capacity

Emergency Housing Capacity (House Bill 1220)

HB 1220 included the addition of Emergency Needs Housing Requirements. These requirements are applicable to all jurisdictions that have been assigned Emergency Needs Housing targets, of which the City has been assigned 334 beds. The bill requires that jurisdictions allow for siting of indoor emergency housing or indoor emergency housing shelters where hotels are allowed or within "a majority of zones within a one-mile proximity to transit." The City lacks any zones permitting Hotels and has one Park & Ride serviced by Sound Transit.

In this LCA, the City accounted for Emergency Housing capacity by dedicating a portion of the vacant land identified for Emergency Housing use. The City selected vacant land because it is more likely to feasibly support the development of Emergency Housing, and the City did not specify specific sites for this Emergency Housing provision because they do not have any regulations limiting the siting, spacing, or intensity of Emergency Housing uses. The City removed a total of 8 acres from the E and PF zones in the LCA and estimated provision for emergency housing according to Commerce Guidance[13] and an assumed construction of Tiny shelter villages and Emergency Congregate shelters.

[11] Lots with critical areas or their buffers are exempt from the requirements of HB 1337.
[12] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), p.28
[13] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), p.47-48

Emergency Housing Capacity						
Site Grouping	Acres	Density	Capacity (beds or units)	Total Capacity	(Total need)	Capacity Surplus (or Deficit)
Tiny shelter villages	4	30 units/acre	120	360	(334)	**26**
Emergency Congregate Shelter	4	60 beds/acre	240			

Table 12 – Emergency Housing Capacity Summary

The City has sufficient capacity in the PF and E zones to meet its Emergency Housing target. The City will need to take steps to ensure this housing is provided, some steps might include coordinating with local shelters or other providers of Emergency Housing and applicable services, pursuing sources of funding for Emergency Housing projects, and including public engagement in the necessary siting of Emergency Housing uses.

Housing Capacity Subtotal

Housing capacity provided by zoning, pipeline projects, and ADU production contributes toward the City's total 2044 housing target of 1,451 residential units. This LCA has identified approximately 391 acres of vacant and underutilized land available for future residential development in the City. Without considering housing needs for income brackets, the City has capacity for 2,438 residential units and has a housing capacity surplus of 987 residential units. The below table shows the residential outcomes of the LCA against the 2044 and 2049 targets.

Housing	**2020-2044**	**2020-2049**
2020-2023 Permitted Growth	682	682
Pipeline projects	828	828
Zoned Housing capacity	821	821
ADU Capacity	107	107
Total Housing Capacity	**2,438**	**2,438**
(Housing Target)	(1,451)	(1,977)
Housing Capacity Surplus (or deficit)	**987**	**461**

Table 13 – Housing Growth Target Progress

2. Categorize zones by allowed housing types and density level

Commerce has developed a framework for determining potential housing affordability. The framework requires the compilation of permitted housing types and maximum allowed density in each zone to assign zones into "Zone Categories" which can be used to better understand how effective the capacity identified in the LCA is at serving "all housing needs."

Housing costs and affordability can vary significantly by housing type, and housing types and densities are determined in part by zoning and other local development regulations. For example, subsidized affordable housing projects are most feasible to produce in low-rise or mid-rise multifamily zones that allow for multi-unit housing production, such as apartment buildings. [14]

The table to the right shows zone categories from Commerce guidance that are applicable to zones in Bonney Lake.

Zone Category	Typical Housing Types Allowed
Low Density	Detached single-family homes
Moderate Density	Townhomes, duplex, triplex, quadplex
Mid-Rise Multifamily	Apartments or condominiums in buildings with ~4-8 floors (~40-85 feet in height)

Table 14 – Zone Density Categories

Based on this framework, the City's residential zones can be classified into the following categories:

Bonney Lake Residential Zone Density Categories				
Zone	Housing Types Allowed	Min Density Required	Max Density Allowed	Assigned Zone Density Category
(DC) Downtown Core District	Apartments or condominiums, Residential over Ground Floor Retail	10.00 Du/Ac	None	Mid-Rise Multifamily
(DM) Downtown Mixed Use District	Apartments or condominiums, Residential over Ground Floor Retail	10.00 Du/Ac	None	Mid-Rise Multifamily
(R1) Low-Density Residential District	Detached single-family homes	4.00 Du/Ac	5.00 DU/Ac	Low Density
(R2) Medium-Density Residential District	Detached single-family homes, duplex, triplex and quadriplex	5.00 Du/Ac	9.00 DU/Ac	Moderate Density
(R3) High-Density Residential District	Apartments or condominiums, townhouses, Duplexes	10.00 Du/Ac	None	Mid-Rise Multifamily
(RC-5) Residential/Conservation District	Detached single-family homes	None	0.20 DU/Ac	Low Density

Table 15 – Bonney Lake Zone Density Categories

[14] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), p.30

3. Relate zone categories to potential income levels and housing types served

Depending on the housing types permitted in a zone, different income levels' housing needs are more likely to be served. The table below outlines the potential income levels served depending on housing type and market rate or subsidized housing; this is based on a standard table provided by Commerce[15]. Household income segments refer to households that are affordable to households at specified AMIs. Income levels are based on the Area Median Income (AMI); in the City, the 2018-2022 Median Income was $123,462[16]. See table to right for Household Income Levels.

Income Levels	
Income Level	Relative AMI
Extremely Low Income	<=30% AMI
Very Low Income	>30% and <=50% AMI
Low Income	>50% and <=80% AMI
Moderate Income	>80% and <=120% AMI
High Income	>120% AMI

Table 16 – Household Income Levels

Zone Category Incomes Served				
Zone Category	Housing Types Served	Lowest Potential Income Level Served		Assumed Affordable Income Level for LCA
		Market Rate	With Subsidies	
Low Density	Single-Family Detached	High Income	Not feasible at scale	High Income
Moderate Density	Townhomes, duplex, triplex, quadplex	Moderate Income	Not feasible at scale	Moderate Income
Mid-Rise Multifamily	Apartments or condominiums in buildings with ~4-8 floors	Low Income	Extremely Low - Very Low Income	Low - Extremely Low Income and PSH
ADUs (all zones)	ADUs on developed residential lots	Moderate Income	N/A	Moderate Income

Table 17 – Zone Category Incomes Served

[15] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), Exhibit 12, p.33
[16] Data from US Census Bureau: QuickFacts, Bonney Lake city, Washington

4. Summarize capacity by zone category

The table below shows zoned capacity from the LCA and compiles it based on the zone density category.

Pipeline projects are not included in this categorization; specific knowledge about the built condition or the proposed projects in the pipeline lends a more accurate measure of what income levels are being served. The table below summarizes recent projects in the permitting pipeline by housing type and income level.

In addition to Pipeline development, the 682 dwelling units constructed since the BLR are accounted for in the table below.

Zoned Capacity by Density			
Zone	Capacity (LCA)	Zone Density Category	Capacity in Zone Density Category
DC	8	Mid-Rise Multifamily	286
DM	26		
R3	252		
R2	106	Moderate Density	106
R1	401	Low Density	436
RC5	35		
ADUs (any zone)	107	ADUs	107
Total	**935**[17]		

Table 18 – Zoned Capacity by Density

Pipeline Development			
Type	Permitted Units	Density Category	Capacity Built Density Category
Multi-Family	280	Mid-Rise Multifamily	280
Townhouse	175	Moderate Density	175
ADU	0	ADU	0
Single-Family Detached	373	Low Density	373
Total	**828**		

Table 19 – Pipeline Development by Density

2020-2023 Development			
Type	Permitted Units	Density Category	Capacity Built Density Category
Multi-Family (<60% AMI)[18]	408	Mid-Rise Multifamily	408
Multi-Family	97	Mid-Rise Multifamily	97
Townhouse	0	Moderate Density	0
ADU	7	ADU	7
Single-Family Detached	170	Low Density	170
Total	**682**		

Table 20 – 2020-2023 Development by Density

[17] This total does not account for 7 residential units displaced in the E and MC zones; since these units aren't being displaced by residential development and do not constitute a significant loss of housing, they are not counted against affordable housing capacity. The net zoned capacity of 927 units is reflected in Table 10.

[18] Multi-family project, "View by Vintage" built between 2021 and 2023, all units were limited to residents with income less than 60% AMI for the next 50 years as the project received low interest loans from the Washington State Housing Trust Fund.

5. Compare projected housing needs to capacity

The adopted income housing targets previously shown (Table 9) are compared to the identified capacity (**Error! Reference source not found.**, **Error! Reference source not found.**, and **Error! Reference source not found.**) in the below table (Table 21). The first two columns are a column-to-row flip of the income housing targets table (Table 9); the remaining columns show the calculations based on the category capacity established on the previous page. Zoned capacity fills higher income brackets before lower ones due to market pressures, pipeline and built capacity is specifically assigned to income categories based on development type and whether the development was market-rate or included an affordable housing component.

Income Housing Target Capacity Summary							
Income Level	Projected Housing Need	Aggregated Housing Needs	2020-2023 Permitted Growth	Total Pipeline Capacity	Zone Categories Serving These Needs	Total Zoned Capacity	**Capacity Surplus (or Deficit)**
0 - 30% PSH	187	709	0	0	Mid-Rise Multifamily	286	**(423)**
0 - 30% Non-PSH	253						
>30 - 50%	269						
>50 - 80%	213	213	408	0	Mid-Rise Multifamily	0	**195**
>80 - 100%	92	175	104	455	Mid-Rise Multifamily, Moderate Density, and ADUs	213	**597**
>100 - 120%	83						
>120%	354	354	170	373	Low Density	436	**625**
Total	**1,451**		**682**	**828**		**935**	

Table 21 – Income Housing Target Capacity Summary

Sufficient Capacity

The current zoned and built capacity is sufficient to meet the needs of households with incomes greater than 50% AMI. Plenty of single-family housing has been built and is in the pipeline, effectively serving the need for greater than 120% AMI households. Additionally, townhouse and multi-family developments have provided ample capacity for households between 80% and 120% AMI. The 50% to 80% target is met solely by the View By Vintage project which constructed 408 income restricted dwelling units that will be income restricted until year 2070 and is than enough to serve the projected need.

Insufficient Capacity

Housing targets for households making less than 50% AMI have not seen any measurable progress since 2020. The combined housing need for households under 50% AMI is 709 units. Current buildable land in Mid-Rise zones does not seem sufficient to meet these targets. The R3, DM, and DC zones have a combined capacity of 286 units, so the total shortfall for households under 50% AMI is 423 units. Yet, this assumes that all the 286 units of zoned capacity would need to be allocated to households <50% AMI, which is unlikely without substantial changes to development regulations. An increased capacity for Mid-Rise Multi-Family residential development and measures to incentivize income restricted development serving Low and Extremely Low incomes may be required to meet these targets.

6. (If deficit is found) Implement actions to increase capacity for one or more housing needs. Then re-assess capacity (Step 1) based on actions.

Note that though the R3, DM, and DC zones have an assumed density of 15 units per-acre in this LCA, higher densities are likely feasible. The City's DC, DM, and R3 zoning classification have a minimum density of 10 units per net acre, but no maximum density. All the zones permit buildings of at least 4 stories of 45 feet, and the DC and DM allow buildings up to seven stories.

The R3 zone has approximately 42.4 acres of land available for residential development with 68 existing units on redevelopable parcels. Including displaced units, the assumed density would have to be increased to just 18.3 to produce a net 709 units. It is possible for the City to accommodate the adopted housing need, but action on behalf of the City will be necessary to ensure this housing capacity deficit solution is implemented.

Conclusion

In partnership with LDC, the City has analyzed development capacity for the 2024-2044/2049 planning period according to Pierce County BLR and Commerce guidance applicable to new State regulations implementing HBs 1220 and 1337. The LCA updates the Buildable Lands Inventory in the 2021 BLR and documents the City's progress towards its Housing and Employment growth targets.

The City has been continually growing and expanding the selection of housing that it allows and is serving a greater range of household incomes than before.

This LCA found the City has ample capacity to meet its employment and Emergency Housing growth targets and has an excess of housing capacity for Low-to-High income households and has a housing capacity deficit for those within very low and extremely low-income households. This housing capacity deficit is due to the lack of low-income serving housing solutions and would require the City to plan to provide an additional 423 residential units by 2044. Given the shortfall in housing capacity, the City has evaluated growth alternatives to accommodate its housing target; these are outlined in the Growth Alternatives memorandum and support the City's commitment to meeting its adopted growth targets.

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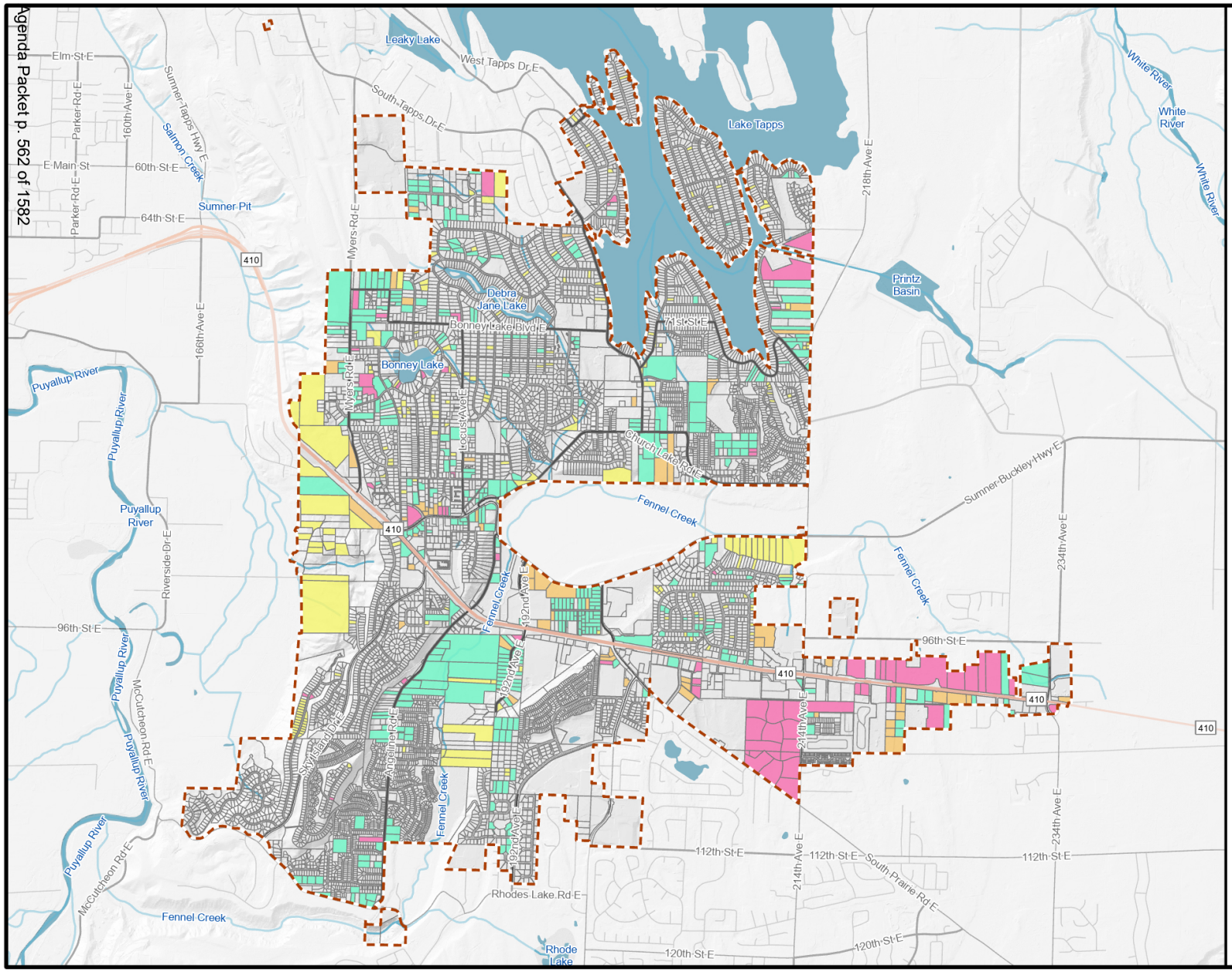
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Appendices

(2024). *Appendix A – LCA Zone Assumptions*

(2024). *Appendix B – 2024 Buildable Lands Inventory Map*

(2024). *Appendix C – Zoning Map*



Envision BONNEY LAKE

Celebrating 100 Years

2024 Buildable Lands Inventory

Legend

- City Boundary
- Built Out/ Undevelopable
- Pipeline
- Underutilized
- Vacant
- Vacant Single Unit

BONNEY Lake

This map is a geographic representation based on information available at the time of production. Bonney Lake disclaims any warranty concerning the accuracy, currency, or completeness of the data depicted.

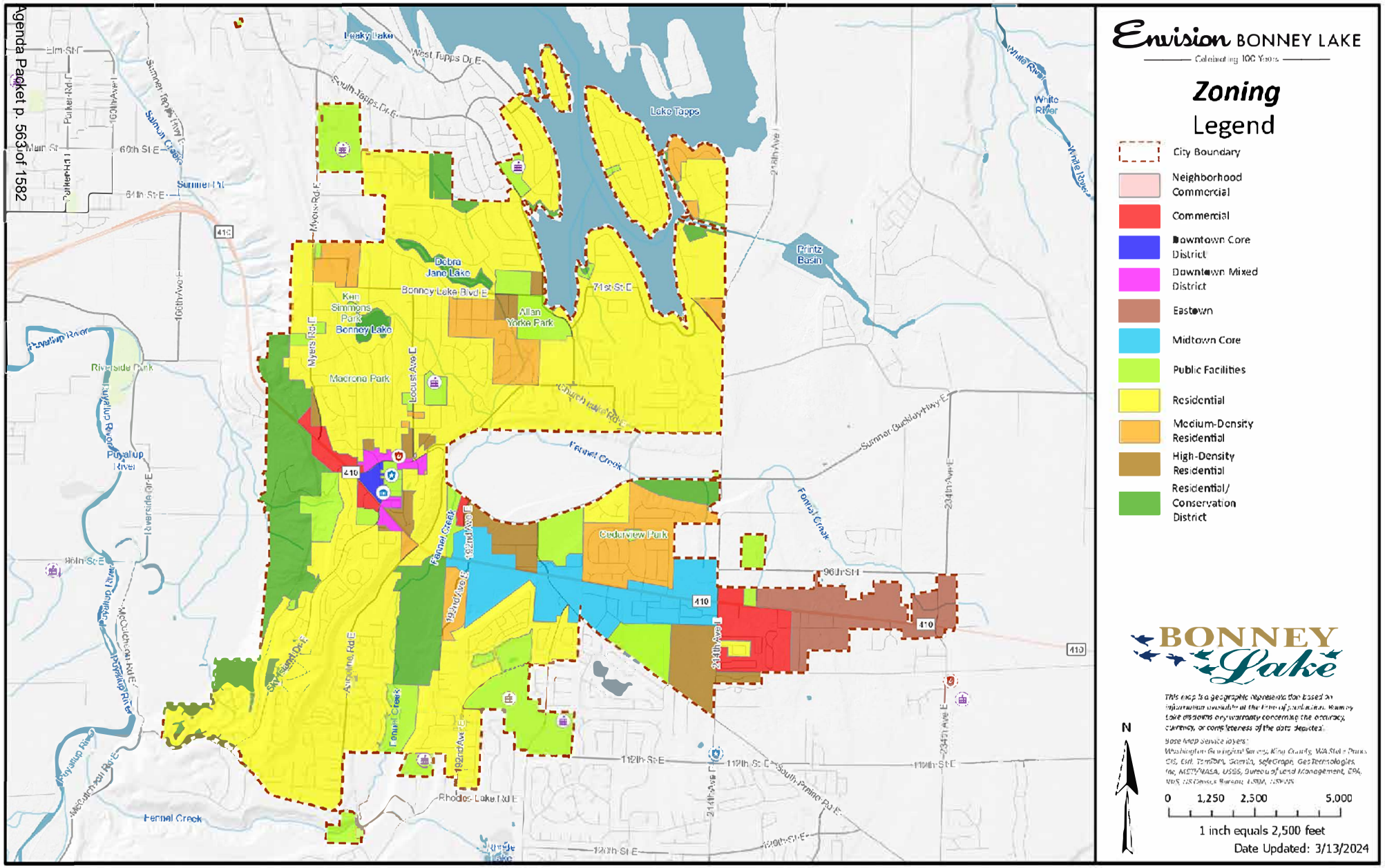
Base Map Service layers:
Washington Geological Survey, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

N

0 1,250 2,500 5,000

1 inch equals 2,500 feet

Date Updated: 3/28/2024


Envision BONNEY LAKE
Celebrating 100 Years
Zoning
Legend
City Boundary
Neighborhood Commercial
Commercial
Downtown Core District
Downtown Mixed District
Eastown
Midtown Core
Public Facilities
Residential
Medium-Density Residential
High-Density Residential
Residential/ Conservation District
BONNEY Lake
This map is a geographic representation based on information available at the time of publication. Bonney Lake disclaims any warranty concerning the accuracy, currency, or completeness of the data depicted.
Base Map Service Layers:
Washington Geological Survey, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS
N
0 1,250 2,500 5,000
1 inch equals 2,500 feet
Date Updated: 3/13/2024
Lake Tapps
Bonney Lake
Allan Yorke Park
Ken Simmons Park
Debra Jane Lake
Cedarview Park
Madrona Park
Riverside Park
Fennel Creek
Rhodes Lake
Printz Basin
White River
Puyallup River
Leaky Lake
Jungle Lake
Elm St E
Main St E
60th St E
64th St E
71st St E
86th St E
96th St E
112th St E
117th St E
120th St E
Bonney Lake Blvd E
Church Lake Rd E
Summer Tapps Dr E
South Tapps Dr E
West Tapps Dr E
Summer Ridge Pkwy E
Myers Rd E
Locust Ave E
Riverside Dr E
McCutchen Rd E
Rhodes Lake Rd E
Sky Island Dr E
Auburn Rd E
South Prairie Rd E
Summer Buckley Hwy E
160th Ave E
166th Ave E
182nd Ave E
192nd Ave E
204th Ave E
214th Ave E
410

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Appendix C: Growth Alternatives Memo

March 2024

BONNEY Lake

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printing purposes.

2044 Growth Alternatives Memo

To: Jason Sullivan – Interim Public Services Director, City of Bonney Lake

From: Dane Jepsen, Associate Planner, LDC Inc.

CC: Kim Mahoney, Principal Planner, LDC Inc.

Date: March 29, 2024

Re: City of Bonney Lake 2024 Comprehensive Plan Update

Executive Summary

During the City of Bonney Lake's (City) 2024 Comprehensive Plan update, LDC, Inc. (LDC) performed a Land Capacity Analysis (LCA) to assess the City's capacity to serve the projected housing and employment needs for the 2020-2044 and 2020-2049 planning periods[1]. The LCA found that the City has ample capacity to meet its employment and Emergency Housing growth targets and has an excess of housing capacity for Low-to-High income households However, this analysis found that the City has a housing capacity deficit for those within very low and extremely low-income households. This housing capacity deficit is due to the lack of low-income-serving housing solutions and would require the City to plan to provide an additional 423 residential units by 2044.

Per RCW 36.70A (the Growth Management Act [GMA]), the City is required to identify and implement corrective actions that will accommodate the adopted housing growth target; the City has evaluated two growth alternatives to accommodate its housing target:

Alternative One: "Stay the Course"
Alternative Two: "Bend the Trend"

This memorandum further details the background, methodology, overview, and analysis results of the City's considered growth alternatives.

Background

Puget Sound Regional Council (PSRC) is a multi-county planning organization that coordinates the planned growth of the Puget Sound region needed to accommodate future housing and employment needs. Through its *VISION 2050* plan, PSRC coordinated a target for total regional population growth and the adoption of county-wide population, employment, and housing targets for its member counties. In the PSRC Vision 2050, the City is identified as one of the geographies accepting a lower portion of the regions' housing and employment growth.

VISION 2050 includes plans for housing and employment capacity in the following geographies:

- Metropolitan Cities
- Core Cities
- High Capacity Transit (HTC) Communities
- Cities & Towns
- Rural Unincorporated Areas
- Rural

The City of Bonney Lake was placed within "Cities & Towns" category, which means that the City is expected to accommodate a small portion of the region's needs relative to its size. The housing and employment growth targets adopted by Pierce County on July 7, 2023 reflect the planned growth

[1] 2020-2044 growth targets adopted July 7, 2023 under Pierce County Ordinance No. 2023-22s, 2020-2049 growth targets extend the 2044 target based on projected growth rate.

assigned to Pierce County in *VISION 2050*; therefore, the City's planning to accommodate its growth targets inherently participates in the much wider regional plan, as well. In the 2024 Comprehensive Plan update, the City is faced with decisions about how it will plan to meet its housing and employment targets. In the past, the City has met rising housing needs through development of single-family and multi-family housing, with an increasing portion of new multi-family units (Figure 1). In an effort to explore methods for accommodating its housing growth targets, the City has considered one alternative of "staying the course" (Alternative One), whereby its recent trends of housing development could serve the growing need for housing, and another alternative, "bending the trend" (Alternative Two), whereby a refreshed perspective to housing development could more adequately serve housing needs in the City.

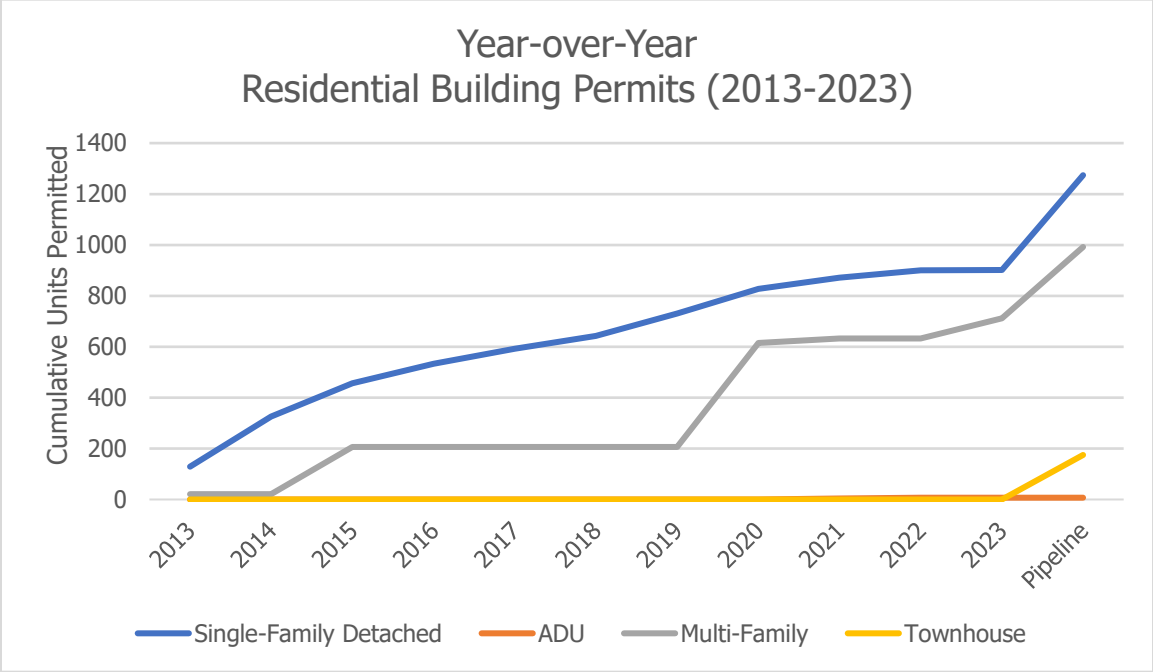


Figure 1 – Year-over-Year Residential Building Permits (2013-2023)

Methodology

The two proposed growth alternatives were evaluated for potential housing and employment capacity using the same methodology outlined in the LCA memo; this includes the same zone assumptions and the same process for identifying lands as Vacant, Vacant Single Unit, Underutilized, Pipeline, and Built Out/Undevelopable. Two specific changes were incorporated in the analysis of these growth alternatives: changes to capacity in the (PF) Public Facility zone, and removal of the Midtown Pipeline project. See these changes outlined below:

Public Facilities Zone Capacity

In the LCA, no housing or employment capacity was designated on publicly owned land. Development of public land does not respond to market pressure the way private development does, and LCA assumptions cannot predict the likelihood of a community decision. Yet, while considering growth alternatives, it is acceptable to present the outcomes of growth paths that require said decision making. For this reason, Alternative One included capacity from a selection of publicly-owned parcels on the City Hall campus that have been identified to be favorable for private sale and redevelopment. The *City of Bonney Lake Centers Plan* (Centers Plan) adopted in 2017 envisioned that the former civil campus would be developed with a mix of residential and commercial uses. Under Alternative One, it is assumed that the City would move forward with the zoning changes as part of this periodic update and further implement the Centers Plan. These parcels were designated as vacant since the market factor applicable to underutilized land would not be as prevalent on publicly-owned land. These parcels were rezoned for

the (DM) Downtown Mixed Use District zone designation, which has a 50% mixed use split in both growth alternatives. See map of selected parcels (highlighted in yellow) in Figure 2.



Figure 2 – City Hall Campus Analysis Parcels

Midtown Pipeline Capacity

The Midtown pipeline project provided 672 residential units of capacity in the LCA; these residential units included single-family, townhouse, and multi-family development. The Midtown project's Development Agreement with the City is set to expire on December 31, 2024; to reflect the potential expiration of this pipeline project, both alternatives have removed this pipeline project and its land returned to zoned capacity as vacant land. The pipeline project's site is 74.06 acres of undeveloped land previously owned by Midtown Properties LLC. and is zoned R3; a map of the Midtown Pipeline projects site (highlighted in yellow) is provided in Figure 3 for reference:

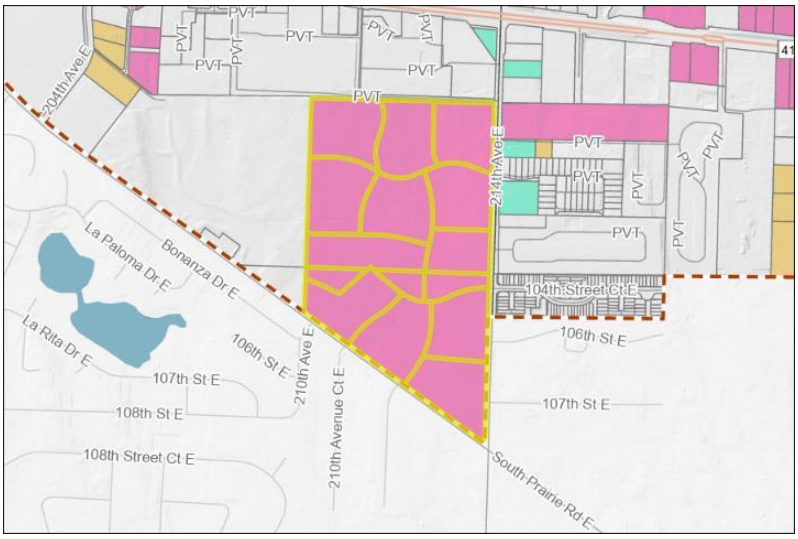


Figure 3 – Midtown Pipeline Project Site

Overview

There are two main ways jurisdictions can address housing and employment capacity deficits identified in an LCA:

1. Changing jurisdiction regulations for development related to employment and housing capacity.
2. Changing the zoning map to increase or decrease developable area in specified zones.

The City's proposed growth alternatives only included changes to the zoning map. The remainder of this memo will review the impacts of these zoning changes on projected capacity.

Zoning changes were comprehensively evaluated for every base parcel in the City, allowing the Buildable Lands Inventory to adjust based on proposed zoning changes. Appendix A & B depict the zoning changes that were implemented in the analysis of each alternative, the table below also shows the changes to the gross acreage of each zone proposed by each growth alternative.

Zoned Acres - Alternatives Summary					
Zone	Area (Acres)				
	Base Zoning	Alternative One		Alternative Two	
		Total Acres	Change Addition or (Reduction)	Total Acres	Change Addition or (Reduction)
(C-1) Neighborhood Commercial District	0.00	14.47	14.47	0.00	0.00
(C-2) Commercial District	114.27	172.47	58.20	83.49	(30.79)
(DC) Downtown Core District	8.24	6.48	(1.76)	7.08	(1.16)
(DM) Downtown Mixed Use District	20.88	45.00	24.13	33.01	12.13
(E) Eastown District	166.27	166.27	0.00	166.48	0.21
(MC) Midtown Core District	236.05	178.15	(57.90)	226.42	(9.63)
(PF) Public Facilities District	508.87	512.81	3.94	524.21	15.34
(R1) Low-Density Residential District	2289.44	2,223.11	(66.33)	2531.41	241.96
(R2) Medium-Density Residential District	282.73	182.70	(100.03)	0.00	(282.73)
(R3) High-Density Residential District	155.73	260.23	104.50	158.46	2.73
(RC-5) Residential/Conservation District	410.06	430.85	20.79	461.99	51.93
Total	**4192.54**	**4192.54**		**4192.54**	

Table 1 – Zoned Acres - Alternatives Summary

Both Alternatives feature overall reductions in the DC, MC, and R2 zones and additions in the DM, PF, R3, and RC-5 zones. Alternative One utilizes the C-2 and R3 zones much more than Alternative Two while reducing the area of the MC, R1, and R2 zones. Alternative Two utilizes the R1 and RC-5 zones more than Alternative Two while reducing the C-2 zone and outright removing the R2 zone.

Alternative One: "Stay the Course"

Alternative One seeks to achieve projected housing growth targets through the amplification of its current development pattern. This includes the reduction of medium-to-low density residential zones (R1 and R2) while increasing zoned acreage in the high density and mixed-use zones (R3, C-1, and DM) to maximize

the potential for affordable housing development. This growth alternative also includes an increase in the area of the (RC-5) Residential/Conservation District as a reflection of the City's priority to preserve its natural land and open space while preventing sprawl. This growth alternative's focus on providing increased housing capacity by adding zoned acreage to the R3, C-1, and DM zones would likely result in a greater coverage of moderate density housing throughout the City with an increased opportunity for mixed-use and inclusive development patterns.

Alternative Two: "Bend the Trend"

Alternative Two seeks to achieve projected housing growth targets through a focus on smaller scale development with a sufficient portion of zoning dedicated densities that support low-income housing development. This alternative was developed to explore whether it was possible to reduce the City's overall growth rate consistent with goals of VISION 2050, while at the same time complying with the requirements of RCW 36.70A.070(2) to provide housing to all income segments as determined by the Department of Commerce. This alternative was also developed to focus housing within two specific centers: Downtown and Midtown, consistent with VISION 2050; specifically, MPP-RGS-11, MPP-DP-26, MPP-H-7 and MPP-EC-20. These policies call on the Puget Sound Region to develop a framework of countywide centers and focus the development of housing and economic growth within these centers. The City's Downtown Center is already classified as a Countywide Growth Center. As part of this update, the City will be taking steps to have the Midtown Center classified as a Countywide Growth Center. This includes the elimination of the (R2) Medium-Density Residential District, which would comprise of mostly rezoned (R1) Low-Density Residential District land, and an increase of approximately 30 acres in the R3 and DM zones. This growth alternative's focus on lower density zoning outside of these Centers and the provision of higher density housing through the R3 and DM zones within the Centers would result in a slower build-out of lower density neighborhoods with the majority of high-density housing developing in dense mixed-use centers to achieve the dual objectives of slowing the City's overall growth rate while providing housing for all economic segments within the City.

Alternative Analysis Results

In this analysis, growth alternative capacity is summarized and presented in the same format that was used to present housing and employment capacity in the LCA. This analysis will compare the capacity results of the proposed growth alternatives with the results determined based on existing zoning in the LCA.

Employment Capacity

Employment capacity identified in the LCA was more than sufficient to satisfy the City's employment growth targets. The proposed alternatives included planned zoning changes reflected in the City's current Comprehensive Plan map designations and deductions of commercial and industrial zones for the purposes of meeting housing capacity needs; these changes in zoning yielded changes in projected employment capacity; the table below summarizes alternatives changes in capacity and compares them against the employment growth target:

Employment Capacity - Alternatives Summary					
Zone	Base Zoning	Alternative One		Alternative Two	
		Total Jobs	Change Addition or (Reduction)	Total Jobs	Change Addition or (Reduction)
(C-1) Neighborhood Commercial District	0	76	76	0	0
(C-2) Commercial District	200	416	216	165	(35)
(DC) Downtown Core District	2	2	0	2	0
(DM) Downtown Mixed Use District	32	128	96	63	31
(E) Eastown District	258	258	0	258	0
(MC) Midtown Core District	422	188	(234)	326	(96)
(PF) Public Facilities District	0	0	0	0	0
(R1) Low-Density Residential District	246	236	(10)	289	43
(R2) Medium-Density Residential District	53	33	(20)	0	(53)
(R3) High-Density Residential District	43	203	160	95	52
(RC-5) Residential/Conservation District	36	37	1	37	1
Total Zoned Capacity	**1,292**	**1,577**	**285**	**1,235**	**(57)**
2020-2023 Permitted Growth	504	504		504	
Pipeline projects	684	684		684	
Total Employment Capacity	**2,480**	**2,765**		**2,423**	
(Employment Target)	(1,717)	(1,717)		(1,717)	
Employment Capacity Surplus (or deficit)	**763**	**1,048**		**706**	

Table 2 – Employment Capacity - Alternatives Summary

Analysis of both growth alternatives identified sufficient capacity for future employment targets with Alternative One producing slightly more and Alternative Two slightly less employment capacity than current zoning.

Housing Capacity

As in the LCA, housing capacity for proposed growth alternatives should demonstrate capacity for affordable housing to all economic segments. Washington State Department of Commerce has provided guidance[2] for demonstrating this utilizing the following steps:

1. Summarize land capacity by zone.
2. Categorize zones by allowed housing types and density level.
3. Relate zone categories to potential income levels and housing types served.
4. Summarize capacity by zone category.
5. Compare projected housing needs to capacity.
6. (If deficit is found) Implement actions to increase capacity for one or more housing needs. Then re-assess capacity (Step 1) based on actions.

The LCA summarized current projected housing capacity using these steps and some of the analysis utilized there will be reused in the growth alternatives capacity analysis. The proposed alternatives involve changes to only the zoning map; resultantly, steps 2 and 3 do not need to be re-evaluated to demonstrate capacity. Step 6 was executed through this memo's analysis of the proposed growth targets. Analysis of Housing capacity for growth alternatives will include the following steps:

1. Summarize land capacity by zone.
4. Summarize capacity by zone category.
5. Compare projected housing needs to capacity.

1. Summarize land capacity by zone

The LCA identified housing capacity in three areas: zoned capacity, Accessory Dwelling Unit (ADU) capacity, and Emergency Housing Capacity. The proposed alternatives resulted in different outcomes for zoned and ADU capacity, but Emergency Housing capacity remained the same. Eight acres of vacant land were identified in the LCA for Emergency Housing Capacity; the same area of vacant land was reserved from the proposed alternatives, resulting in no change to projected Emergency Housing capacity. Housing capacity for the proposed growth alternatives was identified in two areas:

1. Zoned capacity – Capacity from vacant and redevelopable land.
2. Accessory Dwelling Unit Capacity (House Bill [HB] 1337) – Potential capacity for the construction of ADUs on existing and future residential lots based on assumed production rates.

[2] WA Commerce, HB 1220 Book 2 Housing Element Update (August 2023), p.19

Zoned Capacity

The table below summarizes zoned housing capacity identified in this alternative analysis and compares it to that identified in the LCA. Zoned capacity is the net result of initial units minus displaced units.

Housing Capacity - Alternatives Summary					
Zone	Base Zoning	Alternative One		Alternative Two	
		Total Units	Change Addition or (Reduction)	Total Units	Change Addition or (Reduction)
(C-1) Neighborhood Commercial District	0	14	14	0	0
(C-2) Commercial District	0	0	0	0	0
(DC) Downtown Core District	8	7	(1)	7	(1)
(DM) Downtown Mixed Use District	26	116	90	57	31
(E) Eastown District	-6	-6	0	-6	0
(MC) Midtown Core District	-1	-1	0	-4	(3)
(PF) Public Facilities District	0	0	0	0	0
(R1) Low-Density Residential District	401	378	(23)	464	63
(R2) Medium-Density Residential District	106	65	(41)	0	(106)
(R3) High-Density Residential District	252	1,237	985	822	570
(RC-5) Residential/Conservation District	35	37	2	42	7
Total	**821**	**1,847**	**1026**	**1,382**	**561**

Table 3 – Housing Capacity - Alternatives Summary

Accessory Dwelling Unit Capacity (HB 1337)

Projected ADU capacity fluctuated between the proposed growth alternatives due to rezones affecting the future production of single-family lots in the City. The alternatives analysis utilized the same assumptions as the LCA: 2% participation factor for available lots and 1.25 ADUs constructed per participating lot. The table below outlines ADU capacity for each alternative.

ADU Development Capacity – Alternatives Summary			
	Base Zoning	Alternative One	Alternative Two
Available Lots	4,260	3,906	4,258
Potential ADU Lots	85	78	85
2044 ADU Capacity	**107**	**97**	**106**[3]

Table 4 – ADU Development Capacity - Alternatives Summary

[3] 2044 projections for ADU capacity are rounded from the nearest tenth decimal place, resulting in a slight difference between base and alternative two ADU capacity.

Housing Capacity Subtotal

Housing capacity provided by zoning, pipeline projects, and ADU production contributes toward the City's total 2044 housing target of 1,451 residential units. Without considering housing needs for income brackets, total housing capacity provided by proposed growth alternatives exceeds projected housing targets. Notably, Alternative Two has a surplus 112 units lower than that provided by base zoning.

Housing	Base Zoning	Alternative One	Alternative Two
2020-2023 Permitted Growth	682	682	682
Pipeline projects	828	156	156
Zoned Housing capacity	821	1,847	1,382
ADU Capacity	107	97	106
Total Housing Capacity	**2,438**	**2,782**	**2,326**
(2020-2044 Housing Target)	(1,451)	(1,451)	(1,451)
Housing Capacity Surplus (or deficit)	**987**	**1,331**	**875**

Table 5 – Housing Capacity Subtotal

4. Summarize capacity by zone category

Zone density categories identified in the LCA are applicable in the analysis of the proposed growth alternatives. Zoned, pipeline, and built capacity were totaled by zone density category; zoned and pipeline capacity had different quantities than were presented in the LCA; built capacity was not affected by the proposed alternatives, for reference see the LCA Memo Table 20.

The table below shows zoned capacity from the alternatives LCA and compiles them based on the zone density category.

Zoned Capacity by Density - Alternative Comparison									
Zone Density Category	Zone	Base Zoning		Alternative One			Alternative Two		
		Zoned Capacity	Capacity in Zone Density Category	Zoned Capacity	Capacity in Zone Density Category	Change Addition or (Reduction)	Zoned Capacity	Capacity in Zone Density Category	Change Addition or (Reduction)
Mid-Rise Multi-family	DC	8	286	7	1,360	1047	7	886	600
	DM	26		116			57		
	R3	252		1,237			822		
Moderate Density	R2	106	106	65	65	(41)	0	0	(106)
Low Density	R1	401	436	378	415	(21)	464	506	70
	RC5	35		37			42		
ADUs	ADUs (any zone)	107	107	97	97	(10)	106	106	(1)
	Total	**935**		**1,937**			**1,498**		

Table 6 – Zoned Capacity by Density - Alternatives Comparison

The proposed alternatives produced significantly more than base capacity in the "Mid-Rise Multi-family" zone density category, with Alternatives One and Two improving on base capacity by 1047 and 600 units, respectively. Proposed zoning changes did no-doubt affect this capacity projection, but the biggest factor in this increase is the removal of the Midtown pipeline project. At 672 units, the Midtown pipeline project made up approximately 73% of the total housing capacity in the R-3 zone, but it did not have any affordable housing provision. Thus, its pipeline capacity only applied to income brackets greater than 80% AMI. Returning the Midtown project site's land to vacant capacity re-introduced the possibility of adding affordable housing with its development; for example, Alternative Two only expanded the R-3 zone by 6.9 acres, and still all 822 units of zoned capacity can count towards incomes served by the "Mid-Rise Multi-family" zone density category.

Pipeline projects utilized in the alternatives analysis differ from the LCA due to the removal of the Midtown Project. The table below summarizes pipeline projects used in this analysis by housing type and income level.

Pipeline Development			
Type	Permitted Units	Density Category	Capacity Built Density Category
Multi-Family	72	Mid-Rise Multi-family	72
Townhouse	0	Moderate Density	0
ADU	0	ADU	0
Single-Family Detached	84	Low Density	84
Total	**156**		

Table 7 – Pipeline Development by Density

5. Compare projected housing needs to capacity

Comparison of alternative capacity to each proposed growth alternative was done individually before being compared to the total capacity identified in the LCA.

The adopted income housing targets are compared to capacity identified for each growth alternative (Table 6, Table 7, and LCA Memo Table 20) in the below tables (Table 8 and Table 9). The first two columns are a column-to-row flip of the income housing targets table; the remaining columns show the calculations based on the zone density category capacity established in Housing Capacity – Step 4. Permitted growth and Pipeline capacity have set income brackets they serve based on presence of income restrictions in their existing or proposed provision of housing.

Alternative One - Income Housing Target Capacity Summary							
Income Level	Projected Housing Need	Aggregated Housing Needs	2020-2023 Permitted Growth	Total Pipeline Capacity	Zone Categories Serving These Needs	Total Zoned Capacity	Capacity Surplus (or Deficit)
0 - 30% PSH	187	709	0	0	Mid-Rise Multi-family	1,360	**651**
0 - 30% Non-PSH	253						
>30 - 50%	269						
>50 - 80%	213	213	408	0	Mid-Rise Multi-family	0	**195**
>80 - 100%	92	175	104	72	Mid-Rise Multi-family, Moderate Density, and ADUs	161	**163**
>100 - 120%	83						
>120%	354	354	170	84	Low Density	415	**315**
Total	**1,451**		**682**	**156**		**1,937**	

Table 8 – Alternative One - Income Housing Target Capacity Summary

Alternative Two - Income Housing Target Capacity Summary							
Income Level	Projected Housing Need	Aggregated Housing Needs	2020-2023 Permitted Growth	Total Pipeline Capacity	Zone Categories Serving These Needs	Total Zoned Capacity	Capacity Surplus (or Deficit)
0 - 30% PSH	187	709	0	0	Mid-Rise Multifamily	886	**177**
0 - 30% Non-PSH	253						
>30 - 50%	269						
>50 - 80%	213	213	408	0	Mid-Rise Multifamily	0	**195**
>80 - 100%	92	175	104	72	Mid-Rise Multifamily, Moderate Density, and ADUs	106	**107**
>100 - 120%	83						
>120%	354	354	170	84	Low Density	506	**406**
Total	**1,451**		**682**	**156**		**1,498**	

Table 9 – Alternative Two - Income Housing Capacity Summary

Previous tables have compared growth alternative capacity directly with LCA capacity; the following table shows how the proposed growth alternatives compare to the base capacity relative to the adopted growth targets.

Affordable Housing Target Capacity - Alternative Comparison							
Income Levels	Aggregated Housing Needs	Base Capacity		Alternative One		Alternative Two	
		Zoned Capacity	Capacity Surplus (or Deficit)	Zoned Capacity	Capacity Surplus (or Deficit)	Zoned Capacity	Capacity Surplus (or Deficit)
0 - 50% PSH & Non-PSH	709	286	**(423)**	1,360	**6531**	886	**177**
>50 - 80%	213	408	**195**	408	**195**	408	**195**
>80 - 100%	175	772	**597**	338	**163**	282	**107**
>120%	354	979	**625**	669	**315**	760	**406**
	1,451	**2,445**		**2,775**		**2,336**	

Table 10 – Affordable Housing Target Capacity - Alternative Comparison

Sufficient Capacity

Base capacity and both growth alternatives all served sufficient capacity for the 50% to 80% AMI income bracket by the View By Vintage project constructed in 2020. Independently, base capacity was only able to provide sufficient capacity to meet the needs of households with incomes greater than 50% AMI; while providing an excess of capacity for moderate-to-high income households (80%-120% AMI).

Zoning proposed in growth Alternative One is projected to have more than enough capacity to meet the needs of residents of all incomes. Excess housing capacity is concentrated in the less than 50% AMI brackets, creating a favorable environment for the construction of low-income and supportive housing types. Additionally, Alternative One provides a wide variety of options for dense forms of housing through use of the R2, R3, C-1, and DM zones; this variety of housing types is also likely to fill the "Missing Middle" gap in the City's housing stock and better meet the housing needs of its future residents.

Zoning proposed in growth Alternative Two is projected to have sufficient capacity to meet the needs of residents of all incomes. There is little excess housing capacity overall, the majority of capacity overperformance is in the greater than 120% AMI income bracket. The 406 excess units of capacity in the greater than 120% AMI income bracket will likely result in more home-ownership opportunities; these opportunities would only meet the housing needs of a portion of the City's residents. The three income brackets less than 50% AMI (30-50%, 0-30% PSH & non-PSH) have a total of 177 units of excess capacity between them; the zoning assumptions considered in this LCA ensure that it is possible for the City to deliver on this projected capacity. Still, the City would need to work with low-income housing providers and developers to ensure the needed low-income housing is captured in the development of applicable zones.

Insufficient Capacity

The LCA identified a total shortfall for households under 50% AMI of 423 units. These targets have seen no measurable progress since 2020 and are fully served by the "Mid-Rise Multi-family" zone density category containing the R3, DM, and DC zones. Proposed growth Alternatives One and Two addressed

this capacity shortfall through zoning changes and maximized use of existing zoned area in the R3 zone that can serve low-income housing needs, resulting in no capacity shortfall for either.

2049 Housing and Employment Targets

In addition to the housing and employment targets for 2044 (20 years), the City projected growth to 25 years (2049) and evaluated capacity for each of the proposed alternatives. The tables below outline the results of the two alternatives and compare them to the existing projected capacity.

2049 Housing Target Vs Capacity - Alternatives Summary					
Housing	**Base Zoning**	**Alternative One**	Change Addition or (Reduction)	**Alternative Two**	Change Addition or (Reduction)
Total Housing Capacity	**2,438**	**2,782**	**344**	**2,326**	**(112)**
(2020-2049 Housing Target)	(1,977)	(1,977)		(1,977)	
Housing Capacity Surplus (or deficit)	**461**	**805**		**349**	

All alternatives produced a surplus of housing capacity when compared to the City's 2049 housing target. Alternative One resulted in 344 more units of housing than base zoning, while Alternative Two resulted in 112 less units than base zoning.

2049 Employment Target Vs Capacity – Alternatives Summary					
Employment	**Base Zoning**	**Alternative One**	Change Addition or (Reduction)	**Alternative Two**	Change Addition or (Reduction)
Total Employment Capacity	**2,480**	**2,765**	**285**	**2,423**	**(57)**
(2020-2049 Employment Target)	(2,129)	(2,129)		(2,129)	
Employment Capacity Surplus (or deficit)	**351**	**636**		**294**	

All alternatives produced a surplus of employment capacity when compared to the City's 2049 employment target. Alternative One resulted in 285 more jobs of housing than base zoning, while Alternative Two resulted in 57 less jobs than base zoning.

The proposed alternatives achieve adopted and projected growth targets and consistently represent the two proposed growth paths for the City's next 25 years of growth.

Conclusion

In partnership with LDC, the City has analyzed housing and employment development capacity for the 2024-2044 planning period based on proposed growth alternatives:

Alternative One: "Stay the Course"
Alternative Two: "Bend the Trend"

This alternative analysis found both alternatives sufficiently provide capacity to meet the City's projected employment and housing needs. While base capacity identified in the LCA found housing capacity

shortfalls for very low-income households, this analysis found that proposed alternatives are projected to meet the needs of residents of all incomes, including very low-income households. Proposed growth alternatives met the existing housing capacity shortfall through rezones and maximized use of existing zoned area in the R3 zone that can serve low-income housing needs.

Given the outcomes of this alternatives LCA indicate that either Alternative One or Alternative Two could serve the housing needs of the community's projected growth, the City will decide which growth alternative is preferable for the City's 2024 Comprehensive Plan update and implement proposed changes along with the adoption of its plan.

Tables and Figures

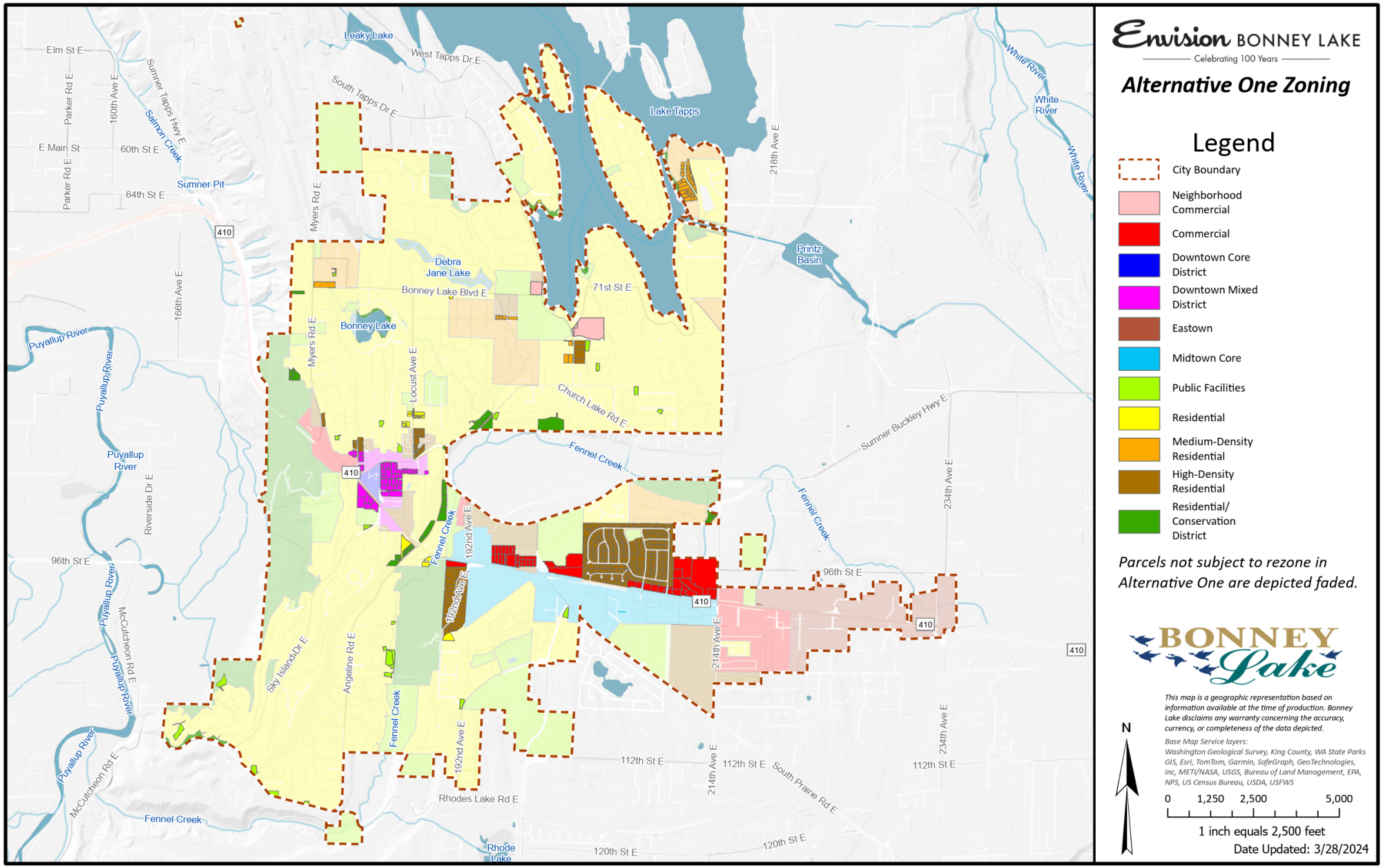
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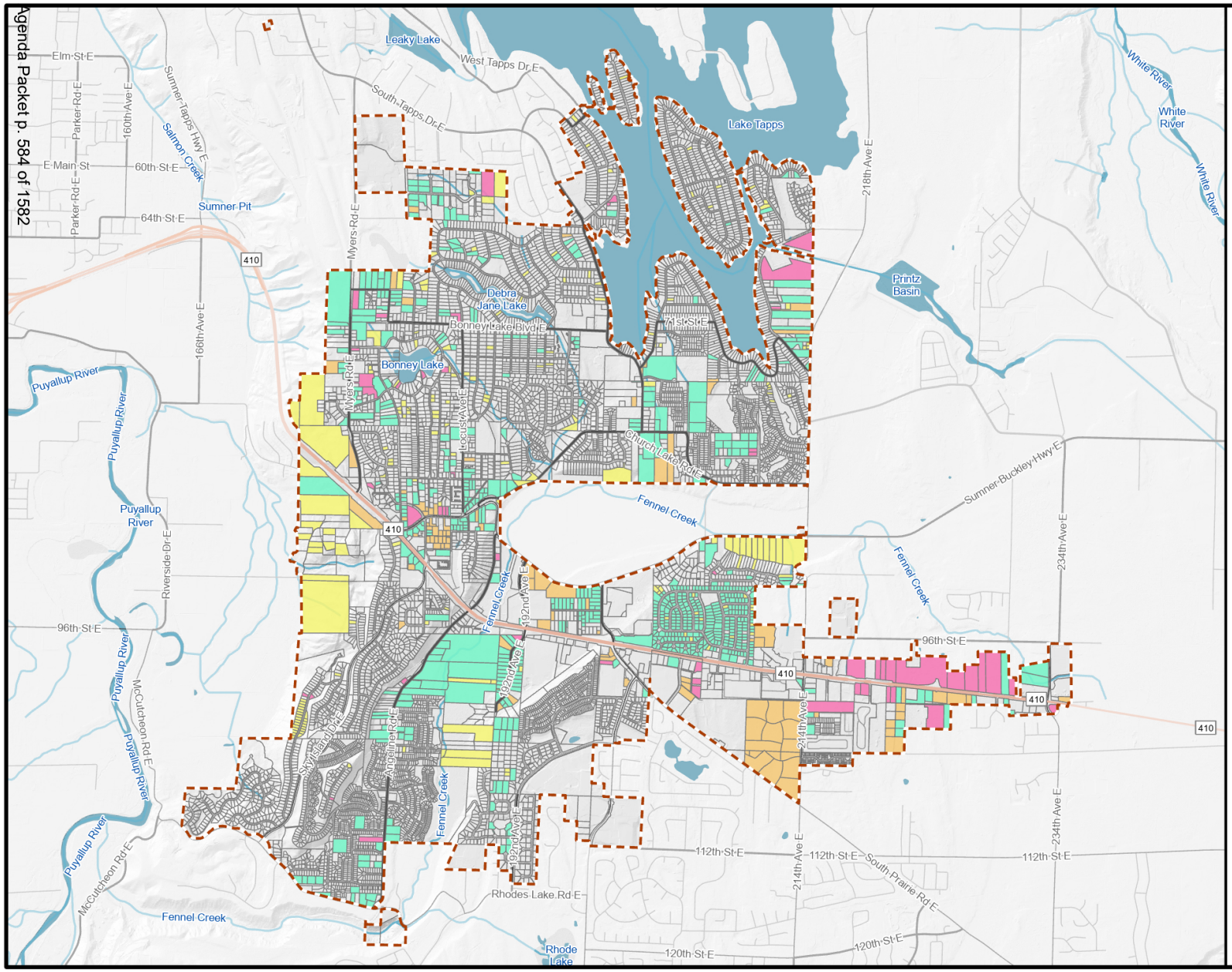
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Appendices

(2024). *Appendix A – Alternative One Maps*

(2024). *Appendix B – Alternative Two Maps*


Envision BONNEY LAKE
Celebrating 100 Years
Alternative One Zoning
Legend
City Boundary
Neighborhood Commercial
Commercial
Downtown Core District
Downtown Mixed District
Eastown
Midtown Core
Public Facilities
Residential
Medium-Density Residential
High-Density Residential
Residential/ Conservation District
Parcels not subject to rezone in Alternative One are depicted faded.
BONNEY Lake
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Base Map Service layers:
Washington Geological Survey, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS
N
0 1,250 2,500 5,000
1 inch equals 2,500 feet
Date Updated: 3/28/2024
Leaky Lake
West Tapps Dr E
South Tapps Dr E
Lake Tapps
White River
Elm St E
Parker Rd E
160th Ave E
Sumner Tapps Hwy E
Salmon Creek
E Main St
60th St E
Sumner Pit
64th St E
410
Myers Rd E
166th Ave E
Debra Jane Lake
Bonney Lake Blvd E
71st St E
Bonney Lake
Printz Basin
218th Ave E
Puyallup River
Locust Ave E
Church Lake Rd E
Sumner Buckley Hwy E
Fennel Creek
Puyallup River
Riverside Dr E
192nd Ave E
234th Ave E
96th St E
McCutcheon Rd E
Sky Island Dr E
Angeline Rd E
214th Ave E
112th St E
South Prairie Rd E
Rhodes Lake Rd E
120th St E
Rhode Lake



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Alternative One Buildable Lands Inventory

Legend

- City Boundary
- Built Out/ Undevelopable
- Pipeline
- Underutilized
- Vacant
- Vacant Single Unit

BONNEY Lake

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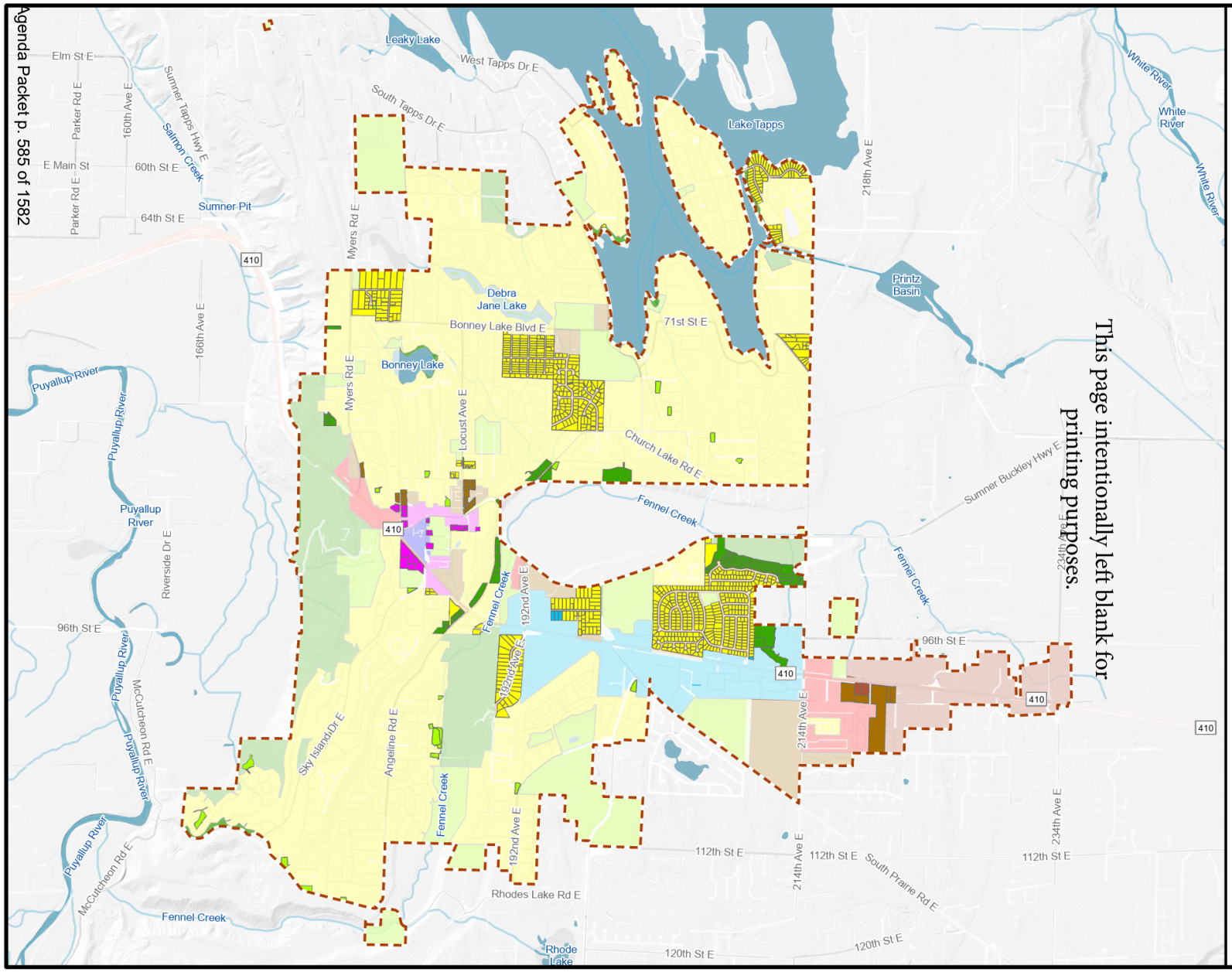
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0 1,250 2,500 5,000

1 inch equals 2,500 feet

Date Updated: 3/28/2024



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Alternative Two Zoning

Legend

- City Boundary
- Neighborhood Commercial
- Commercial
- Downtown Core District
- Downtown Mixed District
- Eastown
- Midtown Core
- Public Facilities
- Residential
- Medium-Density Residential
- High-Density Residential
- Residential/ Conservation District

Parcels not subject to rezone in Alternative Two are depicted faded.

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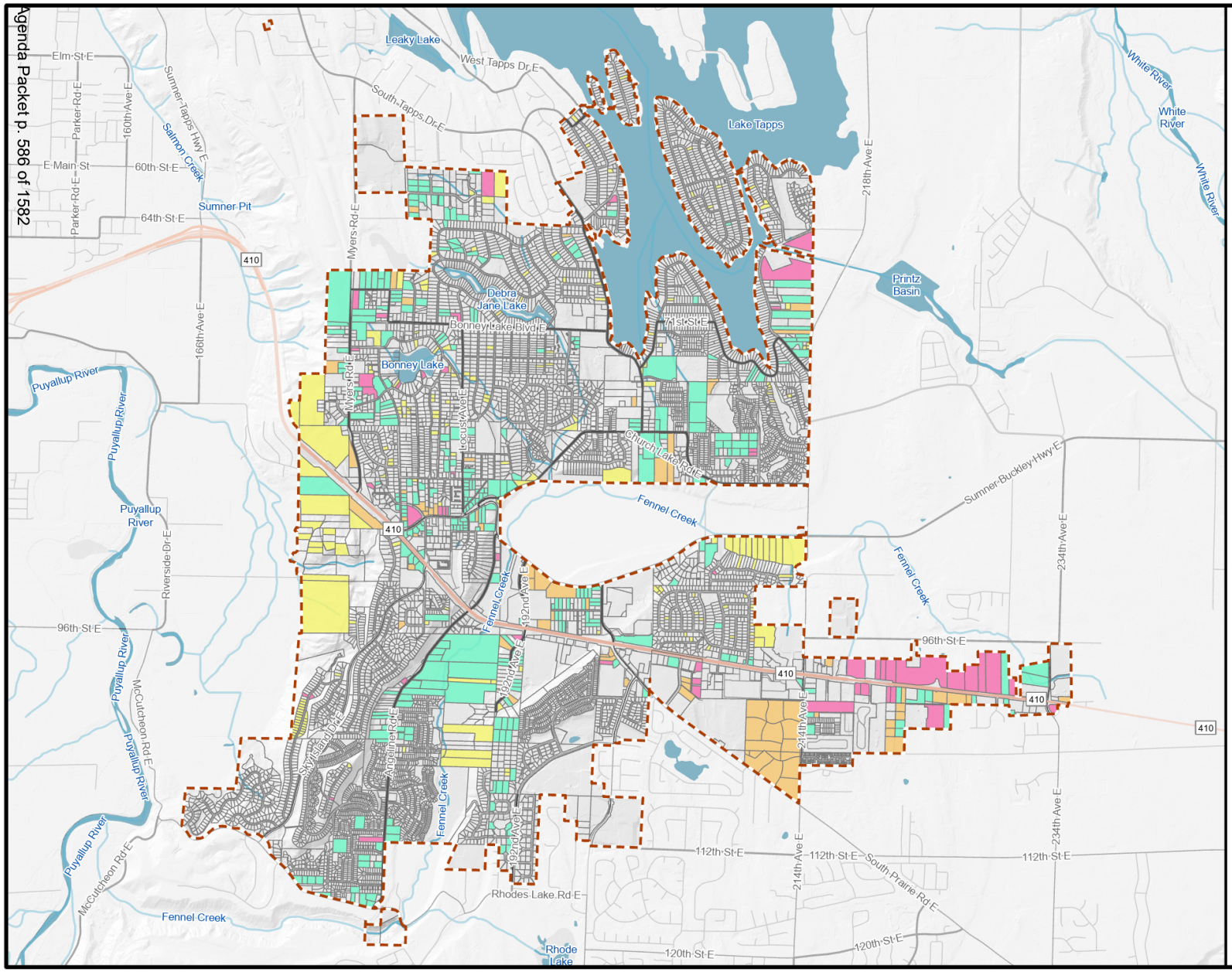
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1 inch equals 2,500 feet

Date Updated: 3/28/2024



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Alternative Two Buildable Lands Inventory

Legend

- City Boundary
- Built Out/ Undevelopable
- Pipeline
- Underutilized
- Vacant
- Vacant Single Unit

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N

0 1,250 2,500 5,000

1 inch equals 2,500 feet

Date Updated: 3/28/2024

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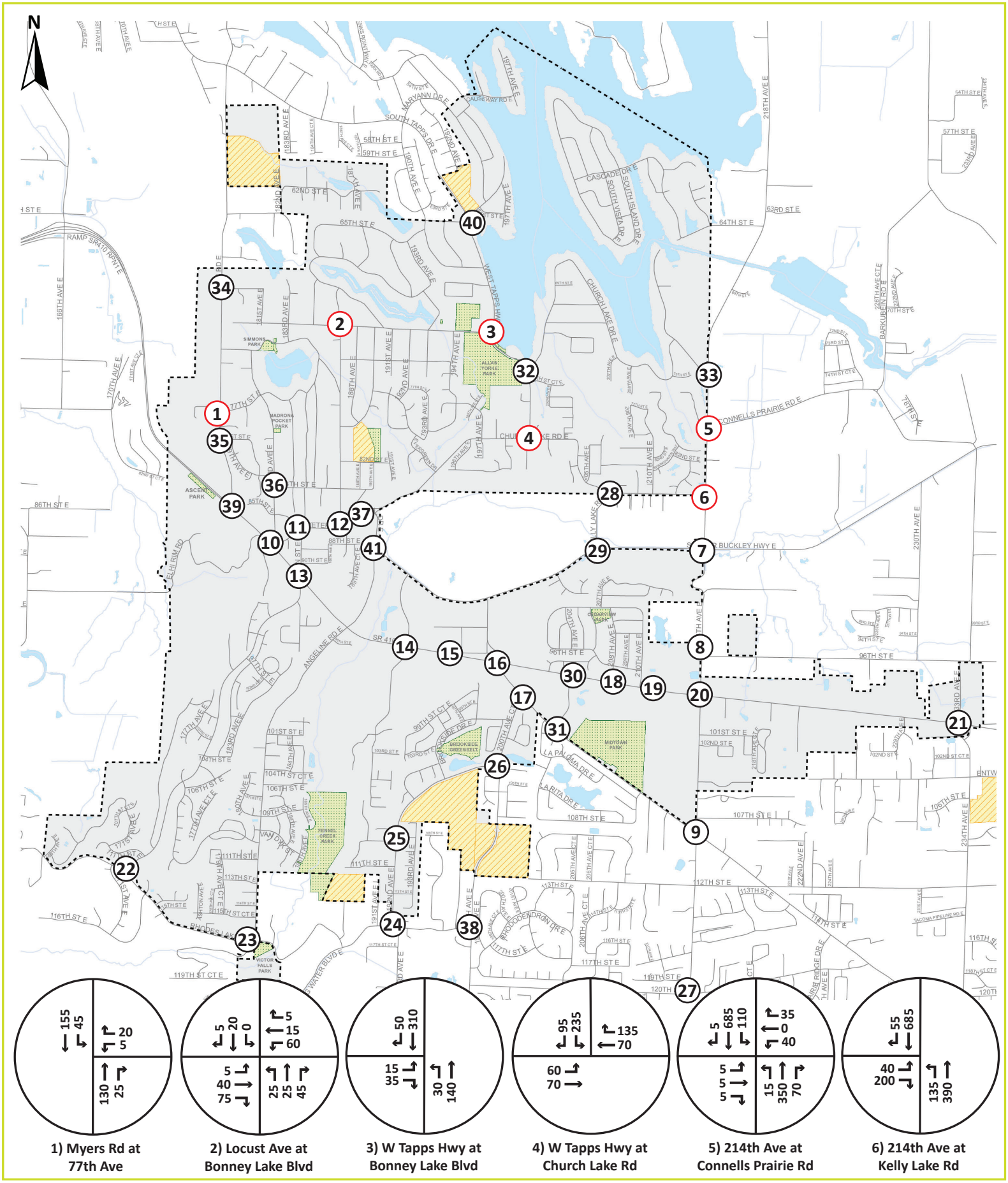
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Appendix D: 2023 Existing and 2049 Projected Traffic Volumes

June 2025

BONNEY Lake

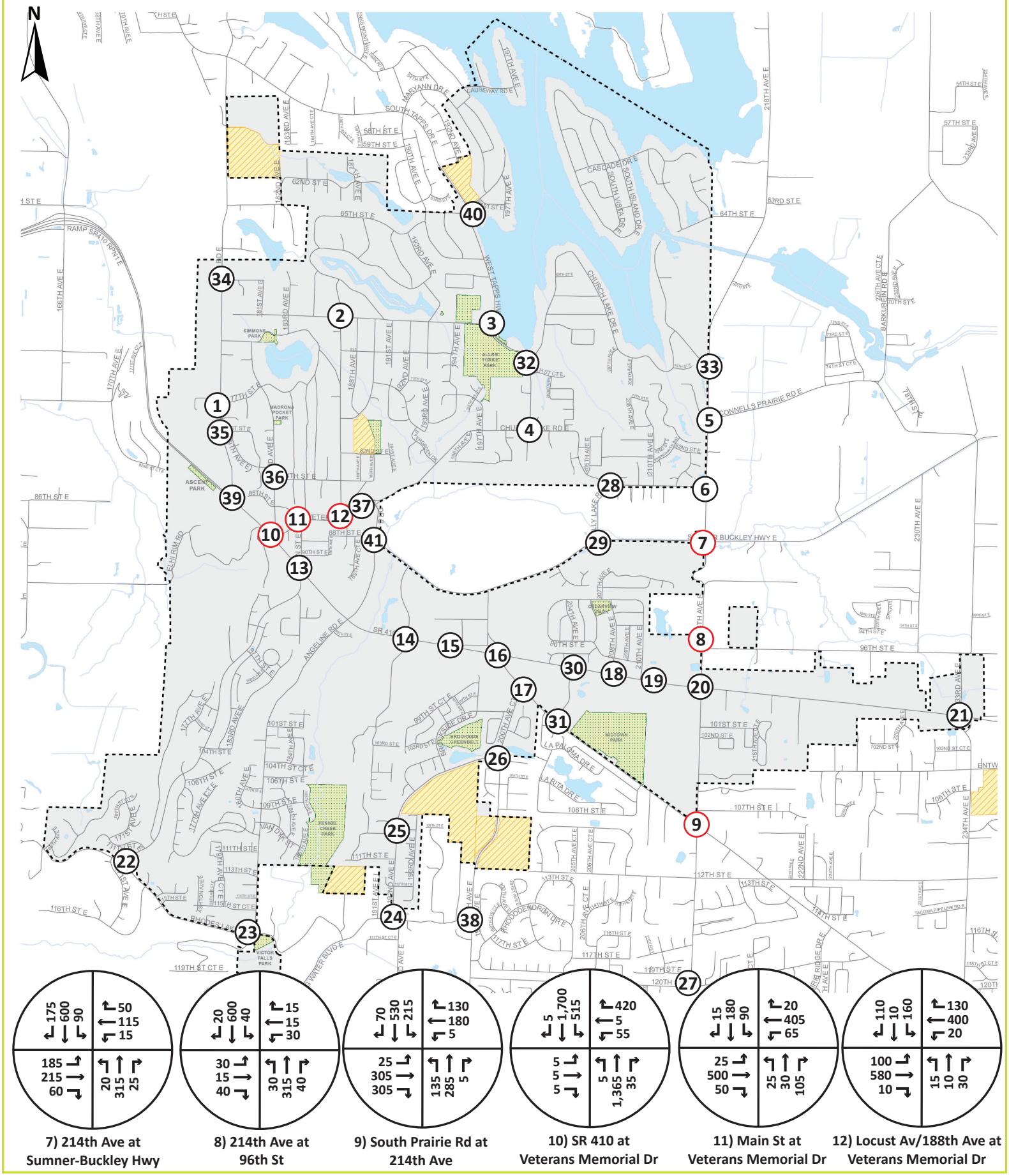
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Bonney Lake Mobility Plan

Figure 2023-1
Existing 2023 PM Peak Hour Traffic Volumes

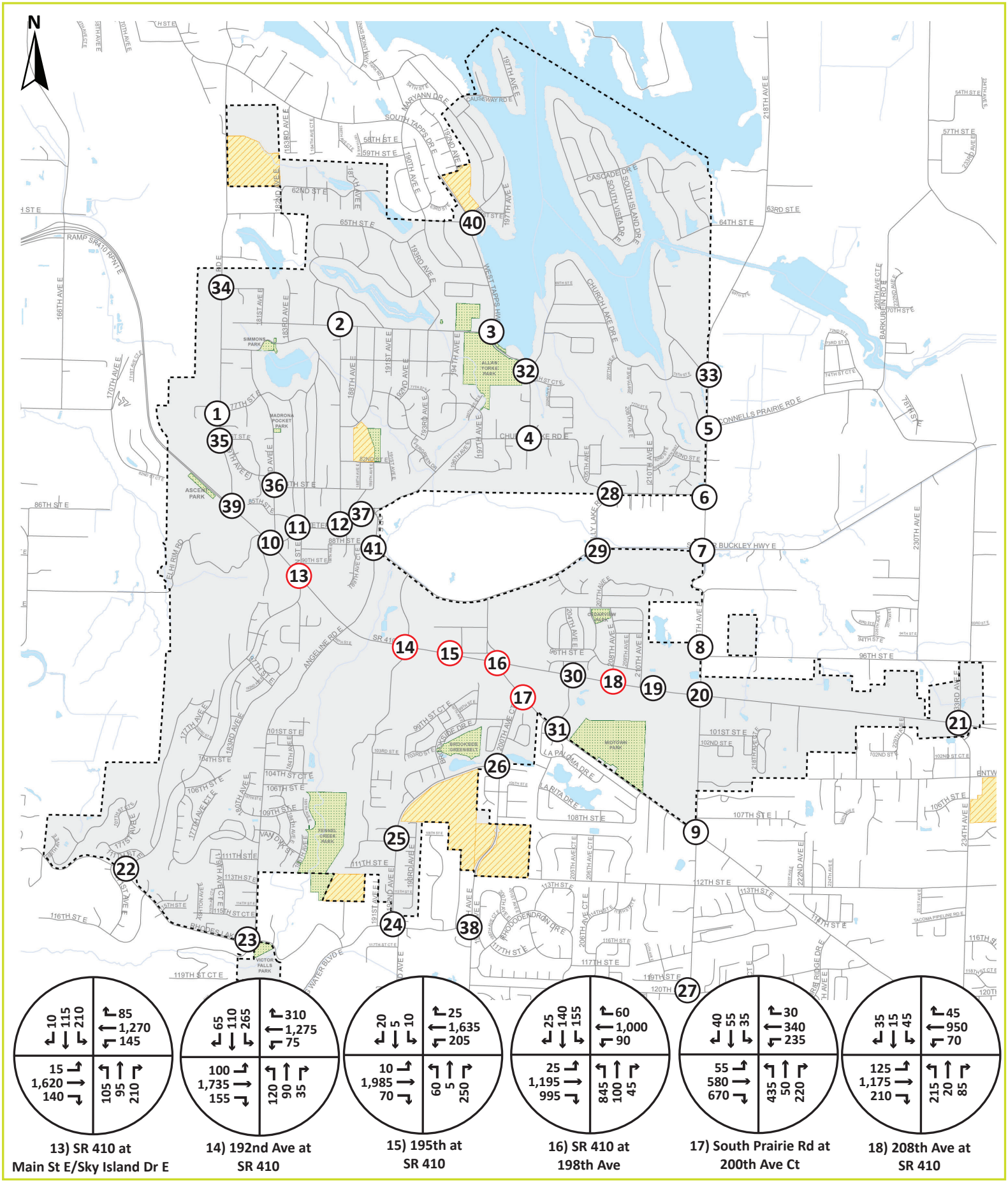
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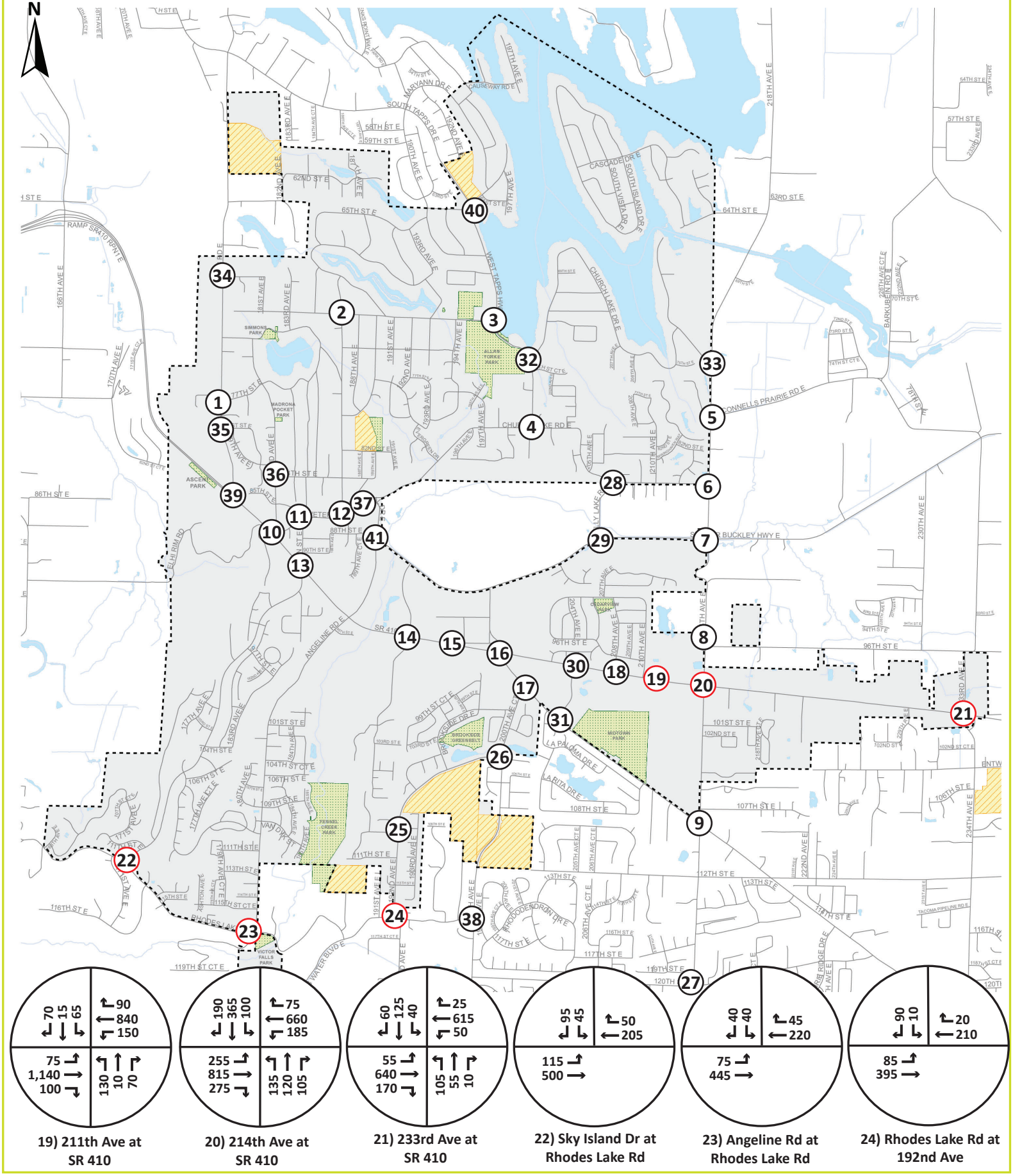
Figure 2023-2
Existing 2023 PM Peak Hour Traffic Volumes

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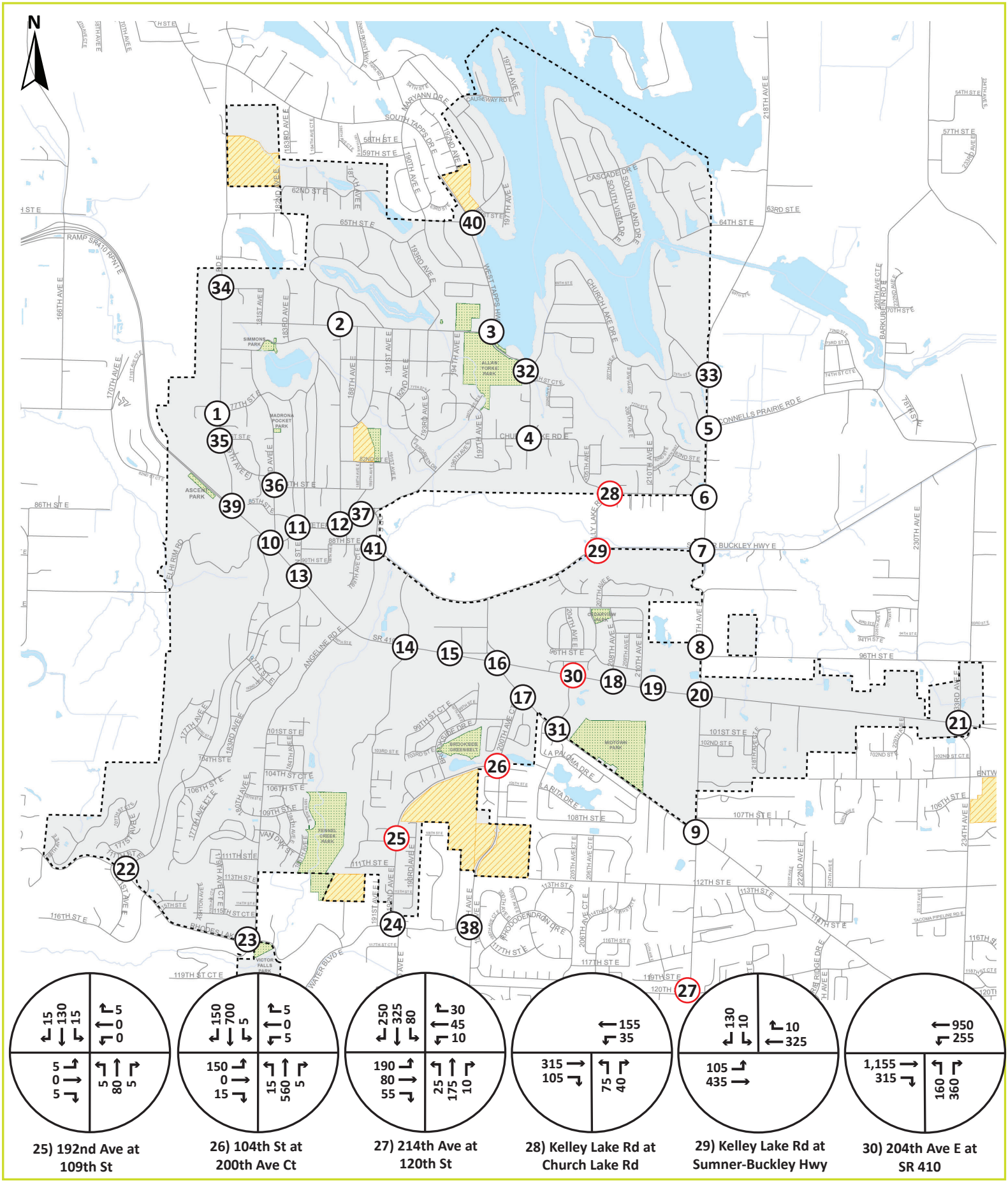
Figure 2023-3
Existing 2023 PM Peak Hour Traffic Volumes



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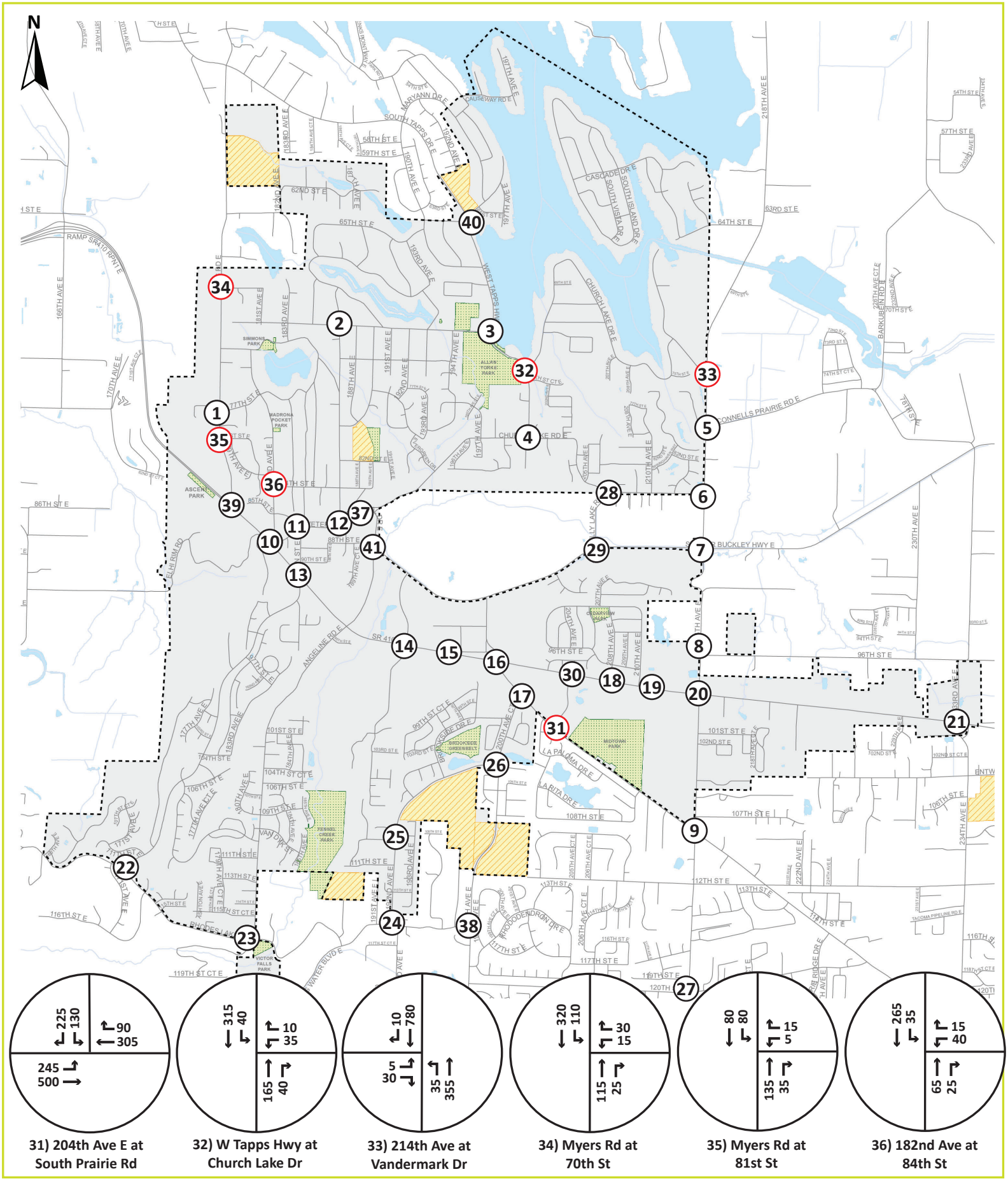
Figure 2023-4
Existing 2023 PM Peak Hour Traffic Volumes



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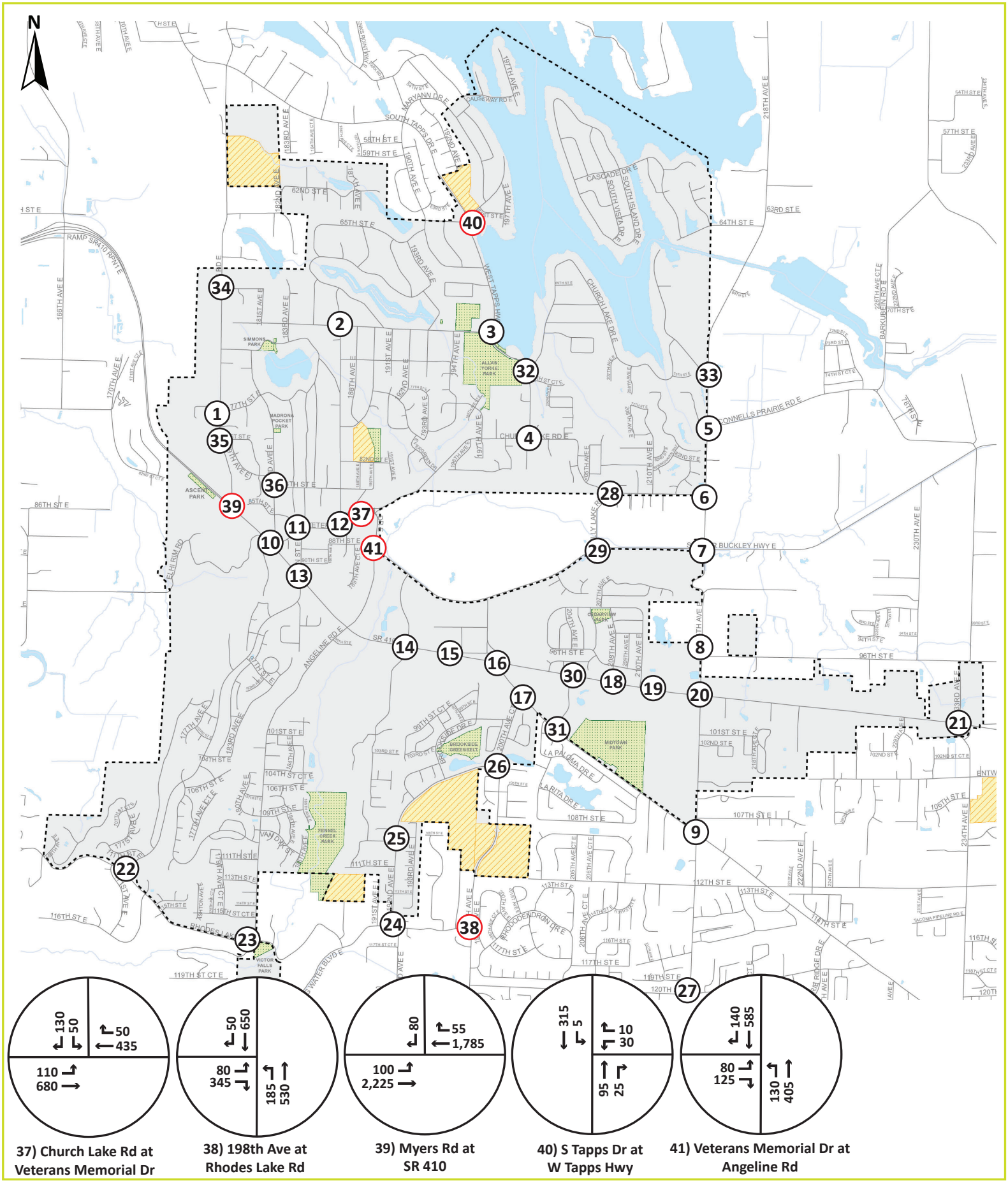
Figure 2023-5
Existing 2023 PM Peak Hour Traffic Volumes



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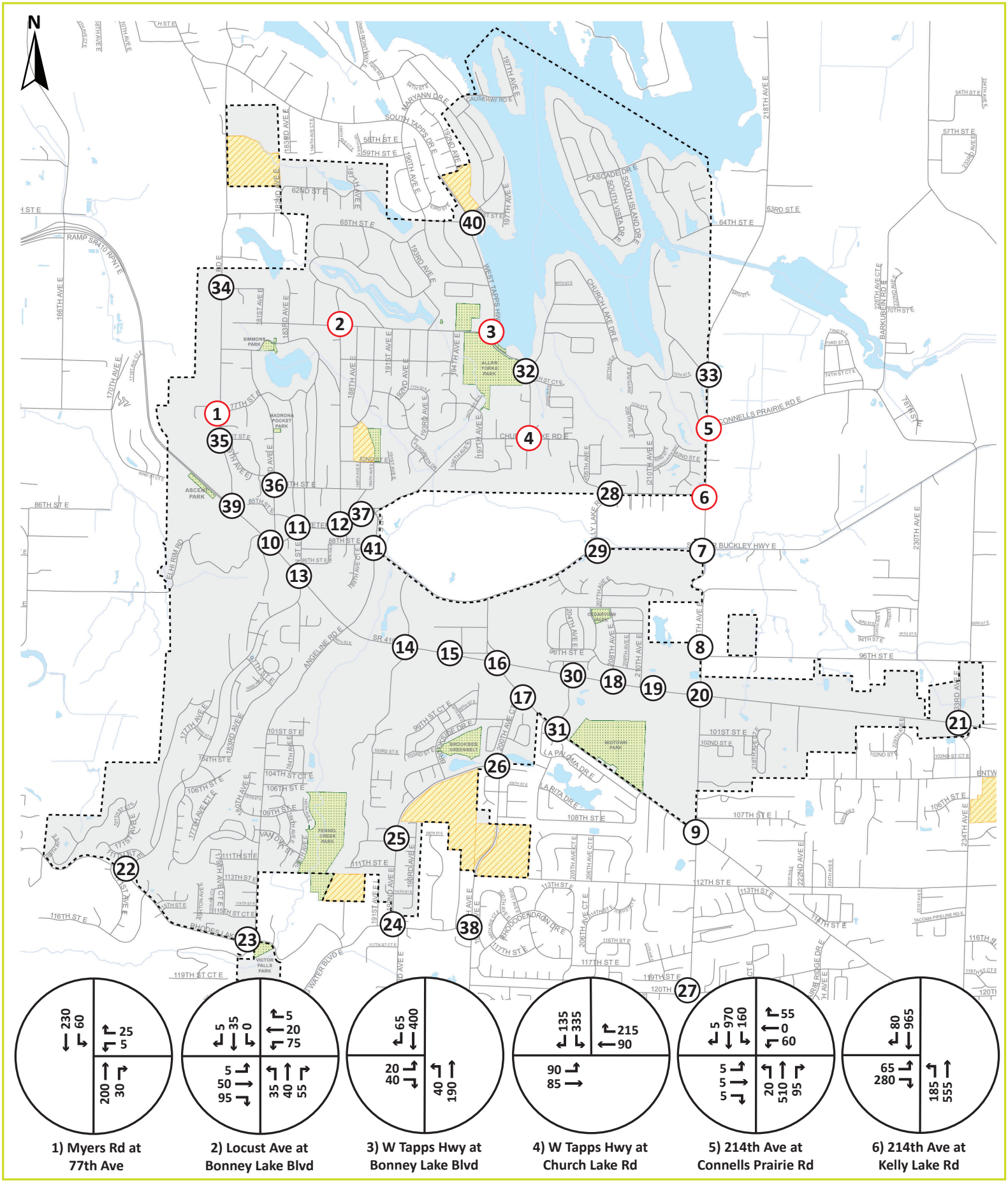
Figure 2023-6
Existing 2023 PM Peak Hour Traffic Volumes



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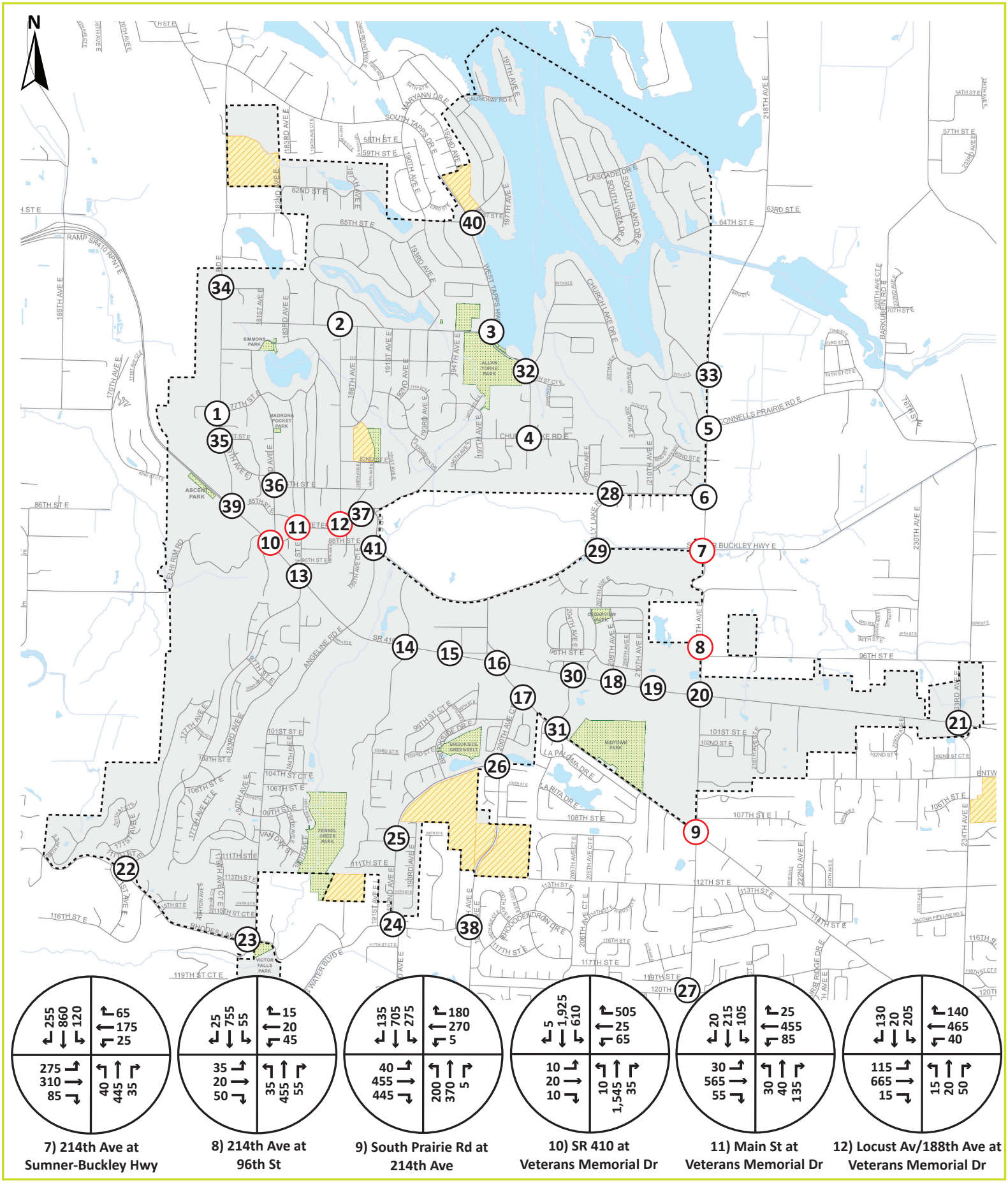
Figure 2023-7
Existing 2023 PM Peak Hour Traffic Volumes



Bonney Lake Mobility Plan

Figure 2049-1
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2

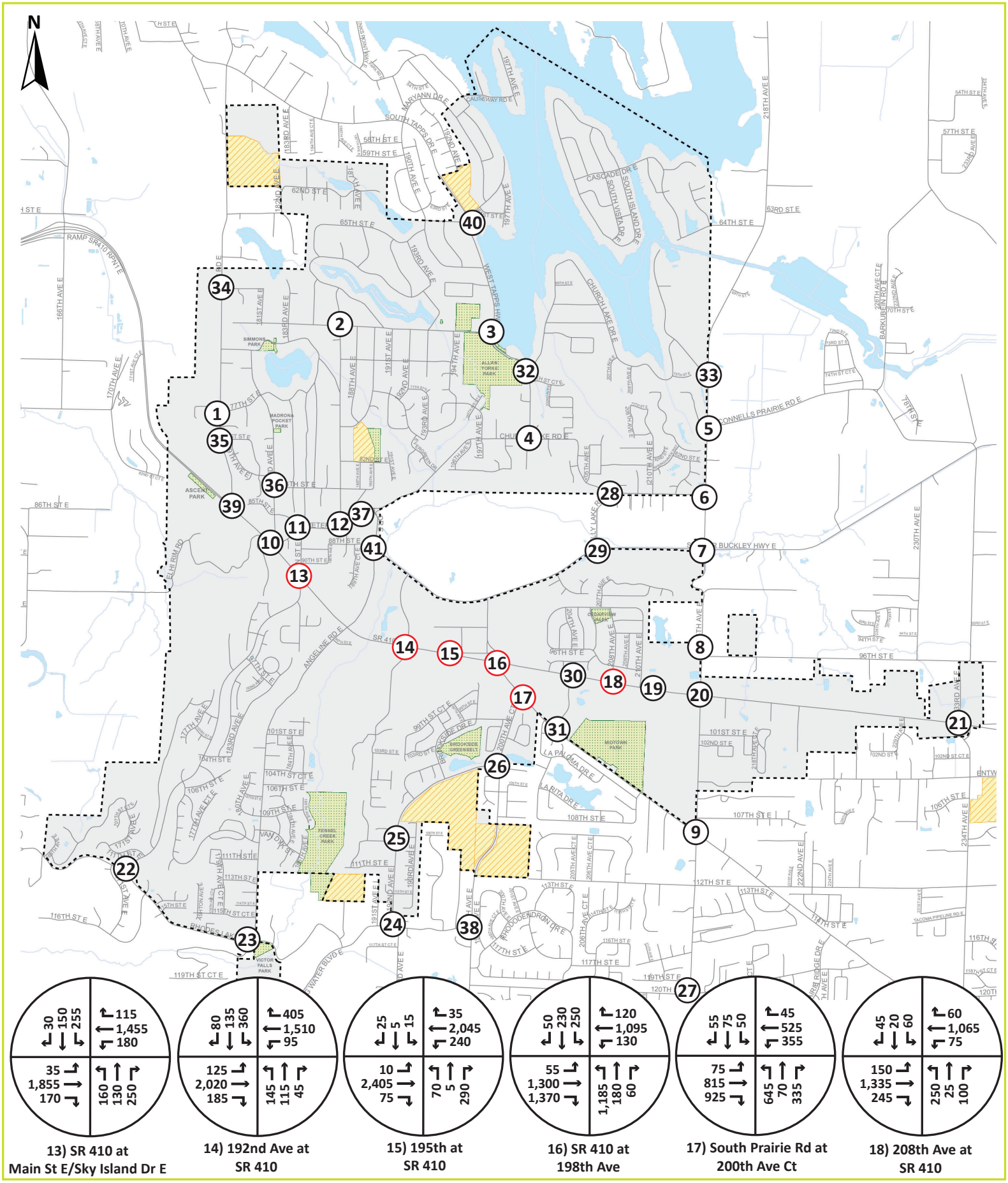
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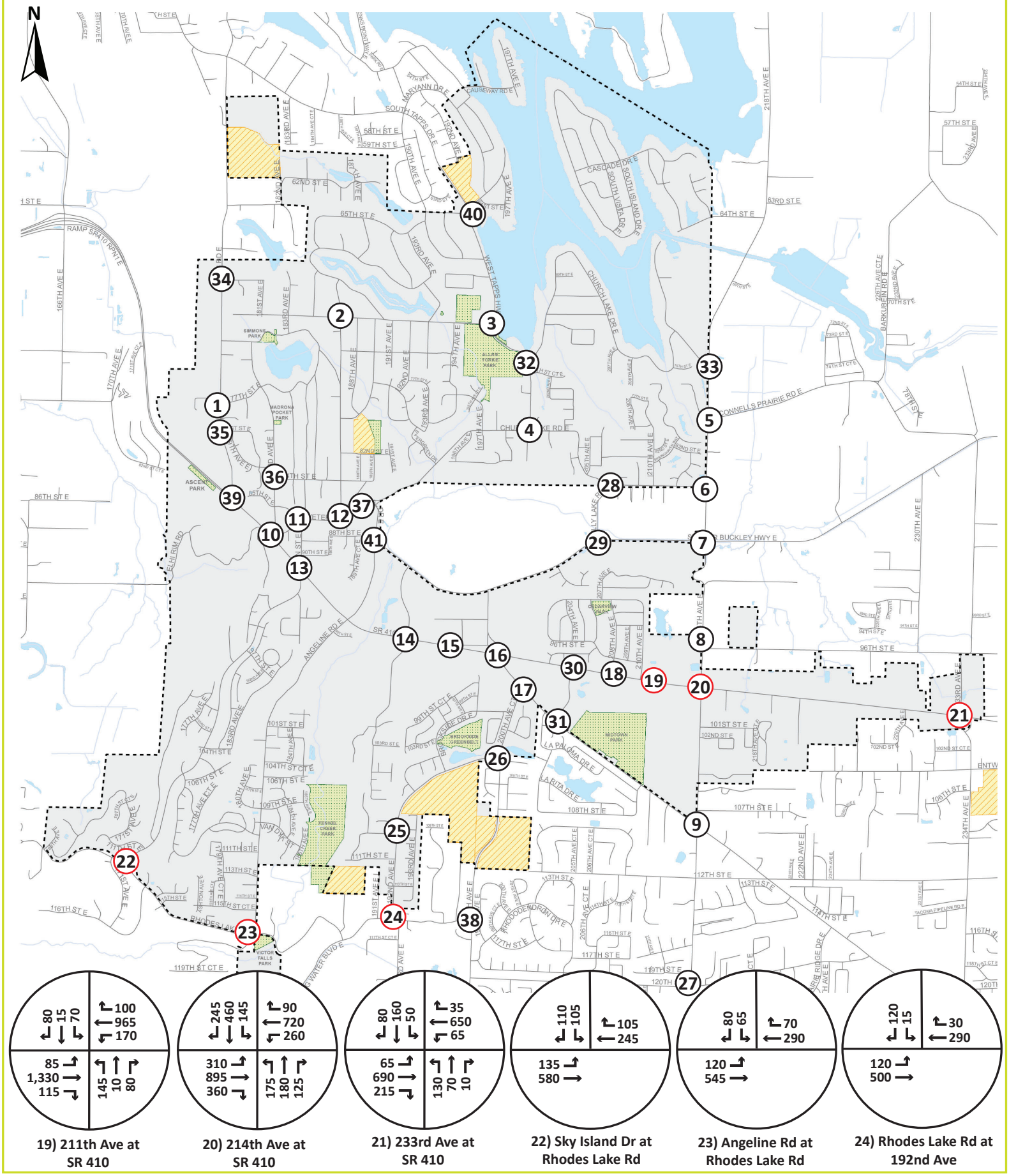
Figure 2049-2
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2



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Figure 2049-3
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2

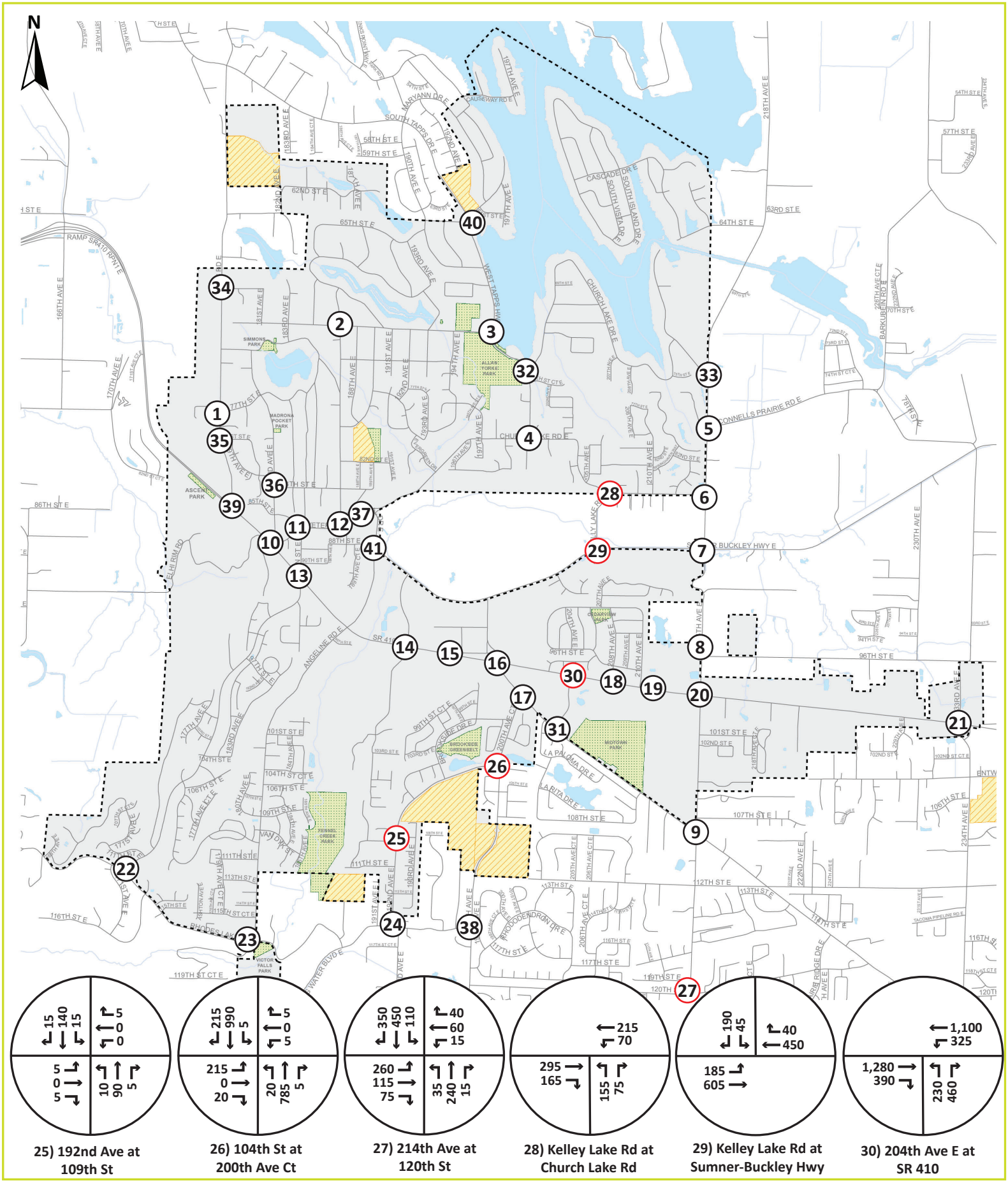
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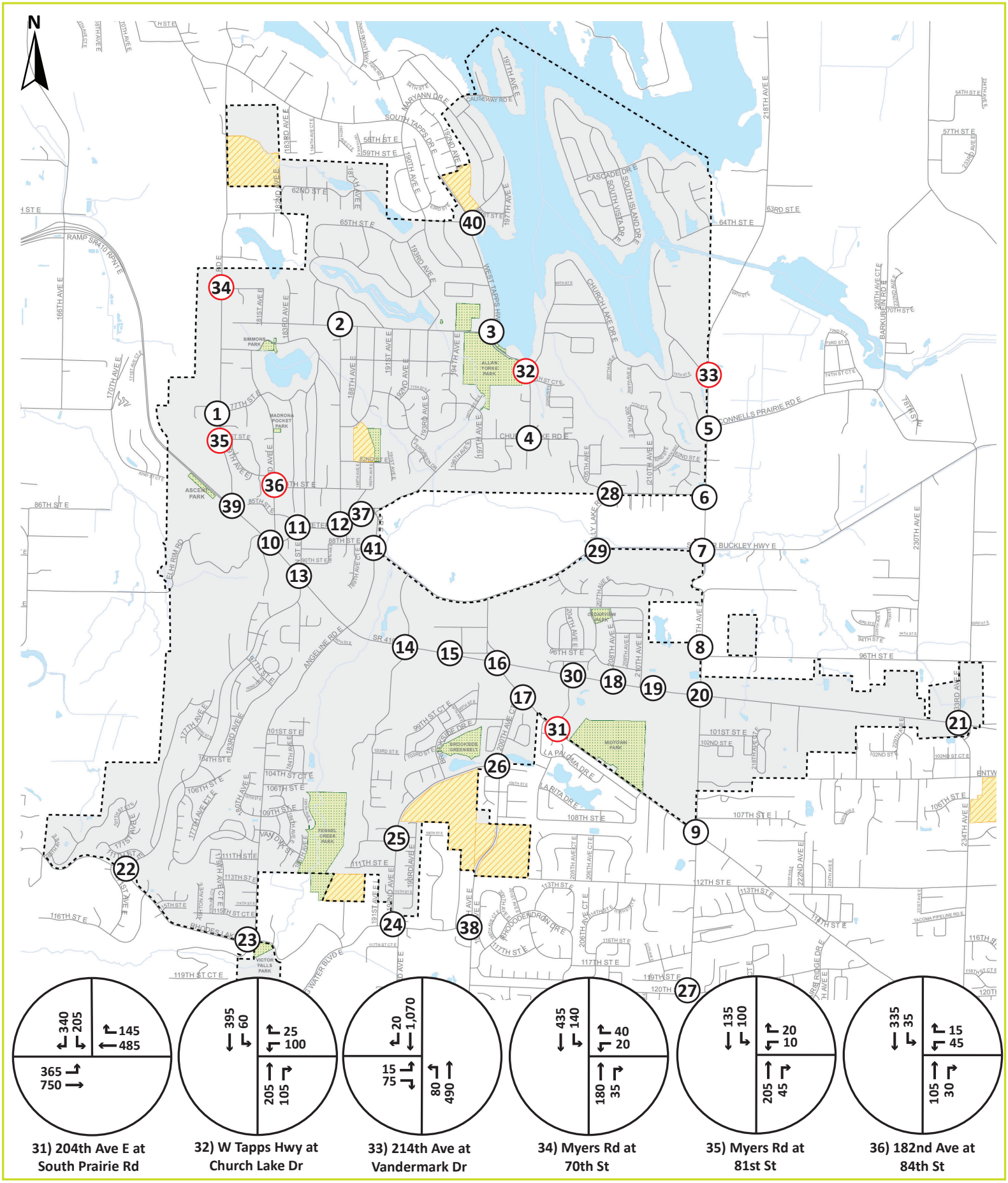
Figure 2049-4
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2



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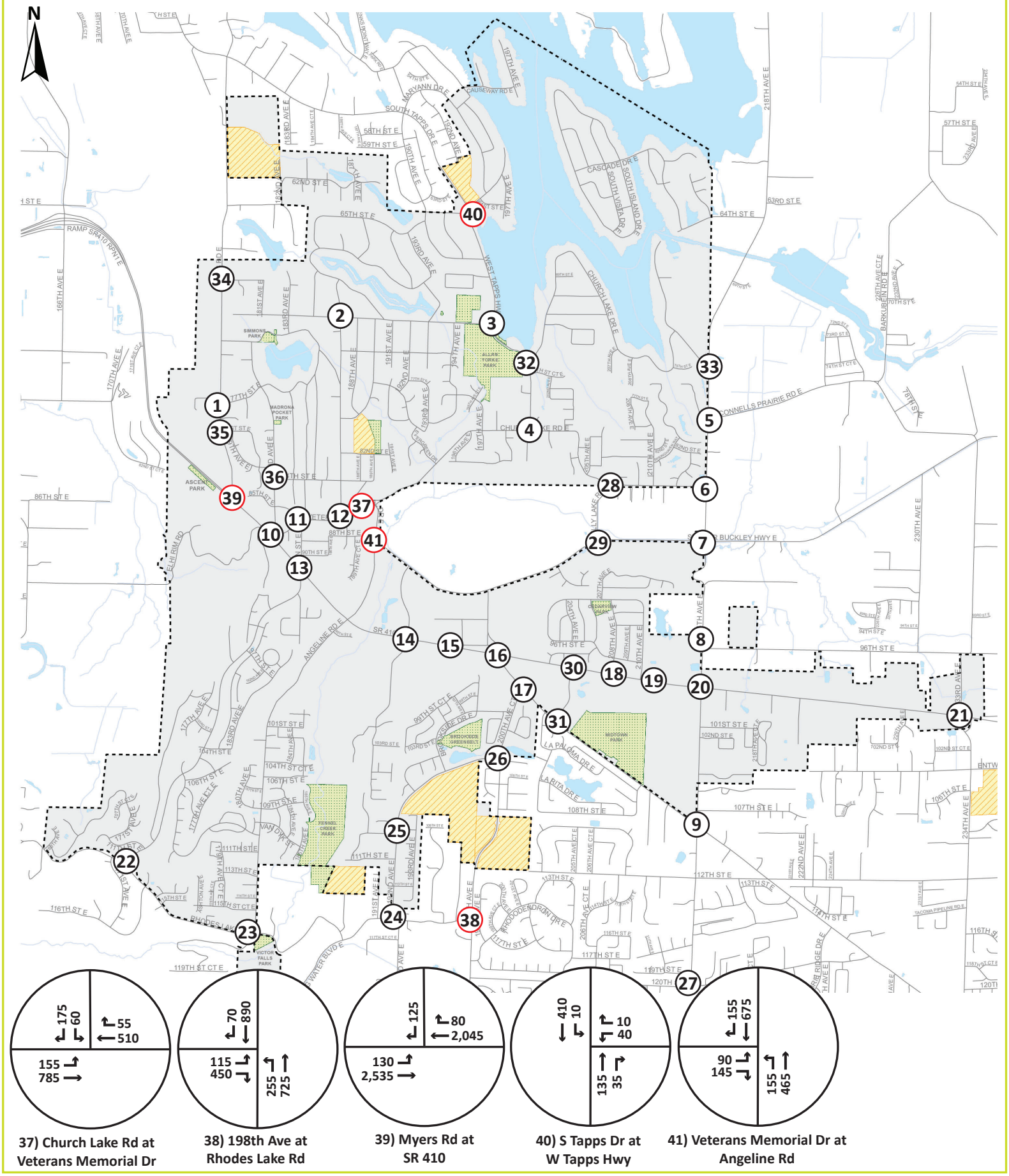
Figure 2049-5
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2



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Figure 2049-6
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2



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Bonney Lake Mobility Plan

Figure 2049-7
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2

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Appendix E: 2023 Existing Intersection Level of Service (ILOS) Worksheets

June 2025

BONNEY Lake

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Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	20	130	25	45	155
Future Vol, veh/h	5	20	130	25	45	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	6	23	151	29	52	180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	451	166	0	0	180	0
Stage 1	166	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	568	881	-	-	1401	-
Stage 1	866	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	545	881	-	-	1401	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	734	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.77	0	1.73
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	784	405	-
HCM Lane V/C Ratio	-	-	0.037	0.037	-
HCM Control Delay (s/veh)	-	-	9.8	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	40	75	60	15	5	25	25	45	1	20	5
Future Vol, veh/h	5	40	75	60	15	5	25	25	45	1	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	45	85	68	17	6	28	28	51	1	23	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	8.1	7.8	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	4%	75%	4%
Vol Thru, %	26%	33%	19%	77%
Vol Right, %	47%	63%	6%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	120	80	26
LT Vol	25	5	60	1
Through Vol	25	40	15	20
RT Vol	45	75	5	5
Lane Flow Rate	108	136	91	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.126	0.15	0.113	0.036
Departure Headway (Hd)	4.209	3.963	4.477	4.417
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	910	805	812
Service Time	2.223	1.966	2.481	2.434
HCM Lane V/C Ratio	0.126	0.149	0.113	0.037
HCM Control Delay, s/veh	7.8	7.7	8.1	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.4	0.1

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	30	30	140	310	50
Future Vol, veh/h	15	30	30	140	310	50
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	17	34	34	157	348	56
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.2	8.9	10.9
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	18%	33%	0%
Vol Thru, %	82%	0%	86%
Vol Right, %	0%	67%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	45	360
LT Vol	30	15	0
Through Vol	140	0	310
RT Vol	0	30	50
Lane Flow Rate	191	51	404
Geometry Grp	1	1	1
Degree of Util (X)	0.237	0.068	0.471
Departure Headway (Hd)	4.473	4.855	4.189
Convergence, Y/N	Yes	Yes	Yes
Cap	804	737	866
Service Time	2.492	2.887	2.189
HCM Lane V/C Ratio	0.238	0.069	0.467
HCM Control Delay, s/veh	8.9	8.2	10.9
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.9	0.2	2.6

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	70	135	235	95
Future Vol, veh/h	60	70	70	135	235	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	65	75	75	145	253	102

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	220	0	-	0	352	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	204	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	645	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	830	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	613	899
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	SB
HCM Control Delay, s/v	3.6	0	16.09
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	831	-	-	-	675
HCM Lane V/C Ratio	0.048	-	-	-	0.526
HCM Control Delay (s/veh)	7.8	0	-	-	16.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	40	1	35	15	350	70	110	685	5
Future Vol, veh/h	5	5	5	40	1	35	15	350	70	110	685	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	3	3	3	1	1	1	1	1	1
Mvmt Flow	5	5	5	42	1	36	16	365	73	115	714	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1342	1414	716	1378	1380	401	719	0	0	438	0	0
Stage 1	945	945	-	432	432	-	-	-	-	-	-	-
Stage 2	396	469	-	945	948	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	125	133	419	121	144	647	887	-	-	1128	-	-
Stage 1	305	331	-	600	580	-	-	-	-	-	-	-
Stage 2	615	549	-	313	338	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	103	117	419	102	127	647	887	-	-	1128	-	-
Mov Cap-2 Maneuver	103	117	-	102	127	-	-	-	-	-	-	-
Stage 1	274	298	-	589	570	-	-	-	-	-	-	-
Stage 2	569	540	-	273	304	-	-	-	-	-	-	-

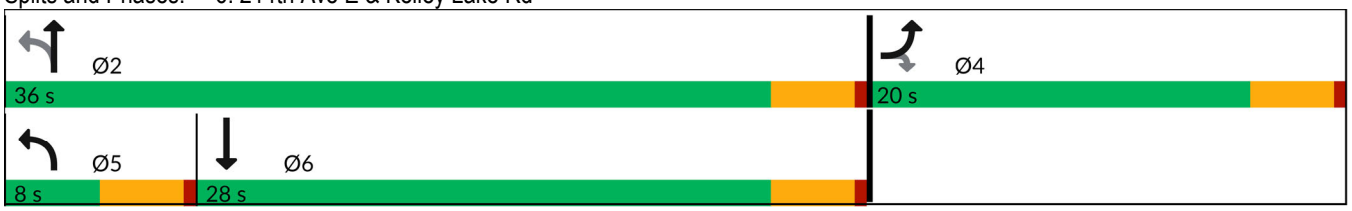
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	32.66	44.63	0.31	1.18
HCM LOS	D	E		

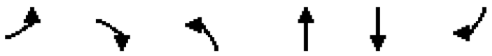
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	887	-	-	146	167	1128	-	-
HCM Lane V/C Ratio	0.018	-	-	0.107	0.474	0.102	-	-
HCM Control Delay (s/veh)	9.1	-	-	32.7	44.6	8.6	-	-
HCM Lane LOS	A	-	-	D	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	2.2	0.3	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	200	135	390	685	55
Future Volume (vph)	40	200	135	390	685	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			35	35	
Link Distance (ft)	2403			1356	1630	
Travel Time (s)	65.5			26.4	31.8	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	36.0	28.0	
Total Split (%)	35.7%	35.7%	14.3%	64.3%	50.0%	
Maximum Green (s)	16.0	16.0	4.0	32.0	24.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 56	
Actuated Cycle Length: 52.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 6: 214th Ave E & Kelley Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	200	135	390	685	55
Future Volume (veh/h)	40	200	135	390	685	55
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	42	211	142	411	721	58
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	319	283	360	1204	807	65
Arrive On Green	0.18	0.18	0.08	0.64	0.47	0.47
Sat Flow, veh/h	1781	1585	1795	1885	1708	137
Grp Volume(v), veh/h	42	211	142	411	0	779
Grp Sat Flow(s),veh/h/ln	1781	1585	1795	1885	0	1846
Q Serve(g_s), s	0.9	5.5	1.5	4.4	0.0	16.9
Cycle Q Clear(g_c), s	0.9	5.5	1.5	4.4	0.0	16.9
Prop In Lane	1.00	1.00	1.00			0.07
Lane Grp Cap(c), veh/h	319	283	360	1204	0	871
V/C Ratio(X)	0.13	0.74	0.39	0.34	0.00	0.89
Avail Cap(c_a), veh/h	651	579	389	1377	0	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	17.0	9.0	3.7	0.0	10.6
Incr Delay (d2), s/veh	0.2	3.9	0.7	0.2	0.0	9.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.4	0.7	0.0	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	15.3	20.9	9.7	3.8	0.0	19.9
LnGrp LOS	B	C	A	A		B
Approach Vol, veh/h	253			553	779	
Approach Delay, s/veh	20.0			5.3	19.9	
Approach LOS	B			A	B	

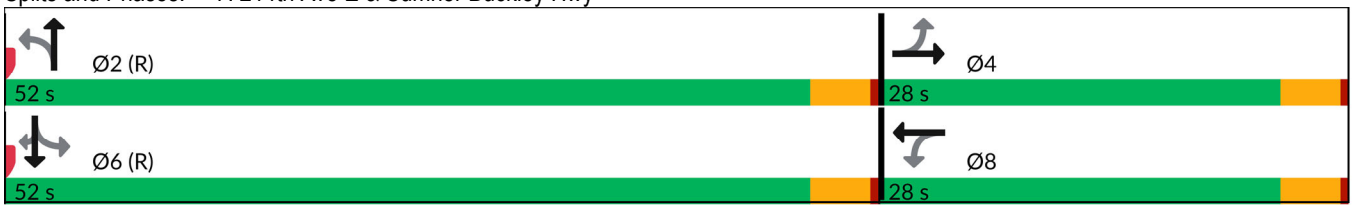
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.0		11.8	7.3	24.7
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		32.0		16.0	4.0	24.0
Max Q Clear Time (g_c+I1), s		6.4		7.5	3.5	18.9
Green Ext Time (p_c), s		1.6		0.7	0.0	1.8

Intersection Summary		
HCM 7th Control Delay, s/veh		14.8
HCM 7th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	215	60	15	115	50	20	315	25	90	600	175
Future Volume (vph)	185	215	60	15	115	50	20	315	25	90	600	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		2632			1239			2614			1356	
Travel Time (s)		59.8			28.2			50.9			26.4	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	28.0	28.0		28.0	28.0		52.0	52.0		52.0	52.0	52.0
Total Split (%)	35.0%	35.0%		35.0%	35.0%		65.0%	65.0%		65.0%	65.0%	65.0%
Maximum Green (s)	24.0	24.0		24.0	24.0		48.0	48.0		48.0	48.0	48.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: 214th Ave E & Sumner Buckley Hwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	215	60	15	115	50	20	315	25	90	600	175
Future Volume (veh/h)	185	215	60	15	115	50	20	315	25	90	600	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	199	231	65	16	124	54	22	339	27	97	645	188
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	323	385	108	232	339	148	77	1008	78	720	1184	1003
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1216	1415	398	1092	1245	542	47	1606	124	1024	1885	1598
Grp Volume(v), veh/h	199	0	296	16	0	178	388	0	0	97	645	188
Grp Sat Flow(s),veh/h/ln	1216	0	1813	1092	0	1788	1777	0	0	1024	1885	1598
Q Serve(g_s), s	12.7	0.0	11.4	1.0	0.0	6.4	0.0	0.0	0.0	0.0	15.5	4.0
Cycle Q Clear(g_c), s	19.1	0.0	11.4	12.4	0.0	6.4	7.8	0.0	0.0	3.6	15.5	4.0
Prop In Lane	1.00		0.22	1.00		0.30	0.06		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	323	0	493	232	0	486	1163	0	0	720	1184	1003
V/C Ratio(X)	0.62	0.00	0.60	0.07	0.00	0.37	0.33	0.00	0.00	0.13	0.54	0.19
Avail Cap(c_a), veh/h	357	0	544	263	0	536	1163	0	0	720	1184	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.00	0.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	31.3	0.0	25.3	30.7	0.0	23.5	7.0	0.0	0.0	6.2	8.4	6.3
Incr Delay (d2), s/veh	2.7	0.0	1.5	0.1	0.0	0.5	0.8	0.0	0.0	0.2	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	4.9	0.3	0.0	2.7	2.8	0.0	0.0	0.6	5.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.0	0.0	26.9	30.8	0.0	24.0	7.8	0.0	0.0	6.4	9.4	6.5
LnGrp LOS	C		C	C		C	A			A	A	A
Approach Vol, veh/h		495			194			388			930	
Approach Delay, s/veh		29.7			24.6			7.8			8.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		54.2		25.8		54.2		25.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		48.0		24.0		48.0		24.0				
Max Q Clear Time (g_c+I1), s		9.8		21.1		17.5		14.4				
Green Ext Time (p_c), s		1.8		0.7		4.6		0.5				

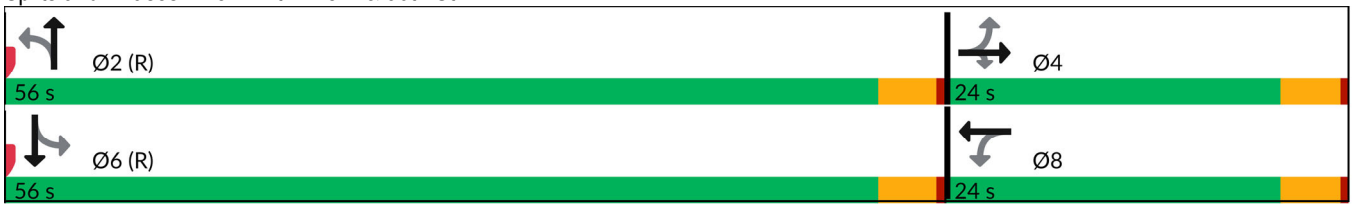
Intersection Summary	
HCM 7th Control Delay, s/veh	15.1
HCM 7th LOS	B

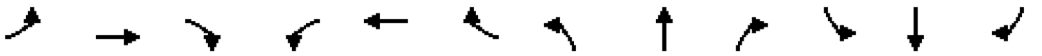
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	15	40	30	15	15	30	315	40	40	600	20
Future Volume (vph)	30	15	40	30	15	15	30	315	40	40	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		261			692			981			2614	
Travel Time (s)		5.9			15.7			19.1			50.9	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		56.0	56.0		56.0	56.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	
Maximum Green (s)	20.0	20.0	20.0	20.0	20.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 11 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 8: 214th Ave E & 96th St E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	15	40	30	15	15	30	315	40	40	600	20
Future Volume (veh/h)	30	15	40	30	15	15	30	315	40	40	600	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	31	16	42	31	16	16	31	328	42	42	625	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	144	59	118	104	36	25	743	1353	173	905	1529	51
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.83	0.83	0.83	1.00	1.00	1.00
Sat Flow, veh/h	938	800	1598	502	484	335	791	1638	210	1041	1851	62
Grp Volume(v), veh/h	47	0	42	63	0	0	31	0	370	42	0	646
Grp Sat Flow(s),veh/h/ln	1738	0	1598	1321	0	0	791	0	1847	1041	0	1913
Q Serve(g_s), s	0.0	0.0	2.0	2.1	0.0	0.0	0.6	0.0	3.5	0.2	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	2.0	4.0	0.0	0.0	0.6	0.0	3.5	3.7	0.0	0.0
Prop In Lane	0.66		1.00	0.49		0.25	1.00		0.11	1.00		0.03
Lane Grp Cap(c), veh/h	203	0	118	165	0	0	743	0	1526	905	0	1580
V/C Ratio(X)	0.23	0.00	0.36	0.38	0.00	0.00	0.04	0.00	0.24	0.05	0.00	0.41
Avail Cap(c_a), veh/h	472	0	399	431	0	0	743	0	1526	905	0	1580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.73	0.00	0.73	0.85	0.00	0.85
Uniform Delay (d), s/veh	35.2	0.0	35.2	36.2	0.0	0.0	1.3	0.0	1.5	0.1	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.8	1.5	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.8	1.2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.8	0.0	37.0	37.7	0.0	0.0	1.3	0.0	1.8	0.2	0.0	0.7
LnGrp LOS	D		D	D			A		A	A		A
Approach Vol, veh/h		89			63			401			688	
Approach Delay, s/veh		36.4			37.7			1.8			0.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	70.1	9.9	70.1	9.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	52.0	20.0	52.0	20.0
Max Q Clear Time (g_c+I1), s	5.5	4.0	5.7	6.0
Green Ext Time (p_c), s	1.8	0.2	3.4	0.1

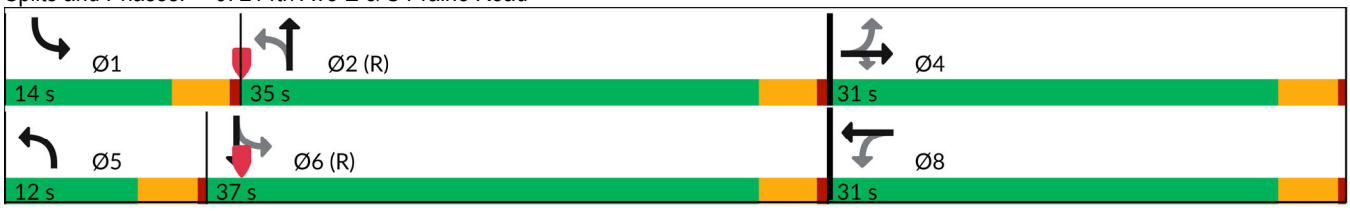
Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

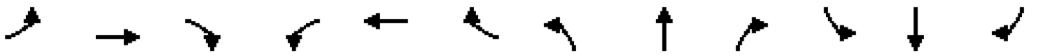
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	305	305	5	180	130	135	285	5	215	530	70
Future Volume (vph)	25	305	305	5	180	130	135	285	5	215	530	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4369			2155			1288			3394	
Travel Time (s)		119.2			58.8			25.1			66.1	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		12.0	35.0		14.0	37.0	
Total Split (%)	38.8%	38.8%	38.8%	38.8%	38.8%		15.0%	43.8%		17.5%	46.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0	27.0		8.0	31.0		10.0	33.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 56 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 9: 214th Ave E & S Prairie Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	305	305	5	180	130	135	285	5	215	530	70
Future Volume (veh/h)	25	305	305	5	180	130	135	285	5	215	530	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	26	314	314	5	186	134	139	294	5	222	546	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	67	422	383	48	241	171	515	976	17	716	1041	
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.53	0.53	0.08	0.55	0.00
Sat Flow, veh/h	76	1761	1598	8	1008	712	1795	1848	31	1795	1885	0
Grp Volume(v), veh/h	340	0	314	325	0	0	139	0	299	222	546	0
Grp Sat Flow(s),veh/h/ln	1837	0	1598	1728	0	0	1795	0	1880	1795	1885	0
Q Serve(g_s), s	0.0	0.0	14.9	0.4	0.0	0.0	2.8	0.0	7.1	4.4	14.6	0.0
Cycle Q Clear(g_c), s	13.6	0.0	14.9	14.1	0.0	0.0	2.8	0.0	7.1	4.4	14.6	0.0
Prop In Lane	0.08		1.00	0.02		0.41	1.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	488	0	383	459	0	0	515	0	992	716	1041	
V/C Ratio(X)	0.70	0.00	0.82	0.71	0.00	0.00	0.27	0.00	0.30	0.31	0.52	
Avail Cap(c_a), veh/h	663	0	539	628	0	0	590	0	992	792	1041	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	1.00	0.00	0.00	1.00	0.00	1.00	0.66	0.66	0.00
Uniform Delay (d), s/veh	28.3	0.0	28.8	28.4	0.0	0.0	8.6	0.0	10.6	7.3	11.3	0.0
Incr Delay (d2), s/veh	1.8	0.0	6.4	2.3	0.0	0.0	0.3	0.0	0.8	0.2	1.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	6.2	6.0	0.0	0.0	1.0	0.0	2.8	1.4	5.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.1	0.0	35.2	30.7	0.0	0.0	8.9	0.0	11.4	7.5	12.5	0.0
LnGrp LOS	C		D	C			A		B	A	B	
Approach Vol, veh/h		654			325			438			768	
Approach Delay, s/veh		32.5			30.7			10.6			11.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	46.2		23.2	8.7	48.2		23.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	31.0		27.0	8.0	33.0		27.0				
Max Q Clear Time (g_c+I1), s	6.4	9.1		16.9	4.8	16.6		16.1				
Green Ext Time (p_c), s	0.3	1.1		2.3	0.1	2.1		1.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	20.3
HCM 7th LOS	C

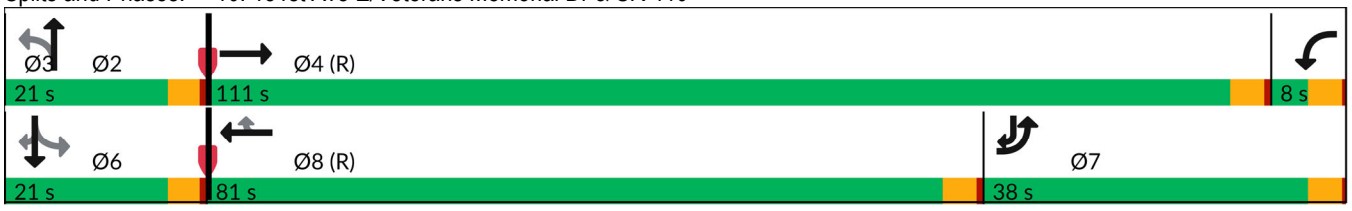
Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	515	1700	5	5	1365	35	5	5	5	55	5	420
Future Volume (vph)	515	1700	5	5	1365	35	5	5	5	55	5	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		0	100		250	0		0	0		50
Storage Lanes	2		0	1		1	0		0	0		2
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1510			1091			468			786	
Travel Time (s)		22.9			16.5			12.8			21.4	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	8.0
Total Split (s)	38.0	111.0		8.0	81.0	81.0	21.0	21.0		21.0	21.0	38.0
Total Split (%)	27.1%	79.3%		5.7%	57.9%	57.9%	15.0%	15.0%		15.0%	15.0%	27.1%
Maximum Green (s)	34.0	107.0		4.0	77.0	77.0	17.0	17.0		17.0	17.0	34.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead						Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		Min	Min	None
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: 181st Ave E/Veterans Memorial Dr & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	515	1700	5	5	1365	35	5	5	5	55	5	420
Future Volume (veh/h)	515	1700	5	5	1365	35	5	5	5	55	5	420
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	531	1753	5	5	1407	36	5	5	5	57	5	433
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	1009	2800	8	134	1955	872	46	42	27	137	10	1024
Arrive On Green	0.29	0.76	0.76	0.15	1.00	1.00	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	3483	3664	10	1781	3554	1585	160	559	359	1180	135	2812
Grp Volume(v), veh/h	531	857	901	5	1407	36	15	0	0	62	0	433
Grp Sat Flow(s),veh/h/ln	1742	1791	1883	1781	1777	1585	1078	0	0	1315	0	1406
Q Serve(g_s), s	17.9	30.3	30.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.9	30.3	30.3	0.3	0.0	0.0	6.8	0.0	0.0	6.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.33	0.92		1.00
Lane Grp Cap(c), veh/h	1009	1369	1439	134	1955	872	115	0	0	148	0	1024
V/C Ratio(X)	0.53	0.63	0.63	0.04	0.72	0.04	0.13	0.00	0.00	0.42	0.00	0.42
Avail Cap(c_a), veh/h	1009	1369	1439	134	1955	872	179	0	0	215	0	1156
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	0.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	41.7	7.5	7.5	55.1	0.0	0.0	60.5	0.0	0.0	63.0	0.0	33.4
Incr Delay (d2), s/veh	0.5	2.2	2.1	0.1	1.9	0.1	0.5	0.0	0.0	1.5	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	10.0	10.5	0.2	0.5	0.0	0.5	0.0	0.0	2.2	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.2	9.6	9.5	55.2	1.9	0.1	61.0	0.0	0.0	64.5	0.0	33.7
LnGrp LOS	D	A	A	E	A	A	E			E		C
Approach Vol, veh/h		2289			1448			15			495	
Approach Delay, s/veh		17.1			2.1			61.0			37.5	
Approach LOS		B			A			E			D	

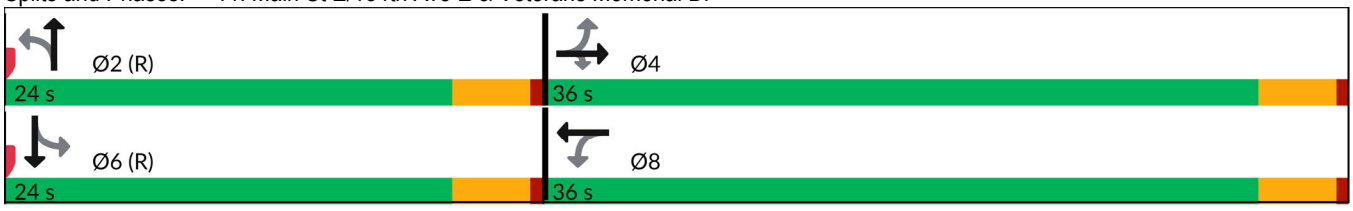
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.5	14.5	111.0		14.5	44.5	81.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		17.0	4.0	107.0		17.0	34.0	77.0				
Max Q Clear Time (g_c+I1), s		8.8	2.3	32.3		8.8	19.9	2.0				
Green Ext Time (p_c), s		0.0	0.0	11.9		1.7	2.0	9.3				

Intersection Summary		
HCM 7th Control Delay, s/veh		14.5
HCM 7th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	500	50	65	405	20	25	30	105	90	180	15
Future Volume (vph)	25	500	50	65	405	20	25	30	105	90	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		150	100		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		786			1067			1220			789	
Travel Time (s)		21.4			29.1			33.3			21.5	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%	60.0%	60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

Splits and Phases: 11: Main St E/184th Ave E & Veterans Memorial Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	500	50	65	405	20	25	30	105	90	180	15
Future Volume (veh/h)	25	500	50	65	405	20	25	30	105	90	180	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	27	543	54	71	440	22	27	33	114	98	196	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	300	739	626	241	698	35	600	176	609	650	816	67
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	937	1885	1598	828	1780	89	1179	371	1283	1251	1720	140
Grp Volume(v), veh/h	27	543	54	71	0	462	27	0	147	98	0	212
Grp Sat Flow(s),veh/h/ln	937	1885	1598	828	0	1869	1179	0	1654	1251	0	1860
Q Serve(g_s), s	1.4	14.8	1.3	4.8	0.0	12.0	0.8	0.0	3.1	2.9	0.0	4.1
Cycle Q Clear(g_c), s	13.4	14.8	1.3	19.6	0.0	12.0	4.9	0.0	3.1	6.0	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.78	1.00		0.08
Lane Grp Cap(c), veh/h	300	739	626	241	0	732	600	0	785	650	0	883
V/C Ratio(X)	0.09	0.74	0.09	0.30	0.00	0.63	0.04	0.00	0.19	0.15	0.00	0.24
Avail Cap(c_a), veh/h	433	1005	852	358	0	997	600	0	785	650	0	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.69	0.00	0.69	0.98	0.00	0.98	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.2	15.6	11.5	23.9	0.0	14.7	10.8	0.0	9.1	10.8	0.0	9.3
Incr Delay (d2), s/veh	0.1	1.3	0.0	0.5	0.0	0.6	0.1	0.0	0.5	0.5	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.9	0.4	0.9	0.0	4.7	0.2	0.0	1.1	0.8	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.2	16.9	11.5	24.4	0.0	15.4	10.9	0.0	9.6	11.3	0.0	10.0
LnGrp LOS	C	B	B	C		B	B		A	B		A
Approach Vol, veh/h		624			533			174			310	
Approach Delay, s/veh		16.5			16.6			9.8			10.4	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	32.5	27.5	32.5	27.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	32.0	20.0	32.0
Max Q Clear Time (g_c+I1), s	6.9	16.8	8.0	21.6
Green Ext Time (p_c), s	0.6	2.6	1.0	1.9

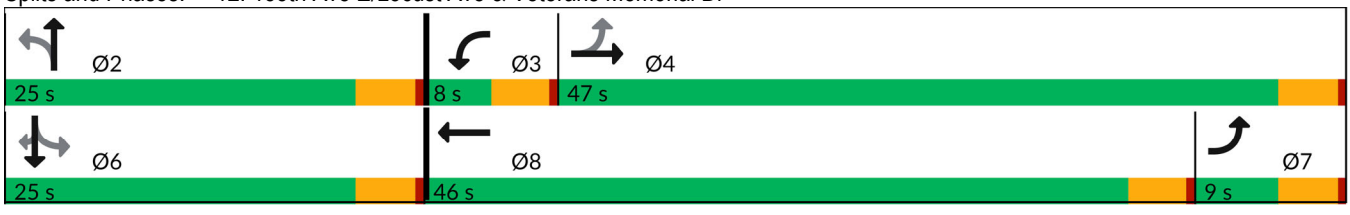
Intersection Summary	
HCM 7th Control Delay, s/veh	14.7
HCM 7th LOS	B

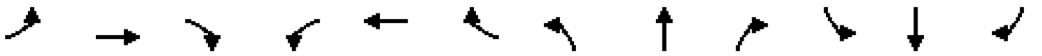
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	580	10	20	400	130	15	10	30	150	10	110
Future Volume (vph)	100	580	10	20	400	130	15	10	30	150	10	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			2%			-3%	
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1067			412			245			4942	
Travel Time (s)		29.1			11.2			6.7			134.8	
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	9.0	47.0		8.0	46.0		25.0	25.0		25.0	25.0	25.0
Total Split (%)	11.3%	58.8%		10.0%	57.5%		31.3%	31.3%		31.3%	31.3%	31.3%
Maximum Green (s)	5.0	43.0		4.0	42.0		21.0	21.0		21.0	21.0	21.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			1		4	4		7	7	7

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 52.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: 188th Ave E/Locust Ave & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	580	10	20	400	130	15	10	30	150	10	110
Future Volume (veh/h)	100	580	10	20	400	130	15	10	30	150	10	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1862	1862	1862	1817	1817	1817	1973	1973	1973
Adj Flow Rate, veh/h	105	611	11	21	421	137	16	11	32	158	11	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	4	4	4	3	3	3
Cap, veh/h	458	906	16	37	542	176	156	73	124	443	18	269
Arrive On Green	0.11	0.49	0.49	0.02	0.40	0.40	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1795	1846	33	1773	1345	438	195	453	768	1572	109	1672
Grp Volume(v), veh/h	105	0	622	21	0	558	59	0	0	169	0	116
Grp Sat Flow(s),veh/h/ln	1795	0	1879	1773	0	1783	1417	0	0	1682	0	1672
Q Serve(g_s), s	0.0	0.0	9.2	0.4	0.0	10.0	0.0	0.0	0.0	0.0	0.0	2.3
Cycle Q Clear(g_c), s	0.0	0.0	9.2	0.4	0.0	10.0	3.1	0.0	0.0	3.0	0.0	2.3
Prop In Lane	1.00		0.02	1.00		0.25	0.27		0.54	0.93		1.00
Lane Grp Cap(c), veh/h	458	0	922	37	0	718	353	0	0	461	0	269
V/C Ratio(X)	0.23	0.00	0.67	0.56	0.00	0.78	0.17	0.00	0.00	0.37	0.00	0.43
Avail Cap(c_a), veh/h	506	0	2204	193	0	2042	962	0	0	1063	0	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	7.1	17.8	0.0	9.5	13.4	0.0	0.0	14.2	0.0	13.9
Incr Delay (d2), s/veh	0.3	0.0	0.9	12.7	0.0	1.9	0.2	0.0	0.0	0.5	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.6	0.3	0.0	3.2	0.4	0.0	0.0	1.2	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.9	0.0	8.0	30.5	0.0	11.4	13.6	0.0	0.0	14.7	0.0	15.0
LnGrp LOS	B		A	C		B	B			B		B
Approach Vol, veh/h		727			579			59			285	
Approach Delay, s/veh		8.8			12.1			13.6			14.8	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	9.9	4.8	22.0	9.9	8.0	18.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	21.0	4.0	43.0	21.0	5.0	42.0
Max Q Clear Time (g_c+I1), s	5.1	2.4	11.2	5.0	2.0	12.0
Green Ext Time (p_c), s	0.1	0.0	3.1	1.1	0.1	2.8

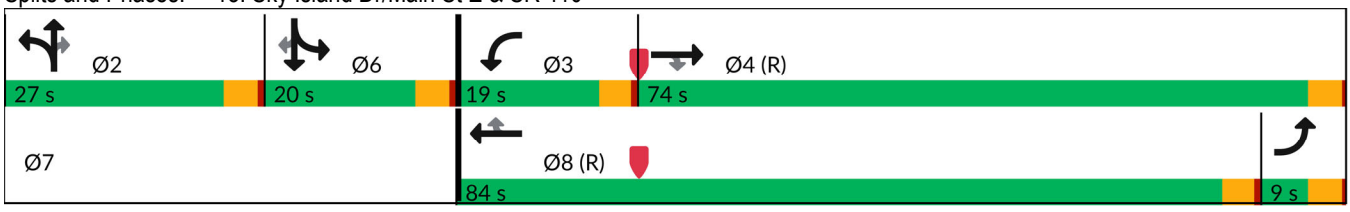
Intersection Summary	
HCM 7th Control Delay, s/veh	11.2
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1620	140	145	1270	85	150	95	210	210	115	10
Future Volume (vph)	15	1620	140	145	1270	85	150	95	210	210	115	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			0%			-2%	
Storage Length (ft)	100		200	100		200	100		100	100		100
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1091			3227			439			1220	
Travel Time (s)		16.5			48.9			12.0			33.3	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	74.0	74.0	19.0	84.0	84.0	27.0	27.0	27.0	20.0	20.0	20.0
Total Split (%)	6.4%	52.9%	52.9%	13.6%	60.0%	60.0%	19.3%	19.3%	19.3%	14.3%	14.3%	14.3%
Maximum Green (s)	5.0	70.0	70.0	15.0	80.0	80.0	23.0	23.0	23.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 139 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 13: Sky Island Dr/Main St E & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1620	140	145	1270	85	150	95	210	210	115	10
Future Volume (veh/h)	15	1620	140	145	1270	85	150	95	210	210	115	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1924	1924	1924	1864	1864	1864	1885	1885	1885	1964	1964	1964
Adj Flow Rate, veh/h	15	1636	141	146	1283	86	152	96	0	212	116	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	305	2349	1048	170	2024	903	245	133		281	152	
Arrive On Green	0.33	1.00	1.00	0.10	0.57	0.57	0.07	0.07	0.00	0.08	0.08	0.00
Sat Flow, veh/h	1833	3656	1631	1776	3542	1580	3483	1885	1598	3628	1964	1664
Grp Volume(v), veh/h	15	1636	141	146	1283	86	152	96	0	212	116	0
Grp Sat Flow(s),veh/h/ln	1833	1828	1631	1776	1771	1580	1742	1885	1598	1814	1964	1664
Q Serve(g_s), s	0.8	0.0	0.0	11.3	34.1	3.5	5.9	7.0	0.0	8.0	8.1	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	11.3	34.1	3.5	5.9	7.0	0.0	8.0	8.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	2349	1048	170	2024	903	245	133		281	152	
V/C Ratio(X)	0.05	0.70	0.13	0.86	0.63	0.10	0.62	0.72		0.76	0.76	
Avail Cap(c_a), veh/h	305	2349	1048	190	2024	903	572	310		415	224	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.69	0.69	0.69	1.00	1.00	0.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	39.2	0.0	0.0	62.4	20.2	13.6	63.3	63.8	0.0	63.3	63.3	0.0
Incr Delay (d2), s/veh	0.1	1.4	0.2	21.5	1.1	0.1	2.6	7.3	0.0	4.4	8.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.4	0.1	6.0	13.5	1.2	2.7	3.7	0.0	3.9	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.2	1.4	0.2	83.9	21.2	13.7	65.8	71.0	0.0	67.6	71.7	0.0
LnGrp LOS	D	A	A	F	C	B	E	E		E	E	
Approach Vol, veh/h		1792			1515			248			328	
Approach Delay, s/veh		1.6			26.8			67.8			69.1	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	13.8	17.4	94.0	14.8	27.3	84.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	23.0	15.0	70.0	16.0	5.0	80.0
Max Q Clear Time (g_c+I1), s	9.0	13.3	2.0	10.1	2.8	36.1
Green Ext Time (p_c), s	0.9	0.1	13.4	0.7	0.0	8.2

Intersection Summary	
HCM 7th Control Delay, s/veh	21.4
HCM 7th LOS	C

Notes

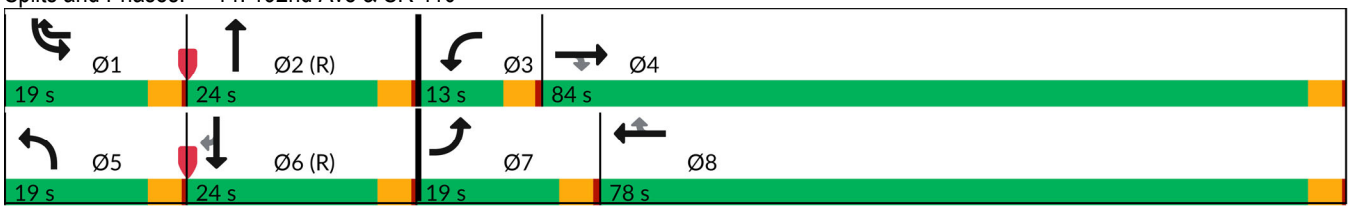
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

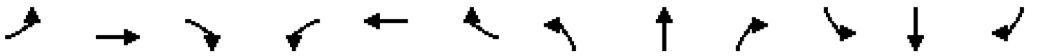
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1735	155	75	1275	310	120	90	35	265	110	65
Future Volume (vph)	100	1735	155	75	1275	310	120	90	35	265	110	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	300		250	150		300	50		0	100		150
Storage Lanes	1		1	1		1	1		0	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3227			1056			370			601	
Travel Time (s)		48.9			16.0			8.4			13.7	
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	8.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	19.0	84.0	84.0	13.0	78.0	19.0	19.0	24.0		19.0	24.0	24.0
Total Split (%)	13.6%	60.0%	60.0%	9.3%	55.7%	13.6%	13.6%	17.1%		13.6%	17.1%	17.1%
Maximum Green (s)	15.0	80.0	80.0	9.0	74.0	15.0	15.0	20.0		15.0	20.0	20.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		1	1		1			1			1	1

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 14: 192nd Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1735	155	75	1275	310	120	90	35	265	110	65
Future Volume (veh/h)	100	1735	155	75	1275	310	120	90	35	265	110	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	102	1770	158	77	1301	316	122	92	36	270	112	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	125	1924	858	96	1883	968	146	252	98	321	390	326
Arrive On Green	0.07	0.54	0.54	0.11	1.00	1.00	0.08	0.20	0.20	0.09	0.21	0.21
Sat Flow, veh/h	1773	3537	1576	1790	3571	1558	1795	1284	502	3483	1885	1574
Grp Volume(v), veh/h	102	1770	158	77	1301	316	122	0	128	270	112	66
Grp Sat Flow(s),veh/h/ln	1773	1769	1576	1790	1785	1558	1795	0	1786	1742	1885	1574
Q Serve(g_s), s	7.9	63.9	7.1	5.9	0.0	0.0	9.4	0.0	8.7	10.7	7.0	4.9
Cycle Q Clear(g_c), s	7.9	63.9	7.1	5.9	0.0	0.0	9.4	0.0	8.7	10.7	7.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	125	1924	858	96	1883	968	146	0	350	321	390	326
V/C Ratio(X)	0.82	0.92	0.18	0.80	0.69	0.33	0.84	0.00	0.37	0.84	0.29	0.20
Avail Cap(c_a), veh/h	190	2021	901	115	1887	970	192	0	350	373	390	326
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.44	0.59	0.59	0.59	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	29.1	16.2	61.8	0.0	0.0	63.4	0.0	48.7	62.5	46.8	46.0
Incr Delay (d2), s/veh	7.2	3.5	0.0	18.0	0.6	0.1	21.0	0.0	2.9	14.1	1.8	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	26.1	2.5	3.0	0.2	0.0	5.2	0.0	4.2	5.4	3.5	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.4	32.6	16.2	79.8	0.6	0.1	84.4	0.0	51.7	76.6	48.7	47.4
LnGrp LOS	E	C	B	E	A	A	F		D	E	D	D
Approach Vol, veh/h		2030			1694			250			448	
Approach Delay, s/veh		33.3			4.1			67.7			65.3	
Approach LOS		C			A			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	31.4	11.5	80.2	15.4	33.0	13.8	77.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	15.0	20.0	9.0	80.0	15.0	20.0	15.0	74.0
Max Q Clear Time (g_c+I1), s	12.7	10.7	7.9	65.9	11.4	9.0	9.9	2.0
Green Ext Time (p_c), s	0.2	0.4	0.0	10.2	0.1	0.5	0.1	15.1

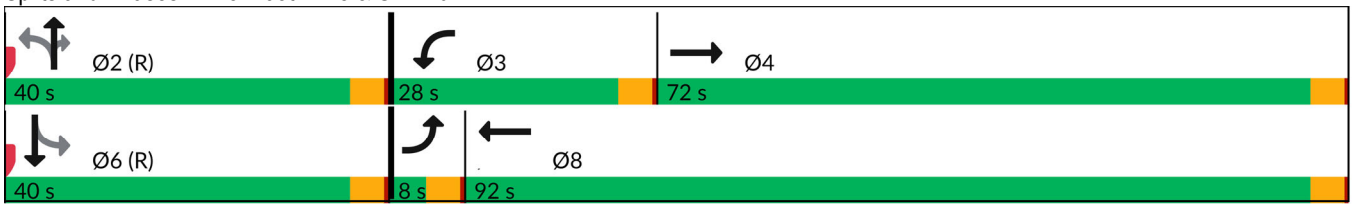
Intersection Summary	
HCM 7th Control Delay, s/veh	27.3
HCM 7th LOS	C

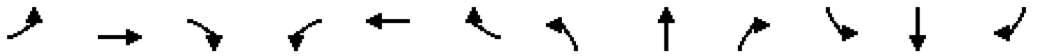
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1985	70	205	1635	25	60	5	250	10	5	20
Future Volume (vph)	10	1985	70	205	1635	25	60	5	250	10	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1230			413			224	
Travel Time (s)		16.0			18.6			9.4			5.1	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	
Total Split (s)	8.0	72.0		28.0	92.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	5.7%	51.4%		20.0%	65.7%		28.6%	28.6%	28.6%	28.6%	28.6%	
Maximum Green (s)	4.0	68.0		24.0	88.0		36.0	36.0	36.0	36.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		3			1		1	1	1	1	1	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 15: 195th Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1985	70	205	1635	25	60	5	250	10	5	20
Future Volume (veh/h)	10	1985	70	205	1635	25	60	5	250	10	5	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	10	2046	72	211	1686	26	62	5	258	10	5	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	16	2323	82	237	2102	32	457	35	512	358	100	419
Arrive On Green	0.01	0.46	0.46	0.13	0.58	0.58	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1773	5036	177	1790	3598	55	1270	109	1596	1107	311	1307
Grp Volume(v), veh/h	10	1375	743	211	835	877	67	0	258	10	0	26
Grp Sat Flow(s),veh/h/ln	1773	1694	1825	1790	1785	1868	1380	0	1596	1107	0	1619
Q Serve(g_s), s	0.8	51.5	51.8	16.2	51.2	51.5	4.6	0.0	18.3	0.9	0.0	1.6
Cycle Q Clear(g_c), s	0.8	51.5	51.8	16.2	51.2	51.5	6.1	0.0	18.3	7.0	0.0	1.6
Prop In Lane	1.00		0.10	1.00		0.03	0.93		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	16	1563	842	237	1043	1091	492	0	512	358	0	519
V/C Ratio(X)	0.61	0.88	0.88	0.89	0.80	0.80	0.14	0.00	0.50	0.03	0.00	0.05
Avail Cap(c_a), veh/h	51	1646	886	307	1122	1174	492	0	512	358	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	34.2	34.3	59.8	22.7	22.8	34.8	0.0	38.5	36.9	0.0	32.8
Incr Delay (d2), s/veh	13.0	2.2	4.1	18.4	3.2	3.1	0.6	0.0	3.5	0.1	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	20.6	22.8	8.4	20.7	21.8	1.8	0.0	7.5	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.1	36.4	38.4	78.2	25.9	25.9	35.4	0.0	42.0	37.0	0.0	33.0
LnGrp LOS	F	D	D	E	C	C	D		D	D		C
Approach Vol, veh/h		2128			1923			325			36	
Approach Delay, s/veh		37.3			31.6			40.7			34.1	
Approach LOS		D			C			D			C	

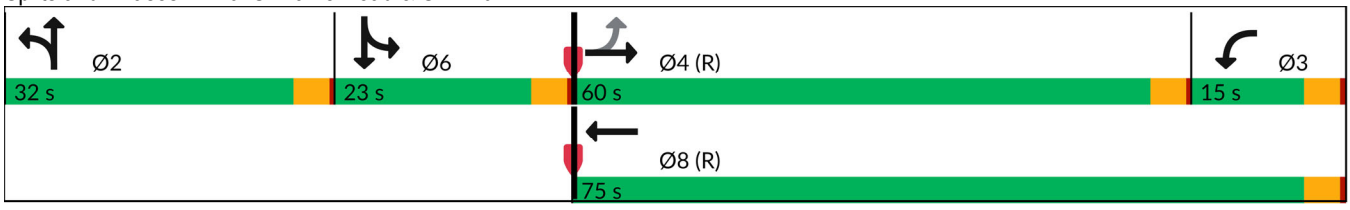
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	48.9	22.5	68.6	48.9	5.3	85.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	36.0	24.0	68.0	36.0	4.0	88.0
Max Q Clear Time (g_c+I1), s	20.3	18.2	53.8	9.0	2.8	53.5
Green Ext Time (p_c), s	1.1	0.3	10.8	0.1	0.0	15.8

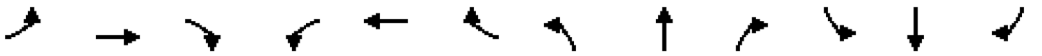
Intersection Summary	
HCM 7th Control Delay, s/veh	35.1
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1195	995	90	1000	60	845	100	60	155	140	25
Future Volume (vph)	25	1195	995	90	1000	60	845	100	60	155	140	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			3%			0%	
Storage Length (ft)	300		0	350		300	500		750	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1230			1801			998			1675	
Travel Time (s)		18.6			27.3			27.2			45.7	
Turn Type	Perm	NA	Free	Prot	NA		Split	NA		Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4		Free									
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	60.0	60.0		15.0	75.0		32.0	32.0		23.0	23.0	
Total Split (%)	46.2%	46.2%		11.5%	57.7%		24.6%	24.6%		17.7%	17.7%	
Maximum Green (s)	56.0	56.0		11.0	71.0		28.0	28.0		19.0	19.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 16: S Prairie Road & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1195	995	90	1000	60	845	100	60	155	140	25
Future Volume (veh/h)	25	1195	995	90	1000	60	845	100	60	155	140	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1964	1964	1964	1832	1832	1832	1856	1856	1856
Adj Flow Rate, veh/h	26	1232	0	93	1031	62	871	103	0	160	144	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	225	1524		248	3069	184	989	368		199	172	31
Arrive On Green	0.43	0.43	0.00	0.13	0.59	0.59	0.20	0.20	0.00	0.11	0.11	0.11
Sat Flow, veh/h	514	3537	1578	1870	5164	310	4921	1832	0	1767	1526	275
Grp Volume(v), veh/h	26	1232	0	93	713	380	871	103	0	160	0	170
Grp Sat Flow(s),veh/h/ln	514	1769	1578	1870	1787	1900	1640	1832	0	1767	0	1801
Q Serve(g_s), s	4.6	39.6	0.0	5.9	13.1	13.2	22.3	6.2	0.0	11.5	0.0	12.0
Cycle Q Clear(g_c), s	17.8	39.6	0.0	5.9	13.1	13.2	22.3	6.2	0.0	11.5	0.0	12.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	225	1524		248	2124	1129	989	368		199	0	203
V/C Ratio(X)	0.12	0.81		0.37	0.34	0.34	0.88	0.28		0.80	0.00	0.84
Avail Cap(c_a), veh/h	225	1524		248	2124	1129	1060	395		258	0	263
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.45	0.45	0.00	0.89	0.89	0.89	0.91	0.91	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	32.3	0.0	51.5	13.4	13.4	50.4	44.0	0.0	56.3	0.0	56.5
Incr Delay (d2), s/veh	0.5	2.2	0.0	0.8	0.4	0.7	7.7	0.4	0.0	13.1	0.0	16.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	16.5	0.0	2.8	5.0	5.5	9.9	2.9	0.0	5.9	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	34.5	0.0	52.3	13.8	14.1	58.1	44.3	0.0	69.4	0.0	73.2
LnGrp LOS	C	C		D	B	B	E	D		E		E
Approach Vol, veh/h		1258			1186			974			330	
Approach Delay, s/veh		34.4			16.9			56.7			71.4	
Approach LOS		C			B			E			E	

Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		30.1	21.3	60.0		18.6		81.3				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		28.0	11.0	56.0		19.0		71.0				
Max Q Clear Time (g_c+I1), s		24.3	7.9	41.6		14.0		15.2				
Green Ext Time (p_c), s		1.8	0.1	5.6		0.6		5.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	37.9
HCM 7th LOS	D

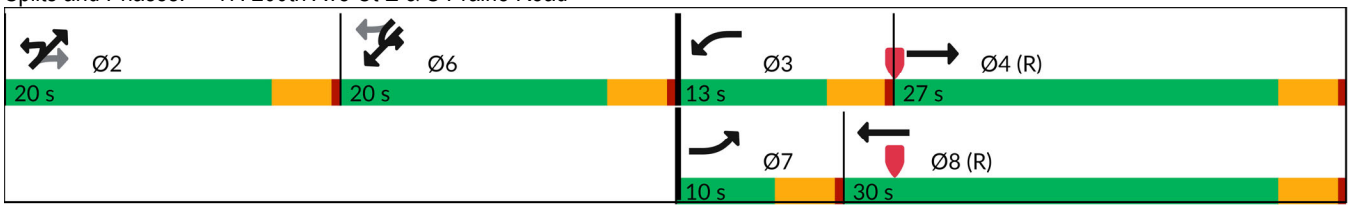
Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	55	580	670	235	340	30	435	50	220	40	55	34
Future Volume (vph)	55	580	670	235	340	30	435	50	220	40	55	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	225		225	350		250	100		0
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		998			1097			489			264	
Travel Time (s)		27.2			29.9			13.3			7.2	
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			Free						2			6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	27.0		13.0	30.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	12.5%	33.8%		16.3%	37.5%		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	6.0	23.0		9.0	26.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 23 (29%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 17: 200th Ave Ct E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	55	580	670	235	340	30	435	50	220	40	55	34
Future Volume (veh/h)	55	580	670	235	340	30	435	50	220	40	55	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	56	592	0	240	347	31	480	0	224	41	56	35
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	72	825		202	1697	151	625	0	278	59	81	119
Arrive On Green	0.04	0.44	0.00	0.11	0.51	0.51	0.17	0.00	0.17	0.08	0.08	0.08
Sat Flow, veh/h	1795	1885	1598	1795	3326	295	3591	0	1598	780	1066	1574
Grp Volume(v), veh/h	56	592	0	240	186	192	480	0	224	97	0	35
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	1831	1795	0	1598	1846	0	1574
Q Serve(g_s), s	2.5	20.6	0.0	9.0	4.5	4.6	10.2	0.0	10.8	4.1	0.0	1.7
Cycle Q Clear(g_c), s	2.5	20.6	0.0	9.0	4.5	4.6	10.2	0.0	10.8	4.1	0.0	1.7
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.42		1.00
Lane Grp Cap(c), veh/h	72	825		202	914	934	625	0	278	140	0	119
V/C Ratio(X)	0.78	0.72		1.19	0.20	0.21	0.77	0.00	0.81	0.69	0.00	0.29
Avail Cap(c_a), veh/h	135	825		202	914	934	718	0	320	369	0	315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	18.4	0.0	35.5	10.7	10.7	31.5	0.0	31.7	36.1	0.0	35.0
Incr Delay (d2), s/veh	12.1	3.8	0.0	120.6	0.5	0.5	4.4	0.0	12.5	6.1	0.0	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	9.3	0.0	10.6	1.8	1.9	4.7	0.0	5.0	2.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.1	22.2	0.0	156.1	11.2	11.2	35.9	0.0	44.2	42.1	0.0	36.3
LnGrp LOS	D	C		F	B	B	D		D	D		D
Approach Vol, veh/h		648			618			704			132	
Approach Delay, s/veh		24.6			67.5			38.5			40.6	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	17.9	13.0	39.0	10.1	7.2	44.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	9.0	23.0	16.0	6.0	26.0
Max Q Clear Time (g_c+I1), s	12.8	11.0	22.6	6.1	4.5	6.6
Green Ext Time (p_c), s	1.2	0.0	0.1	0.3	0.0	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	42.9
HCM 7th LOS	D

Notes

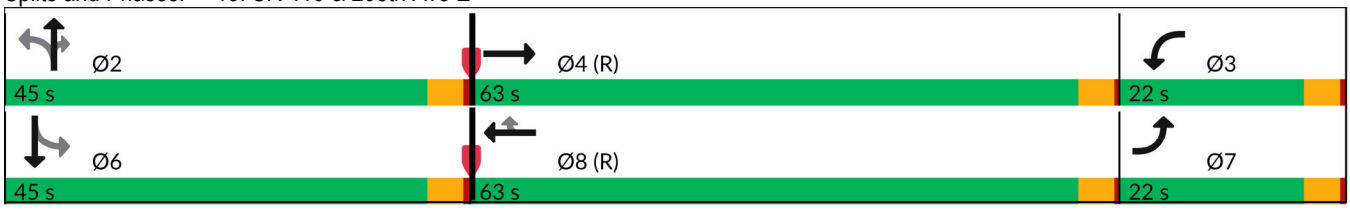
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

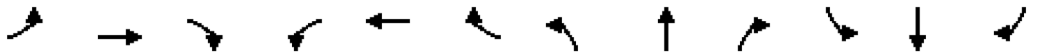
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1175	210	70	950	45	215	20	85	45	15	35
Future Volume (vph)	125	1175	210	70	950	45	215	20	85	45	15	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		600	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			25	
Link Distance (ft)		1005			1116			428			525	
Travel Time (s)		15.2			16.9			9.7			14.3	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	63.0		22.0	63.0	63.0	45.0	45.0	45.0	45.0	45.0	
Total Split (%)	16.9%	48.5%		16.9%	48.5%	48.5%	34.6%	34.6%	34.6%	34.6%	34.6%	
Maximum Green (s)	18.0	59.0		18.0	59.0	59.0	41.0	41.0	41.0	41.0	41.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min	Min	Min	Min	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		2			2	2	5	5	5	5	5	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 75 (58%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 18: SR 410 & 208th Ave E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1175	210	70	950	45	215	20	85	45	15	35
Future Volume (veh/h)	125	1175	210	70	950	45	215	20	85	45	15	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	126	1187	212	71	960	45	217	20	86	45	15	35
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	280	1992	356	280	1626	723	315	24	473	82	33	43
Arrive On Green	0.16	0.45	0.45	0.31	0.91	0.91	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	4389	784	1795	3582	1594	879	81	1590	138	109	144
Grp Volume(v), veh/h	126	928	471	71	960	45	237	0	86	95	0	0
Grp Sat Flow(s),veh/h/ln	1795	1716	1742	1795	1791	1594	960	0	1590	392	0	0
Q Serve(g_s), s	8.3	26.3	26.3	3.8	6.9	0.4	0.0	0.0	5.2	5.7	0.0	0.0
Cycle Q Clear(g_c), s	8.3	26.3	26.3	3.8	6.9	0.4	31.0	0.0	5.2	36.6	0.0	0.0
Prop In Lane	1.00		0.45	1.00		1.00	0.92		1.00	0.47		0.37
Lane Grp Cap(c), veh/h	280	1557	791	280	1626	723	339	0	473	157	0	0
V/C Ratio(X)	0.45	0.60	0.60	0.25	0.59	0.06	0.70	0.00	0.18	0.60	0.00	0.00
Avail Cap(c_a), veh/h	280	1557	791	280	1626	723	364	0	501	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.52	0.52	0.52	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.8	26.6	26.6	39.0	3.6	3.3	42.9	0.0	33.9	49.9	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.9	1.7	0.4	1.4	0.2	5.4	0.0	0.2	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	10.5	10.8	1.6	1.7	0.2	7.6	0.0	2.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.4	27.5	28.3	39.5	5.0	3.4	48.3	0.0	34.1	54.0	0.0	0.0
LnGrp LOS	D	C	C	D	A	A	D		C	D		
Approach Vol, veh/h		1525			1076			323			95	
Approach Delay, s/veh		29.6			7.2			44.5			54.0	
Approach LOS		C			A			D			D	

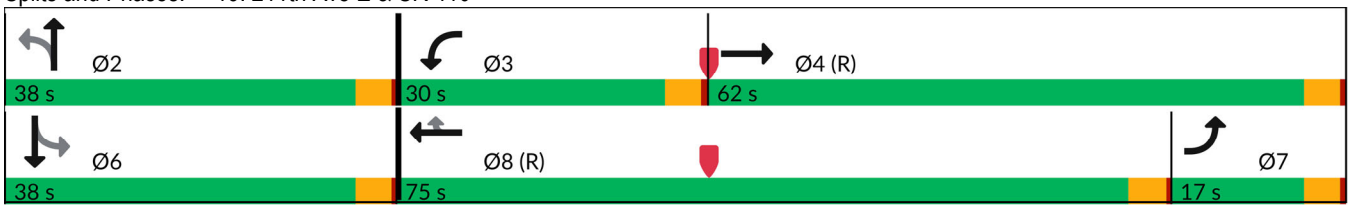
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	42.7	24.3	63.0	42.7	24.3	63.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	41.0	18.0	59.0	41.0	18.0	59.0
Max Q Clear Time (g_c+I1), s	33.0	5.8	28.3	38.6	10.3	8.9
Green Ext Time (p_c), s	0.8	0.1	7.3	0.1	0.2	5.2

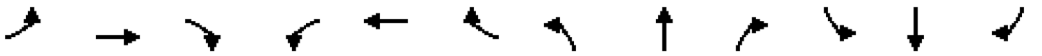
Intersection Summary	
HCM 7th Control Delay, s/veh	24.0
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	1140	100	150	840	90	130	10	70	65	15	70
Future Volume (vph)	75	1140	100	150	840	90	130	10	70	65	15	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1116			1084			668			351	
Travel Time (s)		16.9			16.4			18.2			9.6	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Detector Phase	7	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	17.0	62.0		30.0	75.0	75.0	38.0	38.0		38.0	38.0	
Total Split (%)	13.1%	47.7%		23.1%	57.7%	57.7%	29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	13.0	58.0		26.0	71.0	71.0	34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	None	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 97 (75%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 19: 211th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1140	100	150	840	90	130	10	70	65	15	70
Future Volume (veh/h)	75	1140	100	150	840	90	130	10	70	65	15	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	79	1200	105	158	884	95	137	11	74	68	16	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	342	3055	267	185	1956	873	217	36	242	221	50	231
Arrive On Green	0.38	1.00	1.00	0.21	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1795	4819	422	1795	3582	1598	1317	211	1419	1323	292	1350
Grp Volume(v), veh/h	79	854	451	158	884	95	137	0	85	68	0	90
Grp Sat Flow(s),veh/h/ln	1795	1716	1809	1795	1791	1598	1317	0	1630	1323	0	1642
Q Serve(g_s), s	3.9	0.0	0.0	11.0	0.0	0.0	13.2	0.0	5.9	6.2	0.0	6.3
Cycle Q Clear(g_c), s	3.9	0.0	0.0	11.0	0.0	0.0	19.5	0.0	5.9	12.1	0.0	6.3
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.87	1.00		0.82
Lane Grp Cap(c), veh/h	342	2175	1147	185	1956	873	217	0	278	221	0	280
V/C Ratio(X)	0.23	0.39	0.39	0.86	0.45	0.11	0.63	0.00	0.31	0.31	0.00	0.32
Avail Cap(c_a), veh/h	342	2175	1147	359	1956	873	337	0	426	341	0	429
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	0.0	50.7	0.0	0.0	55.8	0.0	47.2	52.4	0.0	47.3
Incr Delay (d2), s/veh	0.3	0.5	0.9	8.9	0.6	0.2	3.0	0.0	0.6	0.8	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.1	0.3	4.8	0.2	0.0	4.6	0.0	2.5	2.1	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.0	0.5	0.9	59.6	0.6	0.2	58.9	0.0	47.8	53.2	0.0	47.9
LnGrp LOS	C	A	A	E	A	A	E		D	D		D
Approach Vol, veh/h		1384			1137			222			158	
Approach Delay, s/veh		2.5			8.8			54.6			50.2	
Approach LOS		A			A			D			D	

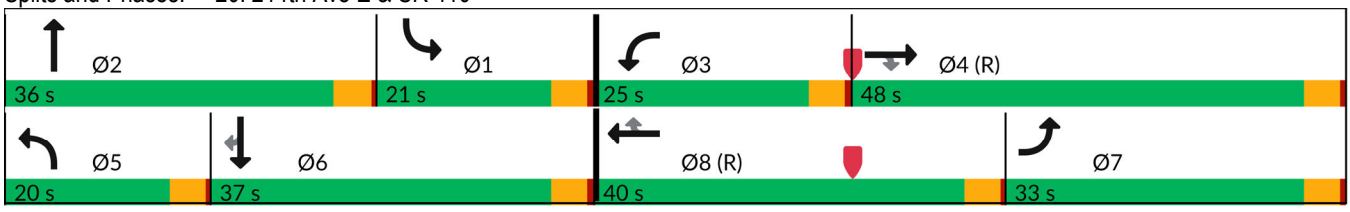
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.2	17.4	86.4		26.2	28.8	75.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		34.0	26.0	58.0		34.0	13.0	71.0				
Max Q Clear Time (g_c+I1), s		21.5	13.0	2.0		14.1	5.9	2.0				
Green Ext Time (p_c), s		0.7	0.4	6.9		0.6	0.1	5.0				

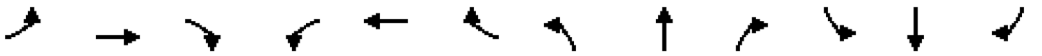
Intersection Summary	
HCM 7th Control Delay, s/veh	11.6
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	815	275	185	660	75	135	120	105	100	365	190
Future Volume (vph)	255	815	275	185	660	75	135	120	105	100	365	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	33.0	48.0	48.0	25.0	40.0	40.0	20.0	36.0		21.0	37.0	37.0
Total Split (%)	25.4%	36.9%	36.9%	19.2%	30.8%	30.8%	15.4%	27.7%		16.2%	28.5%	28.5%
Maximum Green (s)	29.0	44.0	44.0	21.0	36.0	36.0	16.0	32.0		17.0	33.0	33.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		1	1		0	0	0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 20: 214th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	815	275	185	660	75	135	120	105	100	365	190
Future Volume (veh/h)	255	815	275	185	660	75	135	120	105	100	365	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	266	849	286	193	688	78	141	125	109	104	380	198
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	583	1713	763	221	992	442	201	142	124	225	419	355
Arrive On Green	0.32	0.48	0.48	0.12	0.28	0.28	0.06	0.15	0.15	0.12	0.22	0.22
Sat Flow, veh/h	1795	3582	1596	1795	3582	1595	3483	929	810	1833	1924	1629
Grp Volume(v), veh/h	266	849	286	193	688	78	141	0	234	104	380	198
Grp Sat Flow(s),veh/h/ln	1795	1791	1596	1795	1791	1595	1742	0	1739	1833	1924	1629
Q Serve(g_s), s	15.3	21.1	14.8	13.7	22.3	4.8	5.2	0.0	17.1	6.9	25.0	7.1
Cycle Q Clear(g_c), s	15.3	21.1	14.8	13.7	22.3	4.8	5.2	0.0	17.1	6.9	25.0	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	583	1713	763	221	992	442	201	0	265	225	419	355
V/C Ratio(X)	0.46	0.50	0.37	0.87	0.69	0.18	0.70	0.00	0.88	0.46	0.91	0.56
Avail Cap(c_a), veh/h	583	1713	763	290	992	442	429	0	428	240	488	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.83	0.83	0.83	0.95	0.00	0.95	0.92	0.92	0.92
Uniform Delay (d), s/veh	34.8	23.2	21.6	56.0	42.1	35.7	60.2	0.0	53.9	53.0	49.5	11.6
Incr Delay (d2), s/veh	0.5	0.9	1.3	17.1	3.3	0.7	4.2	0.0	11.4	1.4	17.5	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	8.7	5.6	7.1	10.1	1.9	2.4	0.0	8.3	3.2	13.9	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.3	24.1	22.8	73.1	45.4	36.5	64.4	0.0	65.4	54.4	67.1	12.9
LnGrp LOS	D	C	C	E	D	D	E		E	D	E	B
Approach Vol, veh/h		1401			959			375			682	
Approach Delay, s/veh		26.0			50.2			65.0			49.4	
Approach LOS		C			D			E			D	

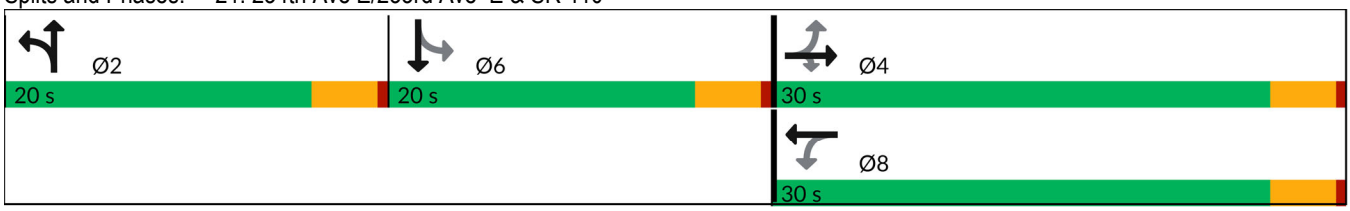
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	23.8	20.0	66.2	11.5	32.3	46.2	40.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	32.0	21.0	44.0	16.0	33.0	29.0	36.0
Max Q Clear Time (g_c+I1), s	8.9	19.1	15.7	23.1	7.2	27.0	17.3	24.3
Green Ext Time (p_c), s	0.2	0.7	0.3	5.3	0.3	1.3	0.7	2.7

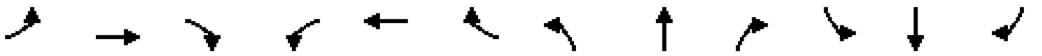
Intersection Summary	
HCM 7th Control Delay, s/veh	41.8
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	640	170	50	615	25	105	55	10	40	125	60
Future Volume (vph)	55	640	170	50	615	25	105	55	10	40	125	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	150		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		6362			2994			1099			1172	
Travel Time (s)		96.4			45.4			21.4			26.6	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8						6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		20.0	20.0		20.0	20.0	
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%		28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 47.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 21: 234th Ave E/233rd Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	640	170	50	615	25	105	55	10	40	125	60
Future Volume (veh/h)	55	640	170	50	615	25	105	55	10	40	125	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1826	1826	1826	1885	1885	1885
Adj Flow Rate, veh/h	57	667	177	52	641	26	109	57	10	42	130	62
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	1	1	1
Cap, veh/h	374	1308	581	346	1291	52	220	191	34	310	208	99
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.13	0.13	0.13	0.17	0.17	0.17
Sat Flow, veh/h	769	3554	1579	657	3508	142	1739	1513	265	1795	1206	575
Grp Volume(v), veh/h	57	667	177	52	327	340	109	0	67	42	0	192
Grp Sat Flow(s),veh/h/ln	769	1777	1579	657	1791	1860	1739	0	1778	1795	0	1782
Q Serve(g_s), s	2.2	5.3	2.9	2.4	5.1	5.1	2.1	0.0	1.2	0.7	0.0	3.6
Cycle Q Clear(g_c), s	7.3	5.3	2.9	7.7	5.1	5.1	2.1	0.0	1.2	0.7	0.0	3.6
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.15	1.00		0.32
Lane Grp Cap(c), veh/h	374	1308	581	346	659	684	220	0	225	310	0	308
V/C Ratio(X)	0.15	0.51	0.30	0.15	0.50	0.50	0.50	0.00	0.30	0.14	0.00	0.62
Avail Cap(c_a), veh/h	646	2563	1139	578	1292	1341	772	0	789	797	0	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	8.9	8.1	11.8	8.8	8.8	14.7	0.0	14.3	12.6	0.0	13.8
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.2	0.6	0.6	1.7	0.0	0.7	0.2	0.0	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.2	0.6	0.3	1.2	1.2	0.8	0.0	0.4	0.2	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.8	9.2	8.4	12.0	9.4	9.4	16.4	0.0	15.0	12.8	0.0	15.9
LnGrp LOS	B	A	A	B	A	A	B		B	B		B
Approach Vol, veh/h		901			719			176			234	
Approach Delay, s/veh		9.2			9.6			15.9			15.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.6		17.3		10.2		17.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		26.0		16.0		26.0				
Max Q Clear Time (g_c+I1), s		4.1		9.3		5.6		9.7				
Green Ext Time (p_c), s		0.4		3.9		0.6		2.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.6									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	2.9

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	45	95	115	500	205	50
Future Vol, veh/h	45	95	115	500	205	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	46	98	119	515	211	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	990	237	263	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	275	804	1307	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	250	804	1307	-	-	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s/v	14.14	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1	SBLn2
Capacity (veh/h)	-	-	1307	-	250	804
HCM Lane V/C Ratio	-	-	0.091	-	0.186	0.122
HCM Control Delay (s/veh)	-	-	8	-	22.7	10.1
HCM Lane LOS	-	-	A	-	C	B
HCM 95th %tile Q(veh)	-	-	0.3	-	0.7	0.4

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	75	445	220	45	40	40
Future Vol, veh/h	75	445	220	45	40	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	78	464	229	47	42	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	276	0	-	0	872	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1293	-	-	-	322	789
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	539	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1293	-	-	-	296	789
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.15	0	14.48
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	260	-	-	-	296	789
HCM Lane V/C Ratio	0.06	-	-	-	0.141	0.053
HCM Control Delay (s/veh)	8	0	-	-	19.1	9.8
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.2

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	395	210	20	10	90
Future Vol, veh/h	85	395	210	20	10	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	86	399	212	20	10	91

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	232	0	-	0	793	222
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	571	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1335	-	-	-	358	817
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	565	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1335	-	-	-	328	817
Mov Cap-2 Maneuver	-	-	-	-	328	-
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	565	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.4	0	10.59
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	319	-	-	-	328	817
HCM Lane V/C Ratio	0.064	-	-	-	0.031	0.111
HCM Control Delay (s/veh)	7.9	0	-	-	16.3	10
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	0	5	0	0	5	5	80	5	15	130	15
Future Vol, veh/h	5	0	5	0	0	5	5	80	5	15	130	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	1	1	1
Mvmt Flow	6	0	6	0	0	6	6	91	6	17	148	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	293	298	156	287	304	94	165	0	0	97	0	0
Stage 1	190	190	-	105	105	-	-	-	-	-	-	-
Stage 2	102	108	-	182	199	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	662	615	892	667	611	966	1407	-	-	1503	-	-
Stage 1	814	745	-	903	810	-	-	-	-	-	-	-
Stage 2	906	808	-	822	738	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	647	605	892	652	601	966	1407	-	-	1503	-	-
Mov Cap-2 Maneuver	647	605	-	652	601	-	-	-	-	-	-	-
Stage 1	804	735	-	899	807	-	-	-	-	-	-	-
Stage 2	897	804	-	807	729	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.88	8.75	0.42	0.7
HCM LOS	A	A		

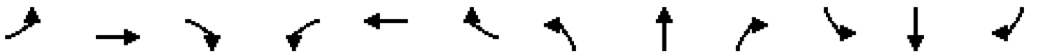
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	99	-	-	750	966	165	-	-
HCM Lane V/C Ratio	0.004	-	-	0.015	0.006	0.011	-	-
HCM Control Delay (s/veh)	7.6	0	-	9.9	8.7	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	1	15	5	1	5	15	560	5	5	700	150
Future Volume (vph)	150	1	15	5	1	5	15	560	5	5	700	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		100
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1430			519			1065			1387	
Travel Time (s)		32.5			11.8			29.0			37.8	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0		27.0	27.0		27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	55.0%	55.0%	55.0%		45.0%	45.0%		45.0%	45.0%	45.0%
Maximum Green (s)	29.0	29.0	29.0	29.0	29.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 45.3	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 26: 199th Ave Ct E/200th Ave Ct E & 104th St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1	15	5	1	5	15	560	5	5	700	150
Future Volume (veh/h)	150	1	15	5	1	5	15	560	5	5	700	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	163	1	16	5	1	5	16	609	5	5	761	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	502	1	236	233	65	90	421	1048	9	544	1050	890
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1630	10	1598	291	440	609	610	1867	15	808	1870	1585
Grp Volume(v), veh/h	164	0	16	11	0	0	16	0	614	5	761	163
Grp Sat Flow(s),veh/h/ln	1640	0	1598	1340	0	0	610	0	1882	808	1870	1585
Q Serve(g_s), s	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.0	5.8	0.1	8.3	1.4
Cycle Q Clear(g_c), s	2.4	0.0	0.2	2.4	0.0	0.0	8.8	0.0	5.8	5.9	8.3	1.4
Prop In Lane	0.99		1.00	0.45		0.45	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	503	0	236	388	0	0	421	0	1057	544	1050	890
V/C Ratio(X)	0.33	0.00	0.07	0.03	0.00	0.00	0.04	0.00	0.58	0.01	0.72	0.18
Avail Cap(c_a), veh/h	1795	0	1686	1773	0	0	589	0	1576	767	1566	1327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	10.1	10.1	0.0	0.0	7.7	0.0	3.9	5.9	4.5	2.9
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.8	0.0	1.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.4	0.0	10.2	10.1	0.0	0.0	7.8	0.0	4.4	5.9	5.4	3.0
LnGrp LOS	B		B	B			A		A	A	A	A
Approach Vol, veh/h		180			11			630			929	
Approach Delay, s/veh		11.3			10.1			4.5			5.0	
Approach LOS		B			B			A			A	

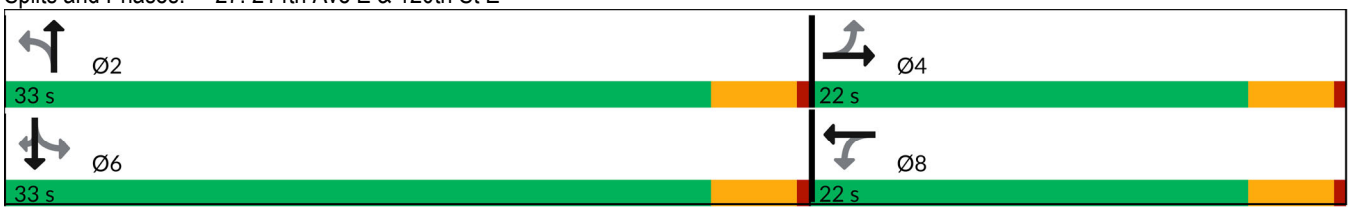
Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	19.4	8.1	19.4	8.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	23.0	29.0	23.0	29.0
Max Q Clear Time (g_c+I1), s	10.8	4.4	10.3	4.4
Green Ext Time (p_c), s	3.6	0.9	5.2	0.0

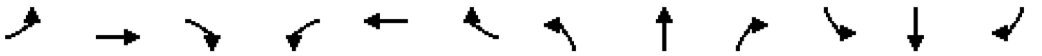
Intersection Summary	
HCM 7th Control Delay, s/veh	5.5
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	80	55	10	45	30	24	175	10	80	325	250
Future Volume (vph)	190	80	55	10	45	30	24	175	10	80	325	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		5428			4422			1245			2683	
Travel Time (s)		105.7			86.1			24.3			52.3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	22.0	22.0		22.0	22.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	60.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 55	
Actuated Cycle Length: 35.3	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 27: 214th Ave E & 120th St E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	80	55	10	45	30	24	175	10	80	325	250
Future Volume (veh/h)	190	80	55	10	45	30	24	175	10	80	325	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	200	84	58	11	47	32	25	184	11	84	342	263
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	620	288	199	567	289	197	198	621	34	263	603	625
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1320	1031	712	1256	1035	705	84	1588	88	219	1541	1598
Grp Volume(v), veh/h	200	0	142	11	0	79	220	0	0	426	0	263
Grp Sat Flow(s),veh/h/ln	1320	0	1742	1256	0	1740	1760	0	0	1760	0	1598
Q Serve(g_s), s	3.3	0.0	1.6	0.2	0.0	0.8	0.0	0.0	0.0	1.2	0.0	2.9
Cycle Q Clear(g_c), s	4.1	0.0	1.6	1.7	0.0	0.8	2.0	0.0	0.0	4.5	0.0	2.9
Prop In Lane	1.00		0.41	1.00		0.41	0.11		0.05	0.20		1.00
Lane Grp Cap(c), veh/h	620	0	487	567	0	486	854	0	0	866	0	625
V/C Ratio(X)	0.32	0.00	0.29	0.02	0.00	0.16	0.26	0.00	0.00	0.49	0.00	0.42
Avail Cap(c_a), veh/h	1229	0	1291	1147	0	1289	2162	0	0	2225	0	1907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	6.9	7.5	0.0	6.6	5.1	0.0	0.0	5.8	0.0	5.4
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.4	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.3	0.0	0.0	0.2	0.3	0.0	0.0	0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.5	0.0	7.2	7.6	0.0	6.8	5.3	0.0	0.0	6.3	0.0	5.8
LnGrp LOS	A		A	A		A	A			A		A
Approach Vol, veh/h		342			90			220			689	
Approach Delay, s/veh		7.9			6.9			5.3			6.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.5		10.8		13.5		10.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		29.0		18.0		29.0		18.0				
Max Q Clear Time (g_c+I1), s		4.0		6.1		6.5		3.7				
Green Ext Time (p_c), s		0.9		1.1		3.0		0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh		6.5										
HCM 7th LOS		A										

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	215	105	35	155	75	40
Future Vol, veh/h	215	105	35	155	75	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	253	124	41	182	88	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	376	0	579	315
Stage 1	-	-	-	-	315	-
Stage 2	-	-	-	-	265	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1188	-	479	728
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1188	-	460	728
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.5	14.16
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	528	-	-	332	-
HCM Lane V/C Ratio	0.256	-	-	0.035	-
HCM Control Delay (s/veh)	14.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	435	325	10	10	130
Future Vol, veh/h	105	435	325	10	10	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	112	463	346	11	11	138

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	356	0	-	0	1037	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1208	-	-	-	256	692
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	500	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1208	-	-	-	224	692
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	500	-

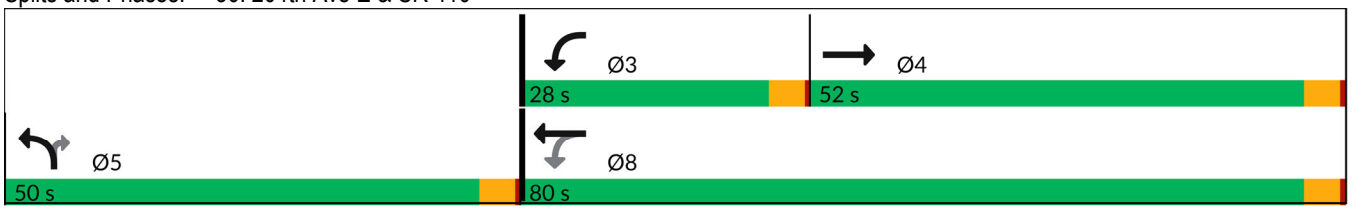
Approach	EB	WB	SB
HCM Control Delay, s/v	1.61	0	12.93
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	350	-	-	-	603
HCM Lane V/C Ratio	0.092	-	-	-	0.247
HCM Control Delay (s/veh)	8.3	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1155	315	255	950	160	360
Future Volume (vph)	1155	315	255	950	160	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	0%	
Storage Length (ft)		0	350		75	0
Storage Lanes		0	1		2	1
Taper Length (ft)			25		25	
Right Turn on Red		No				No
Link Speed (mph)	45			45	30	
Link Distance (ft)	1801			1005	1430	
Travel Time (s)	27.3			15.2	32.5	
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	5	
Permitted Phases			8			5
Detector Phase	4		3	8	5	5
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	8.0	8.0
Total Split (s)	52.0		28.0	80.0	50.0	50.0
Total Split (%)	40.0%		21.5%	61.5%	38.5%	38.5%
Maximum Green (s)	48.0		24.0	76.0	46.0	46.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		None	Min	None	None
Walk Time (s)			5.0	5.0		
Flash Dont Walk (s)			11.0	11.0		
Pedestrian Calls (#/hr)			0	0		

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 30: 204th Ave E & SR 410



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1155	315	255	950	160	360
Future Volume (veh/h)	1155	315	255	950	160	360
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1949	1949	1870	1870
Adj Flow Rate, veh/h	1191	325	263	979	165	371
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	1314	359	292	1743	1616	741
Arrive On Green	0.65	0.65	0.23	0.94	0.47	0.47
Sat Flow, veh/h	4191	1097	1856	3800	3456	1585
Grp Volume(v), veh/h	1016	500	263	979	165	371
Grp Sat Flow(s),veh/h/ln	1716	1688	1856	1851	1728	1585
Q Serve(g_s), s	32.7	32.7	12.2	4.3	3.5	21.1
Cycle Q Clear(g_c), s	32.7	32.7	12.2	4.3	3.5	21.1
Prop In Lane		0.65	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1121	551	292	1743	1616	741
V/C Ratio(X)	0.91	0.91	0.90	0.56	0.10	0.50
Avail Cap(c_a), veh/h	1267	623	425	2164	1616	741
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.88	0.88	0.95	0.95
Uniform Delay (d), s/veh	20.8	20.8	25.9	2.1	19.3	24.0
Incr Delay (d2), s/veh	5.4	10.0	14.7	0.3	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	8.2	5.4	0.9	1.4	7.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.2	30.9	40.5	2.4	19.4	24.5
LnGrp LOS	C	C	D	A	B	C
Approach Vol, veh/h	1516			1242	536	
Approach Delay, s/veh	27.8			10.5	23.0	
Approach LOS	C			B	C	

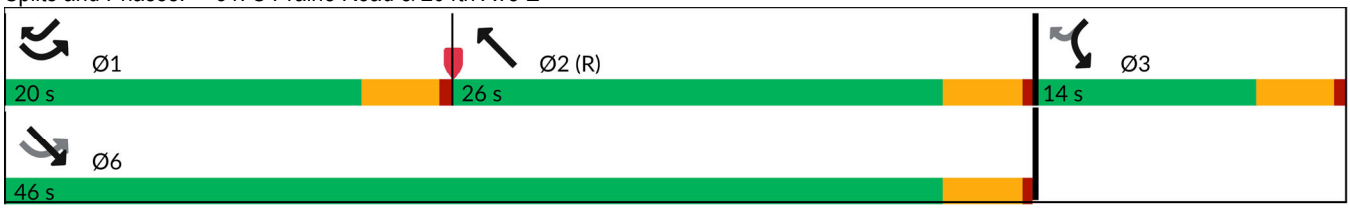
Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	64.8	18.7	46.5	65.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	46.0	24.0	48.0	76.0
Max Q Clear Time (g_c+I1), s	23.1	14.2	34.7	6.3
Green Ext Time (p_c), s	1.9	0.5	7.8	7.9

Intersection Summary	
HCM 7th Control Delay, s/veh	20.5
HCM 7th LOS	C

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	245	500	305	90	130	225
Future Volume (vph)	245	500	305	90	130	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	75	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		25	25		30	
Link Distance (ft)		1097	4369		1430	
Travel Time (s)		29.9	119.2		32.5	
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6					3
Detector Phase	1	6	2		3	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		8.0	20.0
Total Split (s)	20.0	46.0	26.0		14.0	20.0
Total Split (%)	33.3%	76.7%	43.3%		23.3%	33.3%
Maximum Green (s)	16.0	42.0	22.0		10.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	C-Min		None	Min
Walk Time (s)	5.0	5.0	5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	3	0	1			3

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NWT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 31: S Prairie Road & 204th Ave E





Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	245	500	305	90	130	225
Future Volume (veh/h)	245	500	305	90	130	225
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	253	515	314	93	134	232
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	698	1332	759	225	288	410
Arrive On Green	0.10	0.71	0.54	0.54	0.16	0.16
Sat Flow, veh/h	1795	1885	1397	414	1795	1598
Grp Volume(v), veh/h	253	515	0	407	134	232
Grp Sat Flow(s),veh/h/ln	1795	1885	0	1810	1795	1598
Q Serve(g_s), s	3.2	6.6	0.0	7.9	4.1	7.6
Cycle Q Clear(g_c), s	3.2	6.6	0.0	7.9	4.1	7.6
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	698	1332	0	984	288	410
V/C Ratio(X)	0.36	0.39	0.00	0.41	0.47	0.57
Avail Cap(c_a), veh/h	1004	1332	0	984	299	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.00	0.77	0.47	0.47
Uniform Delay (d), s/veh	4.8	3.6	0.0	8.1	22.9	19.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.0	0.6	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.6	0.0	2.9	1.7	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	4.9	3.6	0.0	9.1	23.4	20.2
LnGrp LOS	A	A		A	C	C
Approach Vol, veh/h		768	407		366	
Approach Delay, s/veh		4.0	9.1		21.4	
Approach LOS		A	A		C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.8	36.6				46.4	13.6
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	16.0	22.0				42.0	10.0
Max Q Clear Time (g_c+I1), s	5.2	9.9				8.6	9.6
Green Ext Time (p_c), s	0.6	2.1				3.9	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	9.5
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	10	165	40	40	315
Future Vol, veh/h	35	10	165	40	40	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	39	11	183	44	44	350

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	644	206	0	0	228	0
Stage 1	206	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	439	838	-	-	1340	-
Stage 1	831	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	421	838	-	-	1340	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	625	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.51	0	0.88
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	473	203	-
HCM Lane V/C Ratio	-	-	0.106	0.033	-
HCM Control Delay (s/veh)	-	-	13.5	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	35	355	780	10	5	30
Future Vol, veh/h	35	355	780	10	5	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	38	382	839	11	5	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	849	0	-	0	1301	844
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	793	-	-	-	177	362
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	793	-	-	-	166	362
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	636	-

Approach	NB	SB	SE
HCM Control Delay, s/v	0.88	0	18.23
HCM LOS			C

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	162	-	310	-	-
HCM Lane V/C Ratio	0.047	-	0.122	-	-
HCM Control Delay (s/veh)	9.8	0	18.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	30	115	25	110	320
Future Vol, veh/h	15	30	115	25	110	320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	31	120	26	115	333

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	695	133	0	0	146	0
Stage 1	133	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	410	919	-	-	1442	-
Stage 1	896	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	370	919	-	-	1442	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.34	0	1.97
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	615	460	-
HCM Lane V/C Ratio	-	-	0.076	0.079	-
HCM Control Delay (s/veh)	-	-	11.3	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	15	135	35	80	80
Future Vol, veh/h	5	15	135	35	80	80
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	4	4	2	2	1	1
Mvmt Flow	6	17	155	40	92	92
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay, s/veh	7.5	8.2	8.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	25%	50%
Vol Thru, %	79%	0%	50%
Vol Right, %	21%	75%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	20	160
LT Vol	0	5	80
Through Vol	135	0	80
RT Vol	35	15	0
Lane Flow Rate	195	23	184
Geometry Grp	1	1	1
Degree of Util (X)	0.216	0.028	0.215
Departure Headway (Hd)	3.987	4.376	4.203
Convergence, Y/N	Yes	Yes	Yes
Cap	893	823	850
Service Time	2.047	2.376	2.255
HCM Lane V/C Ratio	0.218	0.028	0.216
HCM Control Delay, s/veh	8.2	7.5	8.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.1	0.8

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	15	65	25	35	265
Future Vol, veh/h	40	15	65	25	35	265
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	18	77	30	42	315

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	491	92	0	0	107	0
Stage 1	92	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	537	965	-	-	1484	-
Stage 1	931	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	518	965	-	-	1484	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.82	0	0.87
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	593	210	-
HCM Lane V/C Ratio	-	-	0.11	0.028	-
HCM Control Delay (s/veh)	-	-	11.8	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	3.3

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	50	130	110	680	50	435
Future Vol, veh/h	50	130	110	680	50	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	52	134	113	701	52	448

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1204	276	500	0	-	0
Stage 1	276	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	204	765	1069	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	183	765	1069	-	-	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	387	-	-	-	-	-

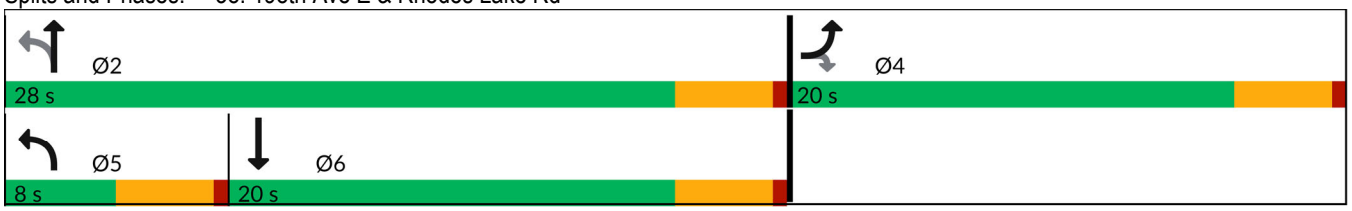
Approach	SB	NE	SW
HCM Control Delay, s/v	21.12	1.22	0
HCM LOS	C		

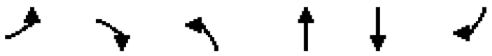
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	1069	-	406	-	-
HCM Lane V/C Ratio	0.106	-	0.457	-	-
HCM Control Delay (s/veh)	8.8	-	21.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.3	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	345	185	530	650	50
Future Volume (vph)	80	345	185	530	650	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175	0	325			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	30			30	30	
Link Distance (ft)	1957			1413	624	
Travel Time (s)	44.5			32.1	14.2	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	28.0	20.0	
Total Split (%)	41.7%	41.7%	16.7%	58.3%	41.7%	
Maximum Green (s)	16.0	16.0	4.0	24.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 48	
Actuated Cycle Length: 43.4	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 38: 198th Ave E & Rhodes Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	345	185	530	650	50
Future Volume (veh/h)	80	345	185	530	650	50
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	84	363	195	558	684	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	508	452	461	951	1010	78
Arrive On Green	0.28	0.28	0.10	0.51	0.30	0.30
Sat Flow, veh/h	1795	1598	1781	1870	3463	261
Grp Volume(v), veh/h	84	363	195	558	363	374
Grp Sat Flow(s),veh/h/ln	1795	1598	1781	1870	1791	1838
Q Serve(g_s), s	1.3	8.1	2.6	8.0	6.8	6.8
Cycle Q Clear(g_c), s	1.3	8.1	2.6	8.0	6.8	6.8
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	508	452	461	951	537	551
V/C Ratio(X)	0.17	0.80	0.42	0.59	0.68	0.68
Avail Cap(c_a), veh/h	750	667	461	1172	748	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	12.7	7.8	6.6	11.8	11.8
Incr Delay (d2), s/veh	0.2	4.4	0.6	0.6	1.5	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.7	2.0	2.3	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.5	17.2	8.4	7.2	13.3	13.3
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	447			753	737	
Approach Delay, s/veh	15.9			7.5	13.3	
Approach LOS	B			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.5		14.8	8.0	15.5
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		24.0		16.0	4.0	16.0
Max Q Clear Time (g_c+I1), s		10.0		10.1	4.6	8.8
Green Ext Time (p_c), s		3.1		0.9	0.0	2.6

Intersection Summary	
HCM 7th Control Delay, s/veh	11.6
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	100	2225	1785	55	0	80
Future Vol, veh/h	100	2225	1785	55	0	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	300	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	103	2294	1840	57	0	82

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1840	0	-	0	-	920
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	-	-	3.31
Pot Cap-1 Maneuver	331	-	-	0	0	275
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	0	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	331	-	-	-	-	275
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SW
HCM Control Delay, s/v	0.89	0	23.61
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	SWLn1
Capacity (veh/h)	331	-	-	275
HCM Lane V/C Ratio	0.312	-	-	0.3
HCM Control Delay (s/veh)	20.7	-	-	23.6
HCM Lane LOS	C	-	-	C
HCM 95th %tile Q(veh)	1.3	-	-	1.2

Intersection	
Int Delay, s/veh	1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	95	25	5	315	30	10
Future Vol, veh/h	95	25	5	315	30	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	106	28	6	350	33	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	481	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1451	-	546	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1451	-	543	935
Mov Cap-2 Maneuver	-	-	-	-	543	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	704	-

Approach	NB	SB	SW
HCM Control Delay, s/v	0	0.12	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	28	-	607
HCM Lane V/C Ratio	-	-	0.004	-	0.073
HCM Control Delay (s/veh)	-	-	7.5	0	11.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.2

Intersection	
Int Delay, s/veh	12.1

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	585	140	130	405	80	125
Future Vol, veh/h	585	140	130	405	80	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	100
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	603	144	134	418	82	125

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	747	0	1361	675
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	866	-	164	456
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	866	-	131	456
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	NE
HCM Control Delay, s/v	0	2.41	81.66
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	230	-	-	437	-
HCM Lane V/C Ratio	0.903	-	-	0.155	-
HCM Control Delay (s/veh)	81.7	-	-	9.9	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	7.5	-	-	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	0	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1	1	1	1	1	0	1	0	0	0	0	0
Stage 1	1	1	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	1	1	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	1022	895	1083	1027	899	-	1628	-	-	-	-	-
Stage 1	1022	895	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1027	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1022	895	1083	1027	899	-	1628	-	-	-	-	-
Mov Cap-2 Maneuver	1022	895	-	1027	899	-	-	-	-	-	-	-
Stage 1	1022	895	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1027	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	2	2	2	2	3	3	3
Mvmt Flow	0	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1	1	1	1	1	0	1	0	0	0	0	0
Stage 1	1	1	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	1	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	1027	899	1089	1022	895	-	1622	-	-	-	-	-
Stage 1	1027	899	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1022	895	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1027	899	1089	1022	895	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	1027	899	-	1022	895	-	-	-	-	-	-	-
Stage 1	1027	899	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1022	895	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1622	-	1023	1086
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1622	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1622	-	1023	1086
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1622	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Envision BONNEY LAKE

Celebrating 100 Years

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Appendix F: Pedestrian Priority Index Scores

July 2025

BONNEY Lake

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Bonney Lake Pedestrian Prioritization Scoring

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
249	SR 410 E	216th Ave E	219th Ave Ct E	86	4	1	4	6	5	30	2	5	10	4	1	4	2	5	10	4	5	20	4	2	8	1,131.31	1
285	SR 410 E	214th Ave E	216th Ave E	76	4	1	4	6	5	30	2	5	10	4	1	4	2	5	10	2	5	10	4	2	8	628.16	1
181	SR 410 E	Veterans Memorial Dr E	Myers Rd E	75	4	1	4	6	5	30	0	5	0	3	1	3	2	5	10	4	5	20	4	2	8	1,467.14	1
188	SR 410 W	Myers Rd E	City Limits	64	4	1	4	6	5	30	0	5	0	2	1	2	0	5	0	4	5	20	4	2	8	2,003.10	1
354	VETERANS MEMORIAL DR E	188th Ave	Church Lake Rd E	64	3	1	3	0	5	0	2	5	10	3	1	3	4	5	20	4	5	20	4	2	8	407.27	1
74	96TH ST E	203rd Ave E	204th Ave E	63	1	1	1	6	5	30	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	300.89	1
248	SR 410 E	219th Ave Ct E	221st Ave E	56	4	1	4	0	5	0	2	5	10	4	1	4	2	5	10	4	5	20	4	2	8	686.21	1
80	214TH AVE E	SR 410 E	101st St E	55	3	1	3	0	5	0	2	5	10	4	1	4	2	5	10	4	5	20	4	2	8	970.67	1
302	ANGELINE RD E	Old Sumner Buckley Hwy	95th St E	54	3	1	3	0	5	0	2	5	10	3	1	3	2	5	10	4	5	20	4	2	8	2,692.95	1
339	ANGELINE RD E	95th St E	101st St E	53	3	1	3	0	5	0	2	5	10	2	1	2	2	5	10	4	5	20	4	2	8	2,897.02	1
29	182ND AVE E	83rd St E	84th St E	52	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	4	5	20	4	2	8	285.47	1
184	75TH ST E	192nd Ave E	193rd Ave E	49	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	4	5	20	4	2	8	443.70	1
259	WEST TAPPS HWY E	Bonney Lake Blvd E	Church Lake Dr E	46	3	1	3	0	5	0	3	5	15	0	1	0	2	5	10	2	5	10	4	2	8	1,383.47	1
276	CHURCH LAKE DR E	72nd St E	71st St E	46	3	1	3	0	5	0	3	5	15	0	1	0	0	5	0	4	5	20	4	2	8	255.93	1
72	198TH AVE E	94th St E	198th Ave E	45	3	1	3	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	321.00	1
301	214TH AVE E	102nd St E	104th St Ct E	45	3	1	3	0	5	0	2	5	10	4	1	4	0	5	0	4	5	20	4	2	8	900.89	1
274	SUMNER BUCKLEY HWY E	Angeline Rd E	City Limits	44	3	1	3	0	5	0	2	5	10	3	1	3	4	5	20	0	5	0	4	2	8	184.00	1
41	CHURCH LAKE RD E	Evergreen Dr	Church Lake Rd E (s	43	3	1	3	0	5	0	0	5	0	2	1	2	2	5	10	4	5	20	4	2	8	680.11	1
47	CHURCH LAKE RD E	Church Lake Rd E (see obje	Veterans Memoria	43	3	1	3	0	5	0	0	5	0	2	1	2	2	5	10	4	5	20	4	2	8	1,679.10	1
54	89TH ST E	186th Ave E	Main St E	43	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	666.70	1
65	198TH AVE PL E	198th Ave E	96th St E	43	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	315.15	1
75	96TH ST E	198th Ave E	196th Ave E	43	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	624.76	1
141	188TH AVE E	Veterans Memorial Dr E	88th St E	43	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	453.24	1
154	196TH AVE E	94th St E	96th St E	43	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	4	2	8	623.70	1
321	MYERS RD E	SR 410 E	81st St E	43	3	1	3	0	5	0	2	5	10	2	1	2	0	5	0	4	5	20	4	2	8	1,634.89	1
16	182ND AVE E	Main St E	84th St E	42	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	4	5	20	4	2	8	675.47	1
40	84TH ST E	182nd Ave E	183rd St E	42	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	4	5	20	4	2	8	465.55	1
92	84TH ST E	186th Ave E	Locust Ave E	42	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	4	5	20	4	2	8	351.28	1
143	188TH AVE E	88th St E	End of cul de sac	42	1	1	1	0	5	0	2	5	10	3	1	3	4	5	20	0	5	0	4	2	8	331.00	1
286	181ST AVE E	Elhi Rim Rd E	End of road south	42	1	1	1	0	5	0	2	5	10	3	1	3	4	5	20	0	5	0	4	2	8	1,564.31	1
243	WEST TAPPS HWY E	77th St Ct E	Church Lake Rd E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	919.27	1
263	CHURCH LAKE RD E	198th Ave Pl E	199th Ave Ct E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	228.38	2
264	CHURCH LAKE RD E	199th Ave Ct E	201st Ave E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	529.31	1
284	CHURCH LAKE DR E	W Tapps Hwy E	72nd St E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	1,083.45	1
303	CHURCH LAKE RD E	197th Ave E	198th Ave Pl E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	351.88	1
324	CHURCH LAKE RD E	201st Ave E	W Tapps Hwy E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	69.43	1
328	ANGELINE RD E	102nd St Ct E	101st St E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	232.18	1
338	ANGELINE RD E	103rd St E	103rd St Ct E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	187.47	1
340	ANGELINE RD E	103rd St E	102nd St Ct E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	107.83	1
341	ANGELINE RD E	104th St Ct E	103rd St Ct E	41	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	345.09	1
142	186TH AVE E	89th St E	88th St E	40	1	1	1	0	5	0	3	5	15	4	1	4	4	5	20	0	5	0	0	2	0	140.67	1
104	108TH ST E			39	1	1	1	0	5	0	2	5	10	0	1	0	4	5	20	0	5	0	4	2	8	206.23	1
118	109TH ST E			39	1	1	1	0	5	0	2	5	10	0	1	0	4	5	20	0	5	0	4	2	8	461.94	1
120	108TH ST CT E			39	1	1	1	0	5	0	2	5	10	0	1	0	4	5	20	0	5	0	4	2	8	501.95	1
165	75TH ST E			39	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	4	5	20	4	2	8	436.26	1
180	181ST AVE E			39	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	829.64	1
266	70TH ST E			39	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	4	5	20	4	2	8	615.09	1
3	SR 410 E			36	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	4	5	20	4	2	8	186.98	1
60	96TH ST E			36	1	1	1	0	5	0	3	5	15	2	1	2	2	5	10	0	5	0	4	2	8	128.18	1
146	94TH ST E			36	1	1	1	0	5	0	3	5	15	2	1	2	2	5	10	0	5	0	4	2	8	159.69	1
269	WEST TAPPS HWY E			36	3	1	3	0	5	0	3	5	15	0	1	0	0	5	0	2	5	10	4	2	8	269.05	1
270	WEST TAPPS HWY E			36	3	1	3	0	5	0	3	5	15	0	1	0	0	5	0	2	5	10	4	2	8	483.18	1
289	SR 410 E			36	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	4	5	20	4	2	8	327.96	1
351	SR 410 E			36	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	4	5	20	4	2	8	1,652.96	1
48	186TH AVE E	89th St E	90th St E	35	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	0	2	0	341.22	1
52	88TH ST E	186th Ave E	188th Ave E	35	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	0	2	0	442.00	1
53	88TH ST E	188th Ave E	189th Ave Ct E	35	1	1	1	0	5	0	2	5	10	4	1	4	4	5	20	0	5	0	0	2	0	197.31	1
153	198TH AVE E			35	3	1	3	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	328.34	1
132	195TH AVE E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	309.15	1
162	68TH ST E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	678.95	1

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
171	67TH ST CT E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	406.37	1
174	68TH ST E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	1,579.94	1
185	76TH ST E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	246.10	1
186	76TH ST E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	221.14	1
208	194TH AVE E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	404.10	1
252	67TH ST CT E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	677.42	1
260	194TH AVE E			34	1	1	1	0	5	0	3	5	15	0	1	0	2	5	10	0	5	0	4	2	8	272.37	1
267	SR 410 E			34	4	1	4	0	5	0	0	5	0	2	1	2	0	5	0	4	5	20	4	2	8	1,982.74	1
300	VETERANS MEMORIAL DR E			34	3	1	3	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	1,254.45	1
43	205TH AVE E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	1,055.95	1
44	96TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	300.77	1
45	97TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	323.48	1
51	MOUNTAIN VIEW DR E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	981.12	1
64	96TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	239.68	1
66	96TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	217.83	1
67	205TH AVE CT E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	237.70	1
68	97TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	304.19	1
69	203RD AVE CT E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	120.02	1
81	192ND AVE E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	2,151.64	1
82	204TH AVE CT E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	165.46	1
83	205TH AVE CT E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	218.63	1
149	94TH ST E			33	1	1	1	0	5	0	0	5	0	4	1	4	4	5	20	0	5	0	4	2	8	675.83	1
152	204TH AVE E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	667.66	1
155	209TH AVE E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	871.05	1
201	97TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	533.28	1
202	206TH AVE E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	1,107.30	1
203	96TH ST E			33	1	1	1	0	5	0	2	5	10	4	1	4	2	5	10	0	5	0	4	2	8	140.29	1
9	180TH AVE CT E			32	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	243.54	1
33	181ST AVE E			32	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	597.58	1
37	179TH AVE E			32	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	648.87	1
89	83RD ST E			32	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	181.40	1
103	184TH AVE E			32	1	1	1	0	5	0	2	5	10	3	1	3	2	5	10	0	5	0	4	2	8	747.08	1
348	181ST AVE E			32	1	1	1	0	5	0	0	5	0	3	1	3	4	5	20	0	5	0	4	2	8	185.01	1
7	82ND ST E			31	1	1	1	0	5	0	0	5	0	2	1	2	4	5	20	0	5	0	4	2	8	395.25	1
8	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	37.72	1
10	185TH AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	2,603.44	1
12	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	242.32	1
13	KELLY LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	161.68	1
14	KELLY LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	732.07	1
24	82ND ST E			31	1	1	1	0	5	0	0	5	0	2	1	2	4	5	20	0	5	0	4	2	8	331.37	1
27	182ND AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	595.08	1
28	191ST AVE E			31	1	1	1	0	5	0	0	5	0	2	1	2	4	5	20	0	5	0	4	2	8	447.58	1
32	KELLY LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	152.79	2
35	191ST AVE E			31	1	1	1	0	5	0	0	5	0	2	1	2	4	5	20	0	5	0	4	2	8	298.27	1
38	181ST AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	910.99	1
42	KELLY LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	52.18	1
59	95TH LOOP ST E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	1,027.69	1
61	95TH ST E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	505.75	1
63	180TH AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	459.96	1
86	82ND ST E			31	1	1	1	0	5	0	0	5	0	2	1	2	4	5	20	0	5	0	4	2	8	489.30	1
90	83RD ST E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	374.74	1
93	KELLY LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	298.77	1
204	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	391.85	1
205	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	249.28	1
206	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	474.44	1
207	183RD AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	2,175.78	1
221	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	297.11	1
232	184TH AVE E			31	1	1	1	0	5	0	2	5	10	2	1	2	2	5	10	0	5	0	4	2	8	2,349.46	1
268	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	420.78	1
271	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	383.48	1
272	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	304.24	2

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
323	CHURCH LAKE RD E			31	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	167.90	1
5	64TH ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	220.43	1
6	190TH AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	490.88	1
85	110TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	223.24	1
101	65TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	521.84	1
108	62ND ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	132.67	1
122	111TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	228.47	1
123	60TH ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	311.93	1
130	193RD AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,466.81	1
133	MCGHEE DR E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,510.96	1
134	191ST AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	783.52	1
135	75TH ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	437.06	1
139	194TH AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	226.93	1
158	194TH AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,064.37	1
159	195TH AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,266.30	1
166	193RD AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	379.38	1
172	68TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	323.78	1
183	193RD AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	772.03	1
189	78TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	303.81	1
210	LOCUST EXT E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,010.16	1
227	64TH ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	357.77	1
229	193RD AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	359.09	1
239	188TH AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	1,622.08	1
251	67TH ST E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	419.94	1
255	193RD AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	1,190.39	1
258	192ND AVE E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	774.47	1
282	210TH AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	219.80	1
287	62ND ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	601.35	1
296	61ST ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	654.80	1
297	195TH AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	1,011.50	1
310	79TH ST PL E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	182.06	1
329	WEST TAPPS HWY E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	205.42	1
331	82ND ST E			29	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	4	5	20	4	2	8	1,284.57	1
344	WEST TAPPS HWY E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	486.89	1
349	182ND AVE E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	164.83	1
355	WEST TAPPS HWY E			29	1	1	1	0	5	0	0	5	0	0	1	0	4	5	20	0	5	0	4	2	8	152.69	1
361	191ST AVE CT E			29	1	1	1	0	5	0	2	5	10	0	1	0	2	5	10	0	5	0	4	2	8	384.11	1
18	93RD ST E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	302.99	1
19	93RD ST E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	303.36	1
21	93RD ST E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	270.72	1
71	95TH ST E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	330.60	1
145	93RD ST E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	226.46	1
147	208TH AVE E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	349.72	1
148	204TH AVE E			28	1	1	1	0	5	0	3	5	15	4	1	4	0	5	0	0	5	0	4	2	8	383.30	1
20	207TH AVE E			27	1	1	1	0	5	0	3	5	15	3	1	3	0	5	0	0	5	0	4	2	8	296.91	1
55	207TH AVE E			27	1	1	1	0	5	0	3	5	15	3	1	3	0	5	0	0	5	0	4	2	8	505.32	1
2	SR 410 E			26	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	2	5	10	4	2	8	114.61	1
196	81ST ST E			26	1	1	1	0	5	0	3	5	15	2	1	2	0	5	0	0	5	0	4	2	8	224.92	1
199	182ND AVE E			26	1	1	1	0	5	0	3	5	15	2	1	2	0	5	0	0	5	0	4	2	8	326.29	1
326	82ND ST E			26	1	1	1	0	5	0	3	5	15	2	1	2	0	5	0	0	5	0	4	2	8	207.75	1
343	ANGELINE RD E			26	3	1	3	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	704.08	1
350	SR 410 E			26	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	2	5	10	4	2	8	710.55	1
50	198TH AVE E			24	3	1	3	0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	729.89	1
160	69TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	428.50	1
163	CHURCH LAKE DR E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	475.62	1
164	CHURCH LAKE DR E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	484.91	1
169	68TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	413.08	1
173	192ND AVE E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	1,668.04	1
195	197TH AVE E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	858.00	1
214	195TH AVE CT E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	188.52	1
215	77TH ST CT E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	294.70	1

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
217	195TH AVE CT E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	367.59	1
236	78TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	485.29	1
265	74TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	1,070.44	1
293	75TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	267.85	1
295	182ND AVE E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	444.76	1
305	77TH ST E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	174.58	1
308	194TH AVE E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	398.57	1
309	195TH AVE CT E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	165.48	1
335	CASCADE DR E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	353.40	1
336	SOUTH ISLAND DR E			24	1	1	1	0	5	0	3	5	15	0	1	0	0	5	0	0	5	0	4	2	8	377.59	1
22	93RD ST E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	759.50	1
23	93RD ST E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	299.65	1
34	210TH AVE E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	269.92	1
46	97TH ST E			23	1	1	1	0	5	0	0	5	0	4	1	4	2	5	10	0	5	0	4	2	8	202.16	1
57	94TH ST E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	737.37	1
58	95TH ST E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	328.18	1
62	202ND AVE E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	928.64	1
70	94TH ST E			23	1	1	1	0	5	0	0	5	0	4	1	4	2	5	10	0	5	0	4	2	8	634.72	1
73	203RD AVE E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	751.61	1
150	210TH AVE E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	313.55	1
151	96TH ST E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	255.68	1
156	210TH AVE E			23	1	1	1	0	5	0	2	5	10	4	1	4	0	5	0	0	5	0	4	2	8	906.19	1
319	MYERS RD E			23	3	1	3	0	5	0	2	5	10	2	1	2	0	5	0	0	5	0	4	2	8	331.76	1
11	84TH ST E			22	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	169.50	1
15	183RD AVE E			22	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	606.66	1
17	91ST ST E			22	1	1	1	0	5	0	2	5	10	3	1	3	0	5	0	0	5	0	4	2	8	997.08	1
49	91ST ST E			22	1	1	1	0	5	0	2	5	10	3	1	3	0	5	0	0	5	0	4	2	8	312.62	1
56	92ND ST E			22	1	1	1	0	5	0	2	5	10	3	1	3	0	5	0	0	5	0	4	2	8	1,335.96	1
91	186TH AVE E			22	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	571.19	1
144	211TH AVE E			22	1	1	1	0	5	0	2	5	10	3	1	3	0	5	0	0	5	0	4	2	8	184.82	1
246	82ND ST E			22	1	1	1	0	5	0	2	5	10	3	1	3	0	5	0	0	5	0	4	2	8	103.91	1
273	84TH ST E			22	1	1	1	0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	483.98	1
30	189TH AVE E			21	1	1	1	0	5	0	0	5	0	2	1	2	2	5	10	0	5	0	4	2	8	655.61	1
31	188TH AVE E			21	1	1	1	0	5	0	0	5	0	2	1	2	2	5	10	0	5	0	4	2	8	662.24	1
220	182ND AVE E			21	1	1	1	0	5	0	2	5	10	2	1	2	0	5	0	0	5	0	4	2	8	1,129.29	1
222	179TH AVE E			21	1	1	1	0	5	0	2	5	10	2	1	2	0	5	0	0	5	0	4	2	8	382.37	1
244	81ST ST E			21	1	1	1	0	5	0	2	5	10	2	1	2	0	5	0	0	5	0	4	2	8	235.12	1
254	BONNEY LAKE BLVD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	717.57	1
261	ELHI RIM RD			21		1		0	5	0	0	5	0	3	1	3	2	5	10	0	5	0	4	2	8	3,156.98	1
275	71ST ST E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,486.50	1
277	CHURCH LAKE DR E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	896.75	1
278	CHURCH LAKE DR E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	420.38	1
280	MYERS RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,313.92	1
315	MYERS RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,495.26	1
316	MYERS RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	339.53	1
325	81ST ST E			21	1	1	1	0	5	0	2	5	10	2	1	2	0	5	0	0	5	0	4	2	8	446.54	1
330	ANGELINE RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	212.11	1
342	ANGELINE RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	329.69	1
356	ANGELINE RD E			21	3	1	3	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	304.92	1
25	199TH AVE CT E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	600.36	1
95	56TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	234.01	1
97	NORTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	544.84	1
99	62ND ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	188.13	1
100	RAINIER DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,076.76	1
106	195TH PL E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	1,351.04	1
107	184TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	498.93	1
109	62ND ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	303.39	1
111	SOUTH VISTA DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	807.43	1
112	182ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	333.60	1
113	197TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	763.16	1
114	SOUTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	826.37	1

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
116	SOUTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	589.98	1
119	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	347.37	1
121	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	354.39	1
124	195TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	1,246.32	1
125	60TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	890.25	1
126	62ND ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	388.06	1
128	185TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	802.10	1
129	MCGHEE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	592.87	1
131	183RD AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	541.41	1
136	207TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	656.17	1
138	197TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	347.90	1
140	65TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	844.41	1
157	187TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	409.11	1
168	68TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	585.74	1
170	185TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	724.30	1
175	CHURCH LAKE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	2,184.31	1
176	70TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,131.56	1
177	CHURCH LAKE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	485.47	1
178	185TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,144.45	1
179	LOCUST AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	954.77	1
182	188TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	817.75	1
187	185TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	604.71	1
190	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	299.95	1
191	78TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	555.32	1
192	78TH ST CT E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	114.05	1
193	193RD AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	647.58	1
197	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	252.64	1
198	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	211.20	1
209	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	467.94	1
211	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	554.66	1
212	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	352.57	1
213	77TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	285.92	1
216	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	471.82	1
218	191ST AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	815.13	1
219	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	306.07	1
223	195TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	309.86	1
225	NORTH VISTA DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,200.65	1
228	65TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,130.11	1
230	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	347.25	1
231	112TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	214.97	1
233	190TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	755.66	1
234	77TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	417.13	1
235	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	767.15	1
237	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	122.01	1
238	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	688.80	1
240	79TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	499.14	1
241	193RD AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	305.39	1
242	79TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	694.39	1
245	80TH ST CT E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	185.94	1
247	205TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,044.91	1
250	65TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	366.71	1
253	69TH ST CT E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	189.75	1
256	73RD ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	179.37	1
257	190TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	814.55	1
262	199TH AVE CT E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	185.33	1
290	CASCADE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	734.22	1
291	CASCADE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	380.83	1
292	WEST TAPPS HWY E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	664.21	1
294	182ND AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	713.82	1
298	WEST TAPPS HWY E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	451.09	1
299	NORTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,264.32	1

OBJECTID	FULLNAME	FROM	TO	PPI Score	Public Road Classification			Existing Crashes			Parks and Trailheads			Local Centers			Public Service Facility			Fills System Gap			Sidewalk Level of Service			Shape_Length	ADA Compliance
					Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Point Value	Council Weight Factor	Total Possible Score	Measured in US feet	1 = not complying, 2 = complying
304	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	694.97	1
306	77TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	330.78	1
307	191ST AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	175.72	1
311	194TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	479.54	1
312	190TH AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	389.38	1
322	192ND AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	276.34	1
327	74TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,047.48	1
334	CASCADE DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	411.54	1
337	NORTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,058.49	1
347	74TH ST E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	747.36	1
352	SOUTH ISLAND DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,156.83	1
353	AQUA DR E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,311.63	1
358	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	346.63	1
359	113TH ST E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	477.08	1
360	193RD AVE E			19	1	1	1	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	546.35	1
362	207TH AVE E			19	1	1	1	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	1,254.64	1
26	201ST AVE E			18	0	1	0	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	588.05	1
127	184TH AVE E			18	0	1	0	0	5	0	0	5	0	0	1	0	2	5	10	0	5	0	4	2	8	301.23	1
226	188TH AVE E			18	0	1	0	0	5	0	2	5	10	0	1	0	0	5	0	0	5	0	4	2	8	491.88	1
288	SR 410 E			16	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	0	5	0	4	2	8	296.44	1
333	SR 410 E			16	4	1	4	0	5	0	0	5	0	4	1	4	0	5	0	0	5	0	4	2	8	239.67	1
346	233RD AVE E			15	3	1	3	0	5	0	0	5	0	4	1	4	0	5	0	0	5	0	4	2	8	1,067.85	1
357	233RD AVE E			15	3	1	3	0	5	0	0	5	0	4	1	4	0	5	0	0	5	0	4	2	8	477.94	1
281	MYERS RD E			13	3	1	3	0	5	0	0	5	0	2	1	2	0	5	0	0	5	0	4	2	8	108.50	1
318	MYERS RD E			13	3	1	3	0	5	0	0	5	0	2	1	2	0	5	0	0	5	0	4	2	8	148.61	1
200	91ST ST E			12	1	1	1	0	5	0	0	5	0	3	1	3	0	5	0	0	5	0	4	2	8	363.11	1
332	100TH ST CT E			12	0	1	0	0	5	0	0	5	0	4	1	4	0	5	0	0	5	0	4	2	8	736.59	1
194	176TH AVE E			11	1	1	1	0	5	0	0	5	0	2	1	2	0	5	0	0	5	0	4	2	8	538.58	1
314	MYERS RD E			11	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	506.22	1
317	CHURCH LAKE DR E			11	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	954.10	1
345	CHURCH LAKE DR E			11	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	1,211.34	1
1	VANDERMARK RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	453.36	1
4	VANDERMARK RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	614.36	1
36	198TH AVE CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	294.01	1
39	83RD ST CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	547.00	1
76	195TH AVE E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	601.13	1
77	WEST TAPPS DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	257.02	1
78	CAUSEWAY RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	780.42	1
79	CAUSEWAY RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	479.42	1
84	197TH AVE E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	1,206.42	1
87	82ND ST CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	285.30	1
88	82ND ST CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	273.53	1
94	206TH AVE CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	138.72	1
96	NORTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	475.17	1
98	60TH ST E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	550.17	1
102	SOUTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	776.98	1
105	NORTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	792.57	1
110	62ND ST E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	376.94	1
115	SOUTH VISTA DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	621.01	1
117	SOUTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	218.93	1
137	SOUTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	263.72	1
161	70TH ST E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	408.00	1
167	75TH ST E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	478.90	1
224	NORTH ISLAND DR E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	400.93	1
283	VANDERMARK RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	825.74	1
313	VANDERMARK RD E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	491.35	1
320	206TH AVE CT E			9	1	1	1	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	4	2	8	112.02	1
279	VANDERMARK RD E			3	3	1	3	0	5	0	0	5	0	0	1	0	0	5	0	0	5	0	0	2	0	1,237.54	1

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Appendix G: Transportation Evaluation of Land Use Alternatives

February 2025

BONNEY Lake

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printing purposes.

SCJ ALLIANCE
CONSULTING SERVICES

Technical Memo

To Jason Sullivan, City of Bonney Lake

From: Ryan Shea, PTP

Date: February 7, 2025

Project: Comprehensive Plan Update, Community Mobility Plan

Subject Transportation Evaluation of Land Use Alternatives

Introduction

The purpose of this memorandum is to document the transportation analysis conducted of three land use alternatives under consideration as part of the 2023 Comprehensive Plan Update. The memo describes the component elements of the land use alternatives, discusses the analysis process and documents key findings and conclusions. The transportation consequences of each land use option were identified as part of the Comprehensive Plan Update and incorporated into the selection process for a preferred land use alternative.

Description of Land Use Alternatives

The three land use alternatives included:

- Baseline Alternative which included existing growth expectations from the prior Comprehensive Plan
- Alternative 1 included additional growth expectations in certain portions of the city
- Alternative 2 also included some additional growth expectations in certain portions of the city but at a lower level of development than with Alternative 1.

Alternative 2 was identified in the land use process as the Preferred Alternative.

Transportation Analysis Methodology

The analysis methodology for evaluating the transportation effects of the three land use alternatives included the following steps:

- Prepare 2049 PM peak hour traffic forecasts based on link volume output for the Bonney Lake area from the Pierce County travel demand model. Using standard accepted procedures in NCHRP 765, future link volume forecasts were translated into 2049 PM peak hour turning movement projections. These volumes constituted baseline traffic forecasts.

- Adjust the baseline traffic forecasts to reflect land use changes in the two alternatives. These adjustments were largely focused on roadway links and intersections in the immediate vicinity of the modified land use assumptions and do not include a complete re-analysis of the entire Bonney Lake study area.
- Perform 2049 PM peak hour traffic operations analysis to identify potential impacts and deficiencies for Baseline conditions and the land use alternatives.
- Prepare summary discussion that compares and contrasts the transportation improvement impacts and potential improvement needs associated with each land use alternative.

Traffic Forecasting

Traffic forecasts were based on output from the recently updated Pierce County travel demand model. This model was built off of the latest (2024) version of the regional travel model (PSRC Land Use Vision (LUV) 2044) which was developed by the Puget Sound Regional Council (PSRC). This model implements the County's adopted land use targets for 2044.

Pierce County provided the following travel demand model plots for use in the traffic volume forecasting work:

- Existing 2018 base year volumes
- Projected 2044 volumes

Model output was provided in the form of link level PM peak hour traffic forecasts on study area streets for the baseline land use alternative. This output included volume data for each model zone centroid connector, which is an artificial link that connects each Traffic Analysis Zone (TAZ) in the model with the roadway network. Using the existing 2018 and projected 2044 baseline model plots, localized growth rates were developed for different portions of Bonney Lake including:

- Southwest Bonney Lake
- The SR 410 Corridor
- Downtown City Center
- Northwest Bonney Lake
- East Bonney Lake
- Northeast Bonney Lake
- Southeast Bonney Lake

Using these localized annual growth rates, the existing 2023 traffic volume counts were grown to prepare 2049 forecast volumes. These volumes were then adjusted and balanced using the standard accepted procedures in NCHRP 765. This resulted in projected 2049 turning movement volumes for the city's baseline alternative.

Using these projections as a starting point, intersection turning movement projections were then developed for the two additional land use alternatives. This analysis was based on estimates for the growth in households and employment for each TAZ in the Bonney Lake study area for the two additional alternatives. Employment estimates were disaggregated into industrial and retail/office categories.

Using these growth numbers, the baseline volume forecast was adjusted for each additional land use alternative to reflect the localized changes in land use. The change in households and employees was converted to peak

hour trips based on trip generation data from the 11th edition of the ITE Trip Generation Manual. For each TAZ that experienced a measurable change in land use assumptions, the change in traffic was assigned to the immediate roadways and intersections.

Performance Measures

The acknowledged source for determining overall capacity for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB). Intersection analysis was performed using the Synchro software package. This software implements the methods of the 6th Edition HCM. Capacity analysis results are described in terms of Level of Service (LOS) and Volume-to-Capacity (V/C) ratios.

LOS is a qualitative term describing operating conditions a driver will experience while traveling on a street or highway during a specific time interval. LOS ranges from A (very little delay) to F (long delays and congestion). **The City of Bonney Lake has adopted an intersection LOS of D for all intersections within the City**. **Table 1** shows the Level of Service criteria for stop-controlled intersections and signalized intersections.

Table 1. Level of Service Criteria for Intersections

Level of Service	Signalized Intersection Average Control Delay (seconds/vehicle)	Stop-Controlled or Roundabout Intersection Average Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

While an intersection may appear to operate acceptably when considered as a whole using the LOS D standard, it may actually experience one or more failing legs that can adversely affect traffic operations for certain movements. In order to ensure that an intersection does not actually have a failing leg, Bonney Lake also includes an additional standard that requires that all signalized intersections have a volume to capacity (V/C) ratio for each of the individual leg that does not exceed 1.0. The V/C is determined by the actual number of vehicles on the roadway as compared to the capacity of the roadway.

Traffic Forecasts for Land Use Alternatives

Traffic volume forecasts are presented in **Figure 1** for the 2049 PM Peak Hour Baseline Alternative, in **Figure 2** for land use Alternative 1, and in **Figure 3** for the Alternative 2, which is the Preferred Alternative.

Comparison of Traffic Analysis Results

Based on the 2049 PM peak hour traffic projections for the Baseline and Preferred Alternatives that are illustrated in Figures 1 and 2, respectively, an analysis was conducted of expected traffic operations. This

analysis is useful in that it identifies locations with heavy congestion that may need improvement. **Table 2** summarizes and compares the results of this analysis. The table also includes analysis results for those locations identified for improvement. The traffic operations analysis worksheets are included in the appendices.

Table 2. Comparison of 2049 PM Peak Hour Intersection Operations for Land Use Alternatives

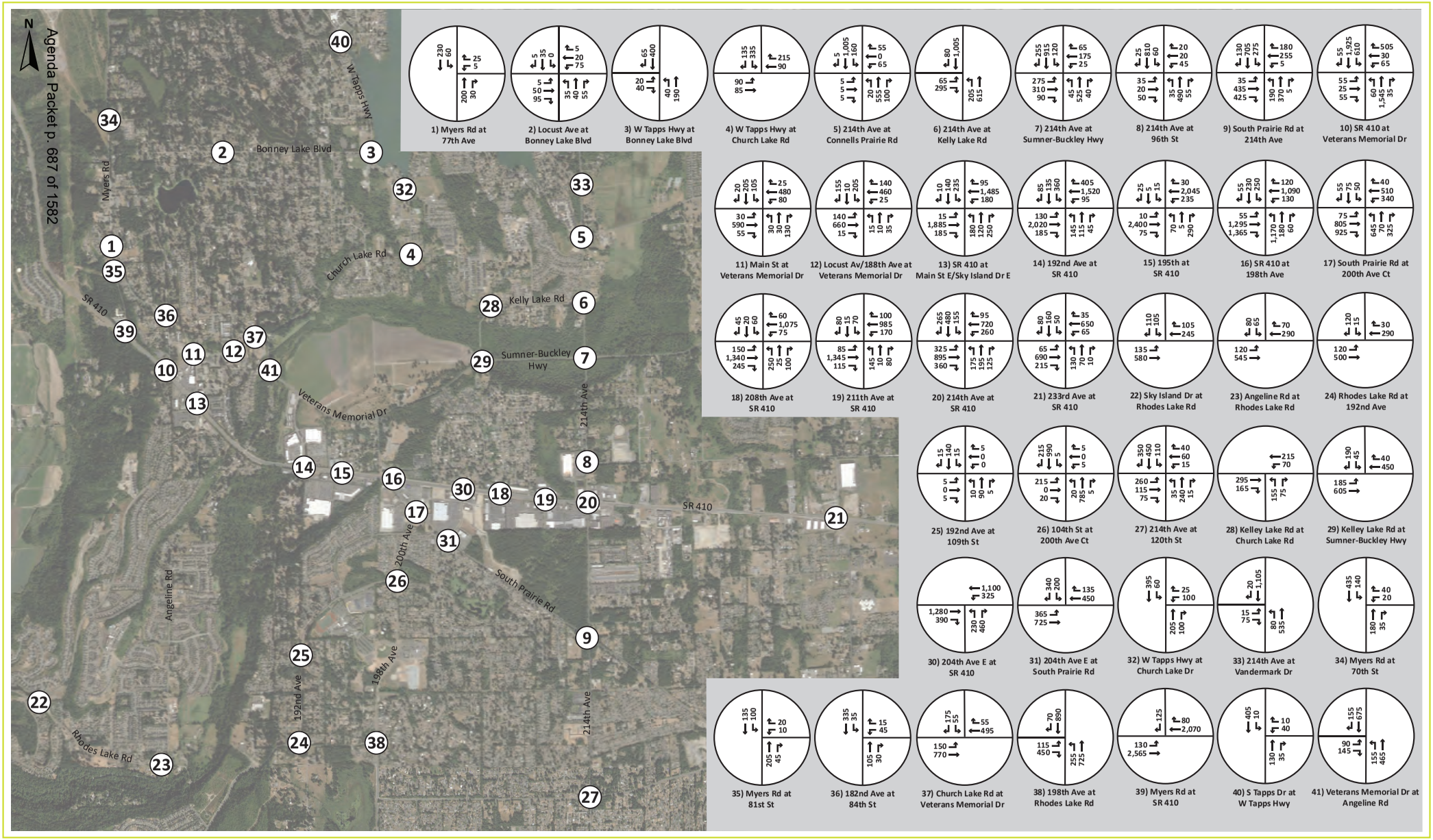
NO.	INTERSECTION	BASELINE ALTERNATIVE LOS (DELAY)	ALTERNATIVE 1 LOS (DELAY)	PREFERRED ALTERNATIVE 2 LOS (DELAY)	LOS (DELAY) WITH IMPROVEMENTS
1	Myers Road at 77th Street	B (10.3)	B (10.3)	B (10.3)	--
2	Bonney Lake Blvd at Locust Avenue	A (8.4)	A (8.4)	A (8.4)	--
3	Bonney Lake Blvd at West Tapps Highway	B (13.1)	B (13.1)	B (13.1)	--
4	Church Lake Road at West Tapps Highway	**E (41.7)**	**F (68.8)**	**E (41.7)**	A (9.4)
5	214th Avenue at Connells Prairie Road	**F (>200)**	**F (>200)**	**F (>200)**	A (5.7)*
6	214th Avenue at Kelly Lake Road	D (50.3)	D (50.8)	D (40.8)	--
7	214th Avenue at Sumner-Buckley Highway	C (23.7)	C (26.6)	C (20.6)	--
8	214th Avenue at 96th Street	A (5.3)	A (5.3)	A (5.4)	--
9	214th Avenue at South Prairie Road	D (39.0)	D (46.2)	D (46.3)	--
10	SR 410 at Veterans Memorial Drive/181st Avenue	C (24.2)	B (17.6)	B (17.6)	--
11	Veteran Memorial Drive at Main Street	B (14.2)	B (14.2)	B (14.2)	--
12	Veteran Memorial Drive at Locust Avenue/188th Avenue	B (13.1)	C (25.0)	C (25.0)	--
13	SR 410 at Sky Island Drive East	C (23.9)	C (25.0)	C (25.0)	--
14	SR 410 at 192nd Avenue	C (30.0)	C (32.2)	C (30.2)	--
15	SR 410 at 195th Avenue	C (34.0)	C (34.0)	C (33.9)	--
16	SR 410 at 198th Avenue/South Prairie Road	D (51.6)	**E (55.5)**	D (54.0)	--
17	South Prairie Road at 200th Avenue Ct.	**E (65.9)**	**E (69.5)**	**E (69.5)**	Conduct ICE
18	SR 410 at 208th Avenue	C (26.1)	D (41.8)	C (26.1)	--
19	SR 410 at 211th Avenue	B (11.1)	B (10.9)	B (11.2)	--
20	SR 410 at 214th Avenue	D (49.5)	D (50.4)	D (49.0)	--
21	SR 410 at 233rd Avenue	B (12.4)	B (12.3)	B (12.4)	--

NO.	INTERSECTION	BASELINE ALTERNATIVE LOS (DELAY)	ALTERNATIVE 1 LOS (DELAY)	PREFERRED ALTERNATIVE 2 LOS (DELAY)	LOS (DELAY) WITH IMPROVEMENTS
22	Rhodes Lake Road at Sky Island Drive	**E (48.3)**	**E (48.3)**	**E (48.3)**	A (5.6)*
23	Rhodes Lake Road at Angeline Road	**E (35.3)**	**E (35.3)**	**E (35.3)**	A (5.2)*
24	Rhodes Lake Road at 192nd Avenue	C (23.0)	C (23.0)	C (23.0)	--
25	109th Street at 192nd Avenue	A (9.9)	A (9.9)	A (9.9)	--
26	104th Street at 199th Avenue/200th Avenue Ct.	B (16.7)	B (16.7)	B (16.7)	--
27	214th Avenue at 120th Street E	A (9.0)	A (9.0)	A (9.0)	--
28	Church Lake Road at Kelley Lake Road	C (26.4)	C (26.4)	C (26.4)	--
29	Sumner-Buckley Hwy/Kelley Lake Rd	**F (61.6)**	**F (61.6)**	**F (61.6)**	B (10.2)*
30	SR 410 at 204th Avenue	C (20.9)	C (20.6)	C (20.9)	--
31	204th Avenue at South Prairie Road	B (11.6)	B (12.3)	B (12.3)	--
32	Church Lake Drive at W Tapps Highway	C (20.1)	C (26.5)	C (20.1)	--
33	214th Avenue at Vandermark Road	**F (58.1)**	**F (90.3)**	**F (49.5)**	D (26.6) for separate EBR*
34	Myers Road at 70th Street	B (13.9)	B (13.9)	B (13.9)	--
35	Myers Road at 81st Street	A (9.1)	A (9.1)	A (9.1)	--
36	182nd Avenue at 84th Street	B (12.5)	B (12.5)	B (12.5)	--
37	Church Lake Road at Veterans Memorial Drive	D (34.8)	**E (44.1)**	**E (44.1)**	A (5.3)
38	198th Avenue at Rhodes Lake Road	C (21.3)	C (21.3)	C (21.3)	--
39	SR 410 at Myers Road	**E (42.3)**	**E (40.8)**	**E (40.8)**	Conduct ICE
40	S Tapps Drive at /W Tapps Highway	B (12.9)	B (13.0)	B (13.0)	--
41	Veterans Memorial Drive-Sumner/Buckley Highway at Angeline Road	**F (>200)**	**F (>200)**	**F (>200)**	A (5.3)

- This is a county intersection and the values shown reflect performance when the county constructs the improvement. These intersections are included in this list to indicate that the city will rely upon the county to make the improvement.

Conclusions

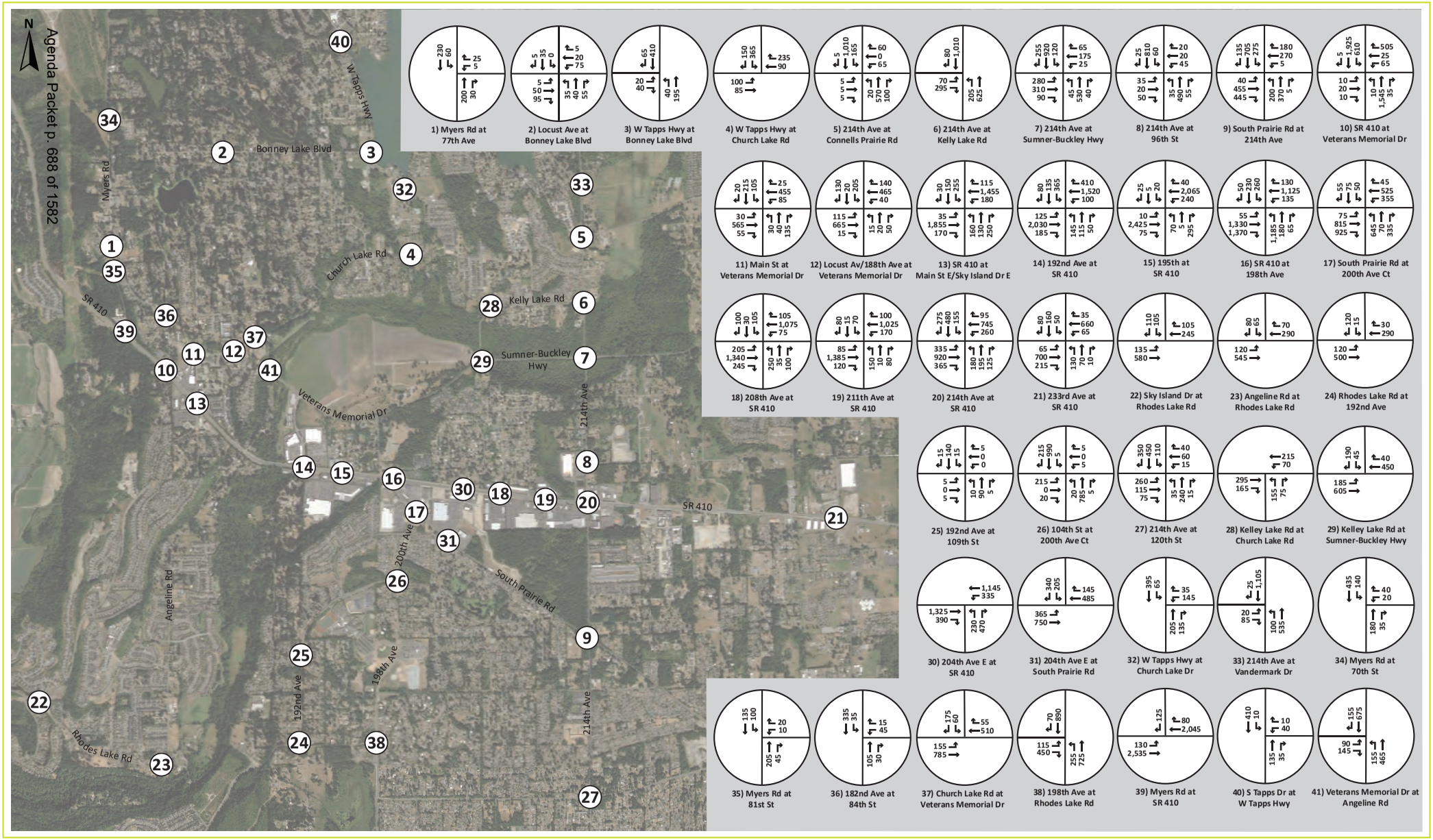
The results of analysis for Land Use Alternative 2 were carried forward into the Community Mobility Plan (CMP) of the Comprehensive Plan and are reflected in that document. The CMP includes further discussion of which intersections were identified for improvements and describes the elements of those improvements. Not all of the failing intersections identified in Table 2 were included in the CMP for improvement as many of the intersections are located within or largely within unincorporated Pierce County. Information related to these intersection failures will be provided to the County for inclusion in their Transportation Plan update.



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Bonney Lake Mobility Plan

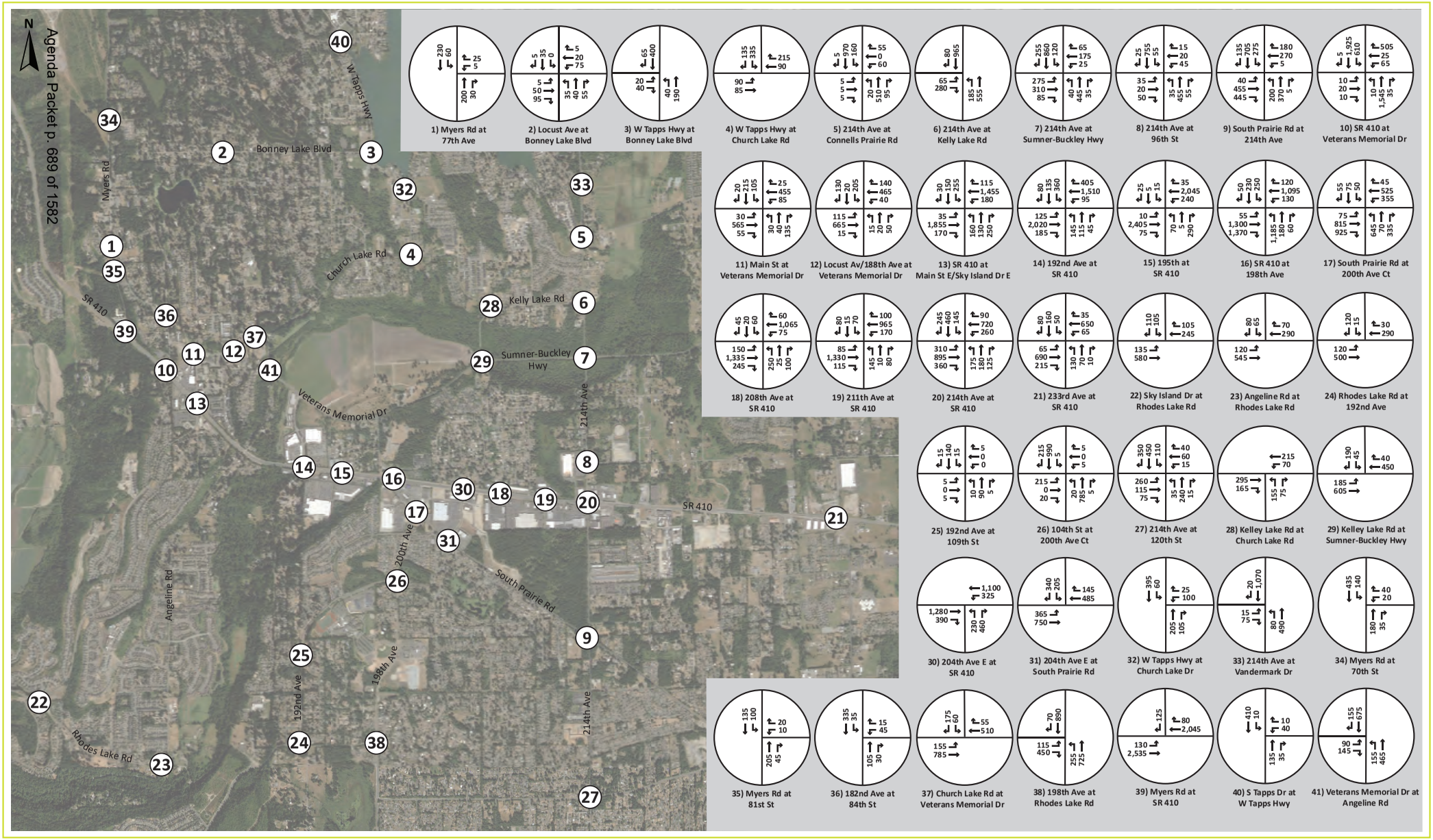
Figure 1
Projected 2049 PM Peak Hour
Traffic Volumes Baseline



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Bonney Lake Mobility Plan

Figure 2
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 1



Bonney Lake Mobility Plan

Figure 3
Projected 2049 PM Peak Hour
Traffic Volumes Alternative 2

Appendix A

Intersection Operations Analysis – 2049 Land Use Baseline Alternative

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	25	200	30	60	230
Future Vol, veh/h	5	25	200	30	60	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	26	211	32	63	242

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	226	0	0	242	0
Stage 1	226	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	469	816	-	-	1330	-
Stage 1	814	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	816	-	-	1330	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.26	0	1.62
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	715	372	-
HCM Lane V/C Ratio	-	-	0.044	0.047	-
HCM Control Delay (s/veh)	-	-	10.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Future Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	53	100	79	21	5	37	42	58	1	37	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8	8.4	8.2	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	3%	75%	2%
Vol Thru, %	31%	33%	20%	85%
Vol Right, %	42%	63%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	150	100	41
LT Vol	35	5	75	1
Through Vol	40	50	20	35
RT Vol	55	95	5	5
Lane Flow Rate	137	158	105	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.179	0.135	0.055
Departure Headway (Hd)	4.348	4.076	4.611	4.586
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	883	779	782
Service Time	2.369	2.093	2.63	2.611
HCM Lane V/C Ratio	0.166	0.179	0.135	0.055
HCM Control Delay, s/veh	8.2	8	8.4	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.5	0.2

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	40	190	400	65
Future Vol, veh/h	20	40	40	190	400	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	21	42	42	200	421	68
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.7	9.7	13.1
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	17%	33%	0%
Vol Thru, %	83%	0%	86%
Vol Right, %	0%	67%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	230	60	465
LT Vol	40	20	0
Through Vol	190	0	400
RT Vol	0	40	65
Lane Flow Rate	242	63	489
Geometry Grp	1	1	1
Degree of Util (X)	0.31	0.09	0.581
Departure Headway (Hd)	4.607	5.148	4.274
Convergence, Y/N	Yes	Yes	Yes
Cap	780	693	847
Service Time	2.636	3.196	2.297
HCM Lane V/C Ratio	0.31	0.091	0.577
HCM Control Delay, s/veh	9.7	8.7	13.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.3	0.3	3.8

Intersection	
Int Delay, s/veh	21.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	85	90	215	335	135
Future Vol, veh/h	90	85	90	215	335	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	95	89	95	226	353	142

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	487	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1245	-	-	-	540	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	768	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1245	-	-	-	496	832
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	SB
HCM Control Delay, s/v	4.18	0	41.71
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	926	-	-	-	562
HCM Lane V/C Ratio	0.076	-	-	-	0.881
HCM Control Delay (s/veh)	8.1	0	-	-	41.7
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	10.1

Intersection	
Int Delay, s/veh	55.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	5	5	5	65	1	55	20	555	100	160	1005	5
Future Vol, veh/h	5	5	5	65	1	55	20	555	100	160	1005	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	3	3	3	1	1	1	1	1	1
Mvmt Flow	5	5	5	68	1	57	21	578	104	167	1047	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2003	2107	1049	2055	2057	630	1052	0	0	682	0	0
Stage 1	1383	1383	-	672	672	-	-	-	-	-	-	-
Stage 2	620	724	-	1383	1385	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	42	49	268	~ 41	55	480	665	-	-	915	-	-
Stage 1	172	204	-	444	453	-	-	-	-	-	-	-
Stage 2	464	420	-	177	209	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	29	39	268	~ 28	43	480	665	-	-	915	-	-
Mov Cap-2 Maneuver	29	39	-	~ 28	43	-	-	-	-	-	-	-
Stage 1	140	167	-	430	439	-	-	-	-	-	-	-
Stage 2	395	407	-	137	171	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	116	$ 883.57	0.31	1.34
HCM LOS	F	F		

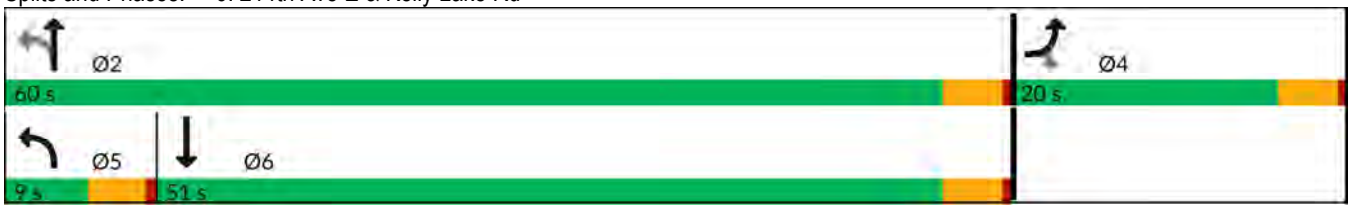
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	665	-	-	47	49	915	-	-
HCM Lane V/C Ratio	0.031	-	-	0.333	2.558	0.182	-	-
HCM Control Delay (s/veh)	10.6	-	-	116	$ 883.6	9.8	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	13.2	0.7	-	-

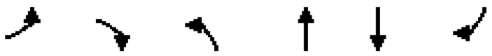
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	295	205	615	1005	80
Future Volume (vph)	65	295	205	615	1005	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			35	35	
Link Distance (ft)	2403			1356	1630	
Travel Time (s)	65.5			26.4	31.8	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	9.0	60.0	51.0	
Total Split (%)	25.0%	25.0%	11.3%	75.0%	63.8%	
Maximum Green (s)	16.0	16.0	5.0	56.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 6: 214th Ave E & Kelly Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	295	205	615	1005	80
Future Volume (veh/h)	65	295	205	615	1005	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	68	311	216	647	1058	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	356	317	202	1320	1005	80
Arrive On Green	0.20	0.20	0.06	0.70	0.59	0.59
Sat Flow, veh/h	1781	1585	1795	1885	1710	136
Grp Volume(v), veh/h	68	311	216	647	0	1142
Grp Sat Flow(s),veh/h/ln	1781	1585	1795	1885	0	1846
Q Serve(g_s), s	2.5	15.6	5.0	12.5	0.0	47.0
Cycle Q Clear(g_c), s	2.5	15.6	5.0	12.5	0.0	47.0
Prop In Lane	1.00	1.00	1.00			0.07
Lane Grp Cap(c), veh/h	356	317	202	1320	0	1084
V/C Ratio(X)	0.19	0.98	1.07	0.49	0.00	1.05
Avail Cap(c_a), veh/h	356	317	202	1320	0	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	31.8	24.8	5.5	0.0	16.5
Incr Delay (d2), s/veh	0.3	45.2	82.5	0.3	0.0	42.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	16.4	6.8	3.6	0.0	28.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.9	77.1	107.3	5.8	0.0	58.9
LnGrp LOS	C	E	F	A		F
Approach Vol, veh/h	379			863	1142	
Approach Delay, s/veh	68.1			31.2	58.9	
Approach LOS	E			C	E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.0		20.0	9.0	51.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		56.0		16.0	5.0	47.0
Max Q Clear Time (g_c+I1), s		14.5		17.6	7.0	49.0
Green Ext Time (p_c), s		3.1		0.0	0.0	0.0

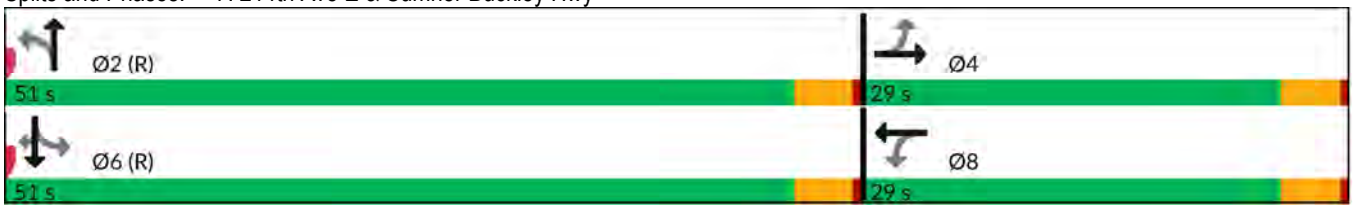
Intersection Summary	
HCM 7th Control Delay, s/veh	50.3
HCM 7th LOS	D

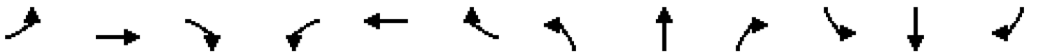
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	310	90	25	175	65	45	525	40	120	895	255
Future Volume (vph)	275	310	90	25	175	65	45	525	40	120	895	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		2632			1239			2614			1356	
Travel Time (s)		59.8			28.2			50.9			26.4	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	29.0	29.0		29.0	29.0		51.0	51.0		51.0	51.0	51.0
Total Split (%)	36.3%	36.3%		36.3%	36.3%		63.8%	63.8%		63.8%	63.8%	63.8%
Maximum Green (s)	25.0	25.0		25.0	25.0		47.0	47.0		47.0	47.0	47.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 7: 214th Ave E & Sumner Buckley Hwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	310	90	25	175	65	45	525	40	120	895	255
Future Volume (veh/h)	275	310	90	25	175	65	45	525	40	120	895	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	289	326	95	26	184	68	47	553	42	126	942	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	318	438	128	192	410	152	68	610	44	219	1108	939
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.78	0.78	0.78	0.59	0.59	0.59
Sat Flow, veh/h	1137	1403	409	974	1313	485	33	1038	75	829	1885	1598
Grp Volume(v), veh/h	289	0	421	26	0	252	642	0	0	126	942	268
Grp Sat Flow(s),veh/h/ln	1137	0	1812	974	0	1798	1147	0	0	829	1885	1598
Q Serve(g_s), s	16.0	0.0	16.7	2.0	0.0	9.0	14.0	0.0	0.0	0.0	33.0	6.7
Cycle Q Clear(g_c), s	25.0	0.0	16.7	18.6	0.0	9.0	47.0	0.0	0.0	44.6	33.0	6.7
Prop In Lane	1.00		0.23	1.00		0.27	0.07		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	318	0	566	192	0	562	722	0	0	219	1108	939
V/C Ratio(X)	0.91	0.00	0.74	0.14	0.00	0.45	0.89	0.00	0.00	0.58	0.85	0.29
Avail Cap(c_a), veh/h	318	0	566	192	0	562	722	0	0	219	1108	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.93	0.00	0.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	33.7	0.0	24.6	33.0	0.0	22.0	9.2	0.0	0.0	16.0	13.6	8.2
Incr Delay (d2), s/veh	28.6	0.0	5.3	0.3	0.0	0.6	14.4	0.0	0.0	1.0	0.8	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	0.0	7.6	0.5	0.0	3.7	5.4	0.0	0.0	1.9	11.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.3	0.0	29.9	33.3	0.0	22.6	23.6	0.0	0.0	17.0	14.4	8.2
LnGrp LOS	E		C	C		C	C			B	B	A
Approach Vol, veh/h		710			278			642			1336	
Approach Delay, s/veh		43.1			23.6			23.6			13.4	
Approach LOS		D			C			C			B	

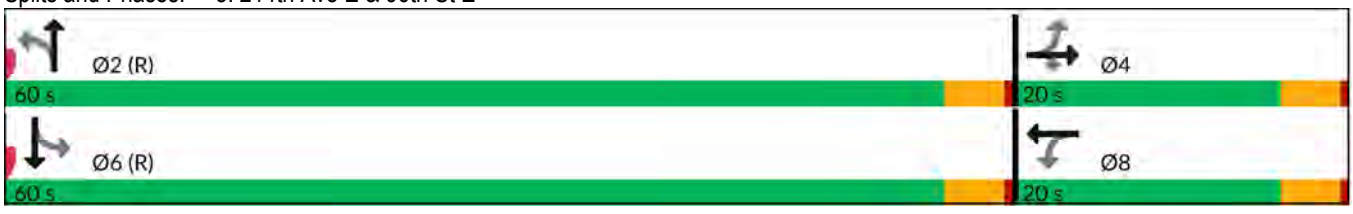
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.0		29.0		51.0		29.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		47.0		25.0		47.0		25.0				
Max Q Clear Time (g_c+I1), s		49.0		27.0		46.6		20.6				
Green Ext Time (p_c), s		0.0		0.0		0.3		0.5				

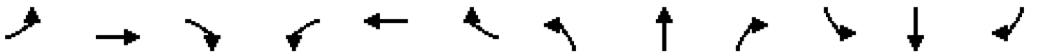
Intersection Summary												
HCM 7th Control Delay, s/veh			23.7									
HCM 7th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	20	50	45	20	20	35	490	55	60	810	25
Future Volume (vph)	35	20	50	45	20	20	35	490	55	60	810	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		261			692			981			2614	
Travel Time (s)		5.9			15.7			19.1			50.9	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0		60.0	60.0		60.0	60.0	
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%		75.0%	75.0%		75.0%	75.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 11 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 214th Ave E & 96th St E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	20	50	45	20	20	35	490	55	60	810	25
Future Volume (veh/h)	35	20	50	45	20	20	35	490	55	60	810	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	36	21	52	47	21	21	36	510	57	62	844	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	159	77	153	121	43	29	606	1339	150	713	1493	46
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.80	0.80	0.80	1.00	1.00	1.00
Sat Flow, veh/h	893	801	1598	543	452	307	642	1666	186	869	1857	57
Grp Volume(v), veh/h	57	0	52	89	0	0	36	0	567	62	0	870
Grp Sat Flow(s),veh/h/ln	1695	0	1598	1302	0	0	642	0	1852	869	0	1914
Q Serve(g_s), s	0.0	0.0	2.4	3.3	0.0	0.0	0.9	0.0	6.9	0.7	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	2.4	5.6	0.0	0.0	0.9	0.0	6.9	7.6	0.0	0.0
Prop In Lane	0.63		1.00	0.53		0.24	1.00		0.10	1.00		0.03
Lane Grp Cap(c), veh/h	236	0	153	194	0	0	606	0	1489	713	0	1539
V/C Ratio(X)	0.24	0.00	0.34	0.46	0.00	0.00	0.06	0.00	0.38	0.09	0.00	0.57
Avail Cap(c_a), veh/h	395	0	320	348	0	0	606	0	1489	713	0	1539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.52	0.00	0.52	0.44	0.00	0.44
Uniform Delay (d), s/veh	33.7	0.0	33.8	35.4	0.0	0.0	1.6	0.0	2.2	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.3	1.7	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.0	1.7	0.0	0.0	0.1	0.0	1.2	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.3	0.0	35.1	37.1	0.0	0.0	1.7	0.0	2.6	0.5	0.0	0.7
LnGrp LOS	C		D	D			A		A	A		A
Approach Vol, veh/h		109			89			603			932	
Approach Delay, s/veh		34.7			37.1			2.5			0.7	
Approach LOS		C			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		68.3		11.7		68.3		11.7				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		56.0		16.0		56.0		16.0				
Max Q Clear Time (g_c+I1), s		8.9		4.4		9.6		7.6				
Green Ext Time (p_c), s		3.0		0.2		5.5		0.1				

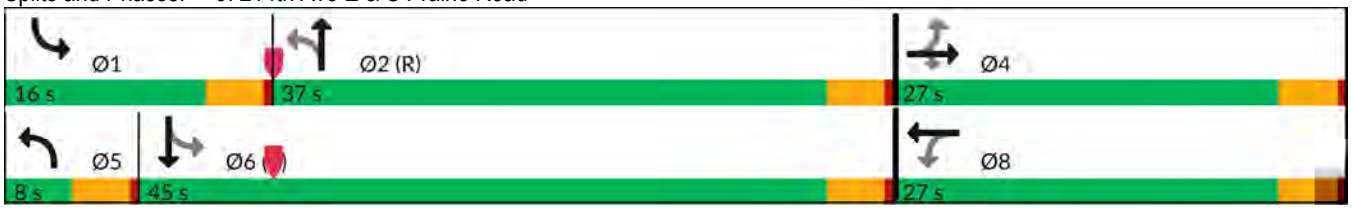
Intersection Summary	
HCM 7th Control Delay, s/veh	5.3
HCM 7th LOS	A

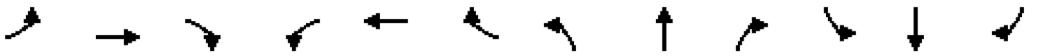
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	435	425	5	255	175	190	370	5	275	705	130
Future Volume (vph)	35	435	425	5	255	175	190	370	5	275	705	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4369			2155			1288			3394	
Travel Time (s)		119.2			58.8			25.1			66.1	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0		8.0	37.0		16.0	45.0	
Total Split (%)	33.8%	33.8%	33.8%	33.8%	33.8%		10.0%	46.3%		20.0%	56.3%	
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0		4.0	33.0		12.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 56 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 9: 214th Ave E & S Prairie Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	435	425	5	255	175	190	370	5	275	705	130
Future Volume (veh/h)	35	435	425	5	255	175	190	370	5	275	705	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	448	438	5	263	180	196	381	5	284	727	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	69	463	459	46	217	146	331	845	11	599	966	
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.46	0.46	0.11	0.51	0.00
Sat Flow, veh/h	71	1610	1598	0	756	508	1795	1856	24	1795	1885	0
Grp Volume(v), veh/h	484	0	438	448	0	0	196	0	386	284	727	0
Grp Sat Flow(s),veh/h/ln	1681	0	1598	1264	0	0	1795	0	1881	1795	1885	0
Q Serve(g_s), s	0.0	0.0	21.5	0.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Cycle Q Clear(g_c), s	23.0	0.0	21.5	23.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Prop In Lane	0.07		1.00	0.01		0.40	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	532	0	459	409	0	0	331	0	856	599	966	
V/C Ratio(X)	0.91	0.00	0.95	1.10	0.00	0.00	0.59	0.00	0.45	0.47	0.75	
Avail Cap(c_a), veh/h	532	0	459	409	0	0	331	0	856	676	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.77	1.00	0.00	0.00	1.00	0.00	1.00	0.41	0.41	0.00
Uniform Delay (d), s/veh	28.0	0.0	28.0	26.9	0.0	0.0	16.8	0.0	14.9	9.6	15.5	0.0
Incr Delay (d2), s/veh	16.2	0.0	25.7	72.9	0.0	0.0	2.8	0.0	1.7	0.2	2.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	11.2	15.3	0.0	0.0	2.0	0.0	4.8	2.1	9.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.2	0.0	53.7	99.8	0.0	0.0	19.6	0.0	16.6	9.9	17.7	0.0
LnGrp LOS	D		D	F			B		B	A	B	
Approach Vol, veh/h		922			448			582			1011	
Approach Delay, s/veh		48.7			99.8			17.6			15.5	
Approach LOS		D			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	40.4		27.0	8.0	45.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	33.0		23.0	4.0	41.0		23.0				
Max Q Clear Time (g_c+I1), s	8.2	13.3		25.0	6.0	26.5		25.0				
Green Ext Time (p_c), s	0.4	1.4		0.0	0.0	3.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	39.0
HCM 7th LOS	D

Notes

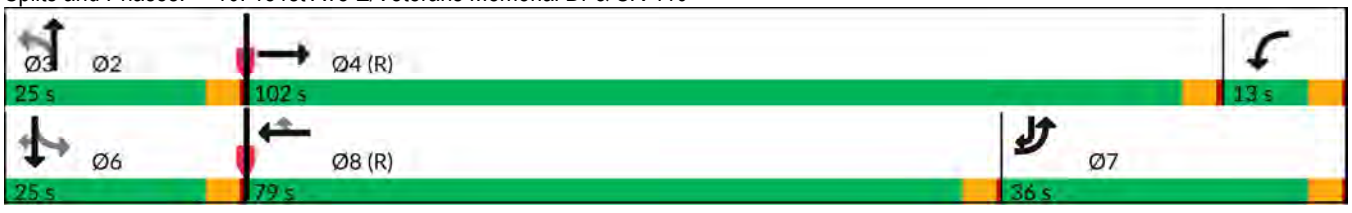
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

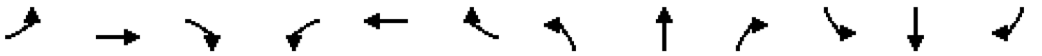
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	1925	55	60	1545	35	55	25	55	65	30	505
Future Volume (vph)	610	1925	55	60	1545	35	55	25	55	65	30	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		0	100		250	0		0	0		50
Storage Lanes	2		0	1		1	0		0	0		2
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1510			1091			468			786	
Travel Time (s)		22.9			16.5			12.8			21.4	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	8.0
Total Split (s)	36.0	102.0		13.0	79.0	79.0	25.0	25.0		25.0	25.0	36.0
Total Split (%)	25.7%	72.9%		9.3%	56.4%	56.4%	17.9%	17.9%		17.9%	17.9%	25.7%
Maximum Green (s)	32.0	98.0		9.0	75.0	75.0	21.0	21.0		21.0	21.0	32.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead						Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		Min	Min	None
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 10: 181st Ave E/Veterans Memorial Dr & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	610	1925	55	60	1545	35	55	25	55	65	30	505
Future Volume (veh/h)	610	1925	55	60	1545	35	55	25	55	65	30	505
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	629	1985	57	62	1593	36	57	26	57	67	31	521
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	796	2489	71	115	1904	849	67	36	46	140	57	1064
Arrive On Green	0.23	0.70	0.70	0.13	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	3483	3556	102	1781	3554	1585	208	239	307	647	382	2812
Grp Volume(v), veh/h	629	995	1047	62	1593	36	140	0	0	98	0	521
Grp Sat Flow(s),veh/h/ln	1742	1791	1867	1781	1777	1585	753	0	0	1029	0	1406
Q Serve(g_s), s	23.8	52.5	53.7	4.6	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.8	52.5	53.7	4.6	0.0	0.0	21.0	0.0	0.0	12.1	0.0	0.0
Prop In Lane	1.00		0.05	1.00		1.00	0.41		0.41	0.68		1.00
Lane Grp Cap(c), veh/h	796	1254	1307	115	1904	849	149	0	0	198	0	1064
V/C Ratio(X)	0.79	0.79	0.80	0.54	0.84	0.04	0.94	0.00	0.00	0.50	0.00	0.49
Avail Cap(c_a), veh/h	796	1254	1307	115	1904	849	149	0	0	198	0	1064
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	0.00	0.00	0.75	0.00	0.75
Uniform Delay (d), s/veh	50.8	14.2	14.3	59.1	0.0	0.0	62.5	0.0	0.0	55.4	0.0	33.2
Incr Delay (d2), s/veh	5.4	5.2	5.2	3.7	3.4	0.1	55.4	0.0	0.0	1.4	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	19.9	21.2	2.1	0.9	0.0	7.4	0.0	0.0	3.4	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.2	19.4	19.6	62.8	3.4	0.1	117.9	0.0	0.0	56.8	0.0	33.4
LnGrp LOS	E	B	B	E	A	A	F			E		C
Approach Vol, veh/h		2671			1691			140			619	
Approach Delay, s/veh		28.2			5.5			117.9			37.1	
Approach LOS		C			A			F			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	13.0	102.0		25.0	36.0	79.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	9.0	98.0		21.0	32.0	75.0				
Max Q Clear Time (g_c+I1), s		23.0	6.6	55.7		14.1	25.8	2.0				
Green Ext Time (p_c), s		0.0	0.0	15.8		1.9	1.6	11.8				

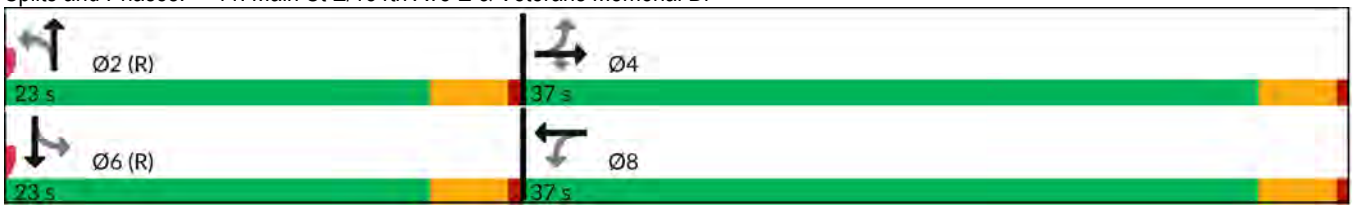
Intersection Summary	
HCM 7th Control Delay, s/veh	24.2
HCM 7th LOS	C

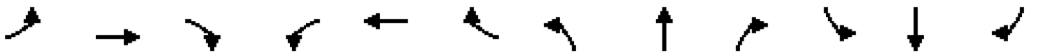
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	590	55	80	480	25	30	30	130	105	205	20
Future Volume (vph)	30	590	55	80	480	25	30	30	130	105	205	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		150	100		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		786			1067			1220			789	
Travel Time (s)		21.4			29.1			33.3			21.5	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%	61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 11: Main St E/184th Ave E & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	590	55	80	480	25	30	30	130	105	205	20
Future Volume (veh/h)	30	590	55	80	480	25	30	30	130	105	205	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	32	621	58	84	505	26	32	32	137	111	216	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	316	836	709	251	788	41	510	132	564	558	716	70
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	880	1885	1598	767	1777	91	1152	312	1334	1226	1691	164
Grp Volume(v), veh/h	32	621	58	84	0	531	32	0	169	111	0	237
Grp Sat Flow(s),veh/h/ln	880	1885	1598	767	0	1869	1152	0	1645	1226	0	1856
Q Serve(g_s), s	1.8	16.4	1.3	6.1	0.0	13.3	1.1	0.0	4.0	3.8	0.0	5.1
Cycle Q Clear(g_c), s	15.0	16.4	1.3	22.5	0.0	13.3	6.2	0.0	4.0	7.8	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.81	1.00		0.09
Lane Grp Cap(c), veh/h	316	836	709	251	0	829	510	0	696	558	0	785
V/C Ratio(X)	0.10	0.74	0.08	0.34	0.00	0.64	0.06	0.00	0.24	0.20	0.00	0.30
Avail Cap(c_a), veh/h	409	1037	879	332	0	1028	510	0	696	558	0	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.50	0.50	0.50	0.63	0.00	0.63	0.97	0.00	0.97	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	13.9	9.6	23.2	0.0	13.0	13.5	0.0	11.1	13.6	0.0	11.4
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.5	0.0	0.6	0.2	0.0	0.8	0.8	0.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.4	0.4	1.1	0.0	5.0	0.3	0.0	1.5	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.9	15.0	9.7	23.7	0.0	13.6	13.7	0.0	11.9	14.4	0.0	12.4
LnGrp LOS	B	B	A	C		B	B		B	B		B
Approach Vol, veh/h		711			615			201			348	
Approach Delay, s/veh		14.7			14.9			12.2			13.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.4		30.6		29.4		30.6				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0		33.0		19.0		33.0				
Max Q Clear Time (g_c+I1), s		8.2		18.4		9.8		24.5				
Green Ext Time (p_c), s		0.6		3.0		1.0		2.1				

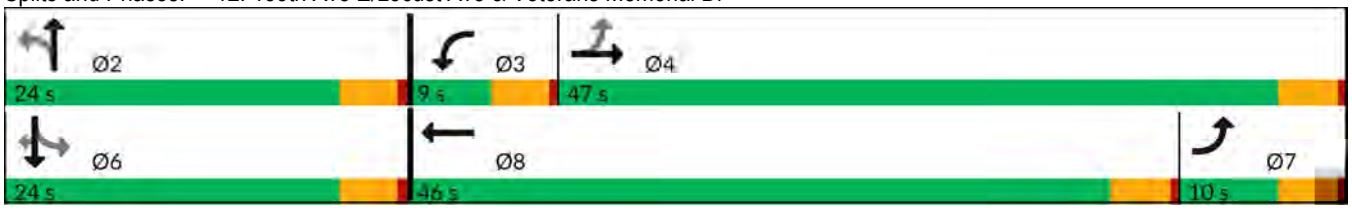
Intersection Summary												
HCM 7th Control Delay, s/veh			14.2									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	660	15	25	460	140	15	10	35	175	10	155
Future Volume (vph)	140	660	15	25	460	140	15	10	35	175	10	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			2%			-3%	
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1067			412			245			4942	
Travel Time (s)		29.1			11.2			6.7			134.8	
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	10.0	47.0		9.0	46.0		24.0	24.0		24.0	24.0	24.0
Total Split (%)	12.5%	58.8%		11.3%	57.5%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	6.0	43.0		5.0	42.0		20.0	20.0		20.0	20.0	20.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			1		4	4		7	7	7

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 58.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: 188th Ave E/Locust Ave & Veterans Memorial Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	660	15	25	460	140	15	10	35	175	10	155
Future Volume (veh/h)	140	660	15	25	460	140	15	10	35	175	10	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1862	1862	1862	1817	1817	1817	1973	1973	1973
Adj Flow Rate, veh/h	147	695	16	26	484	147	16	11	37	184	11	163
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	4	4	4	3	3	3
Cap, veh/h	396	918	21	44	591	180	132	86	155	434	16	325
Arrive On Green	0.09	0.50	0.50	0.02	0.43	0.43	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1795	1835	42	1773	1370	416	139	442	796	1391	83	1672
Grp Volume(v), veh/h	147	0	711	26	0	631	64	0	0	195	0	163
Grp Sat Flow(s),veh/h/ln	1795	0	1878	1773	0	1787	1377	0	0	1474	0	1672
Q Serve(g_s), s	0.0	0.0	13.0	0.6	0.0	13.3	0.0	0.0	0.0	0.1	0.0	3.7
Cycle Q Clear(g_c), s	0.0	0.0	13.0	0.6	0.0	13.3	5.2	0.0	0.0	5.2	0.0	3.7
Prop In Lane	1.00		0.02	1.00		0.23	0.25		0.58	0.94		1.00
Lane Grp Cap(c), veh/h	396	0	939	44	0	771	373	0	0	450	0	325
V/C Ratio(X)	0.37	0.00	0.76	0.59	0.00	0.82	0.17	0.00	0.00	0.43	0.00	0.50
Avail Cap(c_a), veh/h	480	0	1888	207	0	1754	773	0	0	847	0	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	8.6	20.6	0.0	10.7	14.5	0.0	0.0	16.0	0.0	15.4
Incr Delay (d2), s/veh	0.6	0.0	1.3	12.1	0.0	2.2	0.2	0.0	0.0	0.7	0.0	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.1	0.4	0.0	4.5	0.5	0.0	0.0	1.6	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.5	0.0	9.9	32.7	0.0	12.9	14.7	0.0	0.0	16.6	0.0	16.6
LnGrp LOS	B		A	C		B	B			B		B
Approach Vol, veh/h		858			657			64			358	
Approach Delay, s/veh		11.2			13.7			14.7			16.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	12.4	5.1	25.4	12.4	8.0	22.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	5.0	43.0	20.0	6.0	42.0
Max Q Clear Time (g_c+I1), s	7.2	2.6	15.0	7.2	2.0	15.3
Green Ext Time (p_c), s	0.1	0.0	3.7	1.3	0.2	3.2

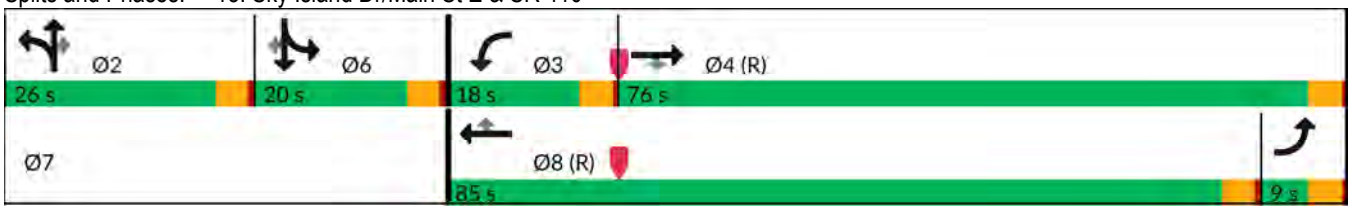
Intersection Summary	
HCM 7th Control Delay, s/veh	13.1
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1885	185	180	1485	95	180	120	250	235	140	10
Future Volume (vph)	15	1885	185	180	1485	95	180	120	250	235	140	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			0%			-2%	
Storage Length (ft)	100		200	100		200	100		100	100		100
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1091			3227			439			1220	
Travel Time (s)		16.5			48.9			12.0			33.3	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	76.0	76.0	18.0	85.0	85.0	26.0	26.0	26.0	20.0	20.0	20.0
Total Split (%)	6.4%	54.3%	54.3%	12.9%	60.7%	60.7%	18.6%	18.6%	18.6%	14.3%	14.3%	14.3%
Maximum Green (s)	5.0	72.0	72.0	14.0	81.0	81.0	22.0	22.0	22.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 139 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 13: Sky Island Dr/Main St E & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1885	185	180	1485	95	180	120	250	235	140	10
Future Volume (veh/h)	15	1885	185	180	1485	95	180	120	250	235	140	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1924	1924	1924	1864	1864	1864	1885	1885	1885	1964	1964	1964
Adj Flow Rate, veh/h	15	1904	187	182	1500	96	182	121	0	237	141	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	245	2238	998	178	2050	914	293	159		324	176	
Arrive On Green	0.27	1.00	1.00	0.10	0.58	0.58	0.08	0.08	0.00	0.09	0.09	0.00
Sat Flow, veh/h	1833	3656	1631	1776	3542	1580	3483	1885	1598	3628	1964	1664
Grp Volume(v), veh/h	15	1904	187	182	1500	96	182	121	0	237	141	0
Grp Sat Flow(s),veh/h/ln	1833	1828	1631	1776	1771	1580	1742	1885	1598	1814	1964	1664
Q Serve(g_s), s	0.9	0.0	0.0	14.0	43.3	3.8	7.1	8.8	0.0	8.9	9.9	0.0
Cycle Q Clear(g_c), s	0.9	0.0	0.0	14.0	43.3	3.8	7.1	8.8	0.0	8.9	9.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	2238	998	178	2050	914	293	159		324	176	
V/C Ratio(X)	0.06	0.85	0.19	1.02	0.73	0.11	0.62	0.76		0.73	0.80	
Avail Cap(c_a), veh/h	245	2238	998	178	2050	914	547	296		415	224	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.54	0.53	0.53	0.53	1.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	44.8	0.0	0.0	63.0	21.6	13.2	62.0	62.8	0.0	62.1	62.5	0.0
Incr Delay (d2), s/veh	0.1	2.4	0.2	55.7	1.3	0.1	2.2	7.4	0.0	4.6	14.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	0.1	8.9	17.0	1.3	3.3	4.6	0.0	4.4	5.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.8	2.4	0.2	118.7	22.8	13.4	64.1	70.2	0.0	66.7	76.9	0.0
LnGrp LOS	D	A	A	F	C	B	E	E		E	E	
Approach Vol, veh/h		2106			1778			303			378	
Approach Delay, s/veh		2.5			32.1			66.5			70.5	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	15.8	18.0	89.7	16.5	22.7	85.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	22.0	14.0	72.0	16.0	5.0	81.0
Max Q Clear Time (g_c+I1), s	10.8	16.0	2.0	11.9	2.9	45.3
Green Ext Time (p_c), s	1.0	0.0	19.0	0.7	0.0	10.2

Intersection Summary	
HCM 7th Control Delay, s/veh	23.9
HCM 7th LOS	C

Notes

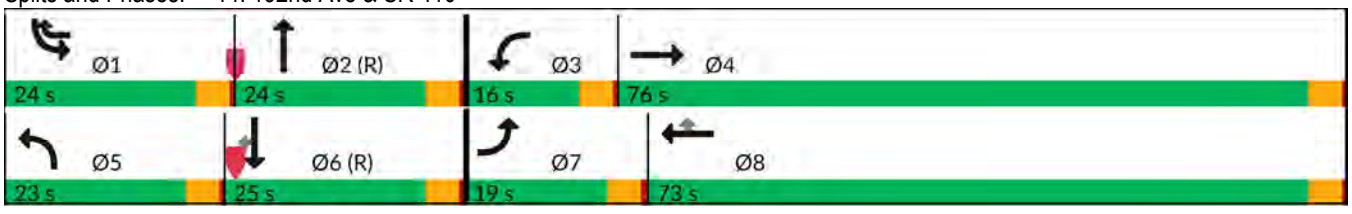
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

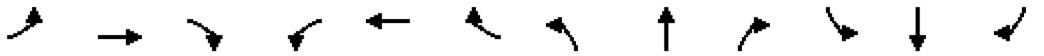
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	2020	185	95	1515	405	145	115	45	360	135	85
Future Volume (vph)	130	2020	185	95	1515	405	145	115	45	360	135	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	300		250	150		300	50		0	100		150
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3227			1056			370			601	
Travel Time (s)		48.9			16.0			8.4			13.7	
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	8.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	19.0	76.0		16.0	73.0	24.0	23.0	24.0		24.0	25.0	25.0
Total Split (%)	13.6%	54.3%		11.4%	52.1%	17.1%	16.4%	17.1%		17.1%	17.9%	17.9%
Maximum Green (s)	15.0	72.0		12.0	69.0	20.0	19.0	20.0		20.0	21.0	21.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0			5.0	5.0
Flash Don't Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		1			1			1			1	1

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 14: 192nd Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	2020	185	95	1515	405	145	115	45	360	135	85
Future Volume (veh/h)	130	2020	185	95	1515	405	145	115	45	360	135	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	133	2061	189	97	1546	413	148	117	46	367	138	87
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	156	2336	212	118	1680	926	173	264	104	422	435	363
Arrive On Green	0.09	0.49	0.49	0.13	0.94	0.94	0.10	0.21	0.21	0.12	0.23	0.23
Sat Flow, veh/h	1773	4741	431	1790	3571	1558	1795	1282	504	3483	1885	1575
Grp Volume(v), veh/h	133	1468	782	97	1546	413	148	0	163	367	138	87
Grp Sat Flow(s),veh/h/ln	1773	1694	1784	1790	1785	1558	1795	0	1786	1742	1885	1575
Q Serve(g_s), s	10.4	54.3	55.5	7.4	26.8	3.6	11.4	0.0	11.2	14.5	8.5	6.3
Cycle Q Clear(g_c), s	10.4	54.3	55.5	7.4	26.8	3.6	11.4	0.0	11.2	14.5	8.5	6.3
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	156	1670	879	118	1680	926	173	0	368	422	435	363
V/C Ratio(X)	0.85	0.88	0.89	0.82	0.92	0.45	0.86	0.00	0.44	0.87	0.32	0.24
Avail Cap(c_a), veh/h	190	1742	917	153	1760	961	244	0	368	498	435	363
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.11	0.38	0.38	0.38	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.9	31.8	32.1	60.0	3.0	1.4	62.3	0.0	48.6	60.4	44.7	43.8
Incr Delay (d2), s/veh	3.6	0.6	1.4	10.2	3.5	0.1	18.4	0.0	3.8	13.6	1.9	1.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	21.1	22.9	3.4	2.4	0.6	6.1	0.0	5.4	7.2	4.3	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.5	32.4	33.4	70.2	6.5	1.5	80.7	0.0	52.4	74.0	46.6	45.4
LnGrp LOS	E	C	C	E	A	A	F		D	E	D	D
Approach Vol, veh/h		2383			2056			311			592	
Approach Delay, s/veh		34.7			8.5			65.9			63.4	
Approach LOS		C			A			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	32.8	13.2	73.0	17.5	36.3	16.4	69.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	20.0	12.0	72.0	19.0	21.0	15.0	69.0
Max Q Clear Time (g_c+I1), s	16.5	13.2	9.4	57.5	13.4	10.5	12.4	28.8
Green Ext Time (p_c), s	0.5	0.4	0.0	11.5	0.2	0.7	0.1	18.4

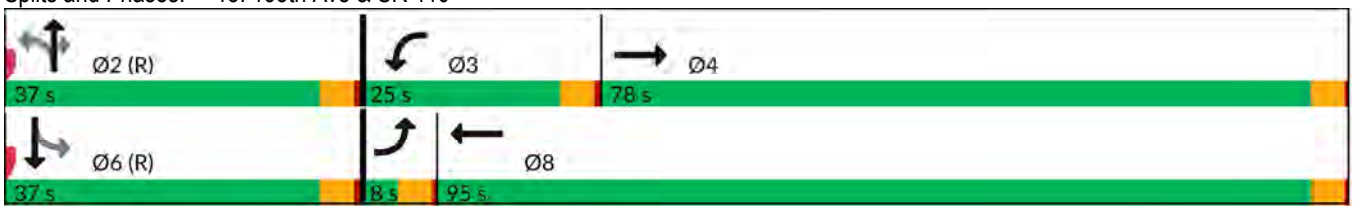
Intersection Summary	
HCM 7th Control Delay, s/veh	29.6
HCM 7th LOS	C

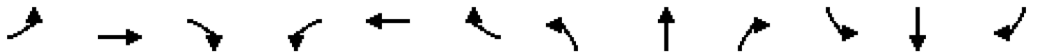
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2400	75	235	2045	30	70	5	290	15	5	25
Future Volume (vph)	10	2400	75	235	2045	30	70	5	290	15	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1230			413			224	
Travel Time (s)		16.0			18.6			9.4			5.1	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	
Total Split (s)	8.0	78.0		25.0	95.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	5.7%	55.7%		17.9%	67.9%		26.4%	26.4%	26.4%	26.4%	26.4%	
Maximum Green (s)	4.0	74.0		21.0	91.0		33.0	33.0	33.0	33.0	33.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		3			1		1	1	1	1	1	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 15: 195th Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2400	75	235	2045	30	70	5	290	15	5	25
Future Volume (veh/h)	10	2400	75	235	2045	30	70	5	290	15	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	10	2474	77	242	2108	31	72	5	299	15	5	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	16	2651	82	264	2385	35	351	23	387	249	63	328
Arrive On Green	0.01	0.52	0.52	0.15	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1773	5061	156	1790	3601	53	1240	94	1596	1066	260	1351
Grp Volume(v), veh/h	10	1651	900	242	1042	1097	77	0	299	15	0	31
Grp Sat Flow(s),veh/h/ln	1773	1694	1829	1790	1785	1868	1333	0	1596	1066	0	1610
Q Serve(g_s), s	0.8	63.4	64.6	18.7	66.3	67.2	6.0	0.0	24.4	1.6	0.0	2.1
Cycle Q Clear(g_c), s	0.8	63.4	64.6	18.7	66.3	67.2	8.1	0.0	24.4	9.7	0.0	2.1
Prop In Lane	1.00		0.09	1.00		0.03	0.94		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	16	1775	958	264	1182	1237	374	0	387	249	0	391
V/C Ratio(X)	0.61	0.93	0.94	0.92	0.88	0.89	0.21	0.00	0.77	0.06	0.00	0.08
Avail Cap(c_a), veh/h	51	1791	967	268	1182	1237	374	0	387	249	0	391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.15	0.15	0.15	0.61	0.61	0.61	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	31.0	31.3	58.8	19.2	19.3	43.9	0.0	49.4	47.2	0.0	40.9
Incr Delay (d2), s/veh	5.5	1.7	3.5	23.5	5.1	5.2	1.2	0.0	13.8	0.5	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	24.5	27.4	10.0	25.6	27.2	2.3	0.0	11.0	0.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.6	32.7	34.7	82.3	24.3	24.5	45.2	0.0	63.2	47.6	0.0	41.3
LnGrp LOS	E	C	C	F	C	C	D		E	D		D
Approach Vol, veh/h		2561			2381			376			46	
Approach Delay, s/veh		33.5			30.3			59.5			43.4	
Approach LOS		C			C			E			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		38.0	24.7	77.3		38.0	5.3	96.7				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	21.0	74.0		33.0	4.0	91.0				
Max Q Clear Time (g_c+I1), s		26.4	20.7	66.6		11.7	2.8	69.2				
Green Ext Time (p_c), s		0.8	0.0	6.7		0.1	0.0	16.4				

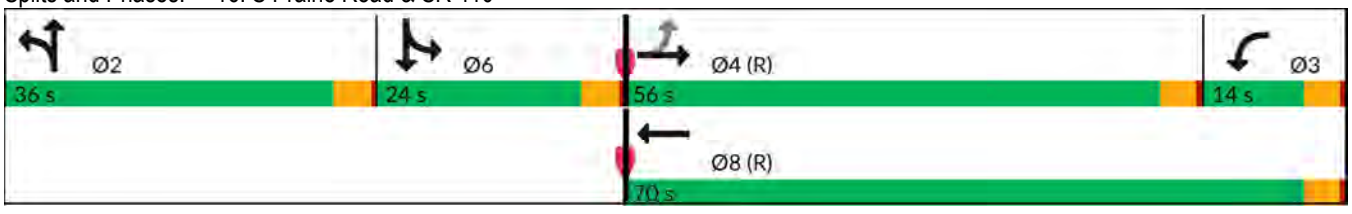
Intersection Summary	
HCM 7th Control Delay, s/veh	34.0
HCM 7th LOS	C

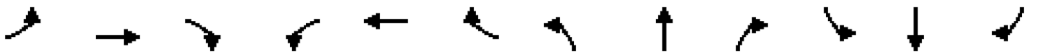
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1295	1365	130	1090	120	1170	180	60	250	230	25
Future Volume (vph)	55	1295	1365	130	1090	120	1170	180	60	250	230	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			3%			0%	
Storage Length (ft)	300		0	350		300	500		750	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1230			1801			998			1675	
Travel Time (s)		18.6			27.3			27.2			45.7	
Turn Type	Perm	NA	Free	Prot	NA		Split	NA		Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4		Free									
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	56.0	56.0		14.0	70.0		36.0	36.0		24.0	24.0	
Total Split (%)	43.1%	43.1%		10.8%	53.8%		27.7%	27.7%		18.5%	18.5%	
Maximum Green (s)	52.0	52.0		10.0	66.0		32.0	32.0		20.0	20.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 65 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 16: S Prairie Road & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1295	1365	130	1090	120	1170	180	60	250	230	25
Future Volume (veh/h)	55	1295	1365	130	1090	120	1170	180	60	250	230	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1964	1964	1964	1832	1832	1832	1856	1856	1856
Adj Flow Rate, veh/h	57	1335	0	134	1124	124	1206	186	0	258	237	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	167	1415		144	2482	274	1211	451		272	252	28
Arrive On Green	0.40	0.40	0.00	0.08	0.51	0.51	0.25	0.25	0.00	0.15	0.15	0.15
Sat Flow, veh/h	443	3537	1578	1870	4888	539	4921	1832	0	1767	1640	180
Grp Volume(v), veh/h	57	1335	0	134	822	426	1206	186	0	258	0	263
Grp Sat Flow(s),veh/h/ln	443	1769	1578	1870	1787	1853	1640	1832	0	1767	0	1820
Q Serve(g_s), s	14.3	47.3	0.0	9.3	19.1	19.1	31.8	11.1	0.0	18.8	0.0	18.6
Cycle Q Clear(g_c), s	33.5	47.3	0.0	9.3	19.1	19.1	31.8	11.1	0.0	18.8	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.00	1.00		0.10
Lane Grp Cap(c), veh/h	167	1415		144	1814	941	1211	451		272	0	280
V/C Ratio(X)	0.34	0.94		0.93	0.45	0.45	1.00	0.41		0.95	0.00	0.94
Avail Cap(c_a), veh/h	167	1415		144	1814	941	1211	451		272	0	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.00	0.87	0.87	0.87	0.77	0.77	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.6	37.6	0.0	59.7	20.5	20.5	48.9	41.1	0.0	54.5	0.0	54.4
Incr Delay (d2), s/veh	1.4	4.5	0.0	50.2	0.7	1.4	21.6	0.5	0.0	40.8	0.0	37.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	20.3	0.0	6.3	7.7	8.2	15.5	5.1	0.0	11.5	0.0	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.0	42.1	0.0	109.9	21.2	21.8	70.5	41.6	0.0	95.3	0.0	92.1
LnGrp LOS	D	D		F	C	C	E	D		F		F
Approach Vol, veh/h		1392			1382			1392			521	
Approach Delay, s/veh		42.1			30.0			66.7			93.7	
Approach LOS		D			C			E			F	

Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		36.0	14.0	56.0		24.0		70.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0	10.0	52.0		20.0		66.0				
Max Q Clear Time (g_c+I1), s		33.8	11.3	49.3		20.8		21.1				
Green Ext Time (p_c), s		0.0	0.0	1.8		0.0		6.4				

Intersection Summary	
HCM 7th Control Delay, s/veh	51.6
HCM 7th LOS	D

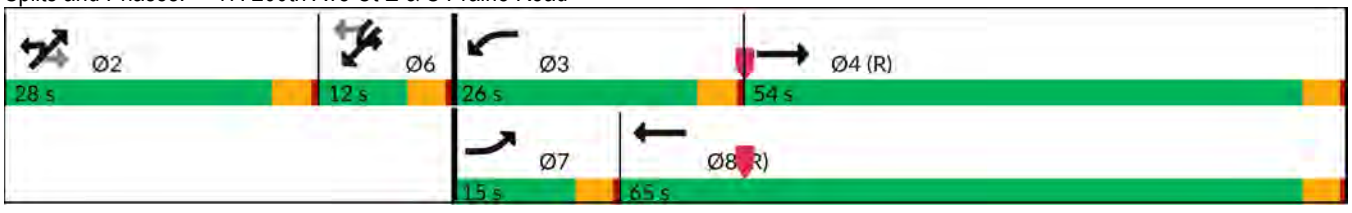
Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	75	805	925	340	510	40	645	70	325	45	75	55
Future Volume (vph)	75	805	925	340	510	40	645	70	325	45	75	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	225		225	350		250	100		0
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			Yes			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		998			1097			486			264	
Travel Time (s)		27.2			29.9			13.3			7.2	
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			Free						2			6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	15.0	54.0		26.0	65.0		28.0	28.0	28.0	12.0	12.0	12.0
Total Split (%)	12.5%	45.0%		21.7%	54.2%		23.3%	23.3%	23.3%	10.0%	10.0%	10.0%
Maximum Green (s)	11.0	50.0		22.0	61.0		24.0	24.0	24.0	8.0	8.0	8.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	

Splits and Phases: 17: 200th Ave Ct E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	75	805	925	340	510	40	645	70	325	45	75	55
Future Volume (veh/h)	75	805	925	340	510	40	645	70	325	45	75	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	77	821	0	347	520	41	709	0	72	46	77	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	99	785		329	1833	144	718	0	320	46	77	105
Arrive On Green	0.05	0.42	0.00	0.18	0.55	0.55	0.20	0.00	0.20	0.07	0.07	0.07
Sat Flow, veh/h	1795	1885	1598	1795	3363	265	3591	0	1598	692	1158	1573
Grp Volume(v), veh/h	77	821	0	347	276	285	709	0	72	123	0	56
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	1837	1795	0	1598	1851	0	1573
Q Serve(g_s), s	5.1	50.0	0.0	22.0	10.0	10.0	23.6	0.0	4.5	8.0	0.0	4.1
Cycle Q Clear(g_c), s	5.1	50.0	0.0	22.0	10.0	10.0	23.6	0.0	4.5	8.0	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	0.37		1.00
Lane Grp Cap(c), veh/h	99	785		329	976	1001	718	0	320	123	0	105
V/C Ratio(X)	0.78	1.05		1.05	0.28	0.28	0.99	0.00	0.23	1.00	0.00	0.53
Avail Cap(c_a), veh/h	165	785		329	976	1001	718	0	320	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.00	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	35.0	0.0	49.0	14.7	14.7	47.8	0.0	40.2	56.0	0.0	54.2
Incr Delay (d2), s/veh	4.2	31.1	0.0	56.2	0.5	0.5	30.3	0.0	0.4	80.0	0.0	5.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	29.4	0.0	15.0	4.2	4.3	13.6	0.0	1.8	6.5	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	66.1	0.0	105.2	15.2	15.2	78.1	0.0	40.6	136.0	0.0	59.4
LnGrp LOS	E	F		F	B	B	E		D	F		E
Approach Vol, veh/h		898			908			781			179	
Approach Delay, s/veh		65.6			49.6			74.7			112.0	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	28.0	26.0	54.0		12.0	10.6	69.4					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	24.0	22.0	50.0		8.0	11.0	61.0					
Max Q Clear Time (g_c+I1), s	25.6	24.0	52.0		10.0	7.1	12.0					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.1	2.5					

Intersection Summary	
HCM 7th Control Delay, s/veh	65.9
HCM 7th LOS	E

Notes

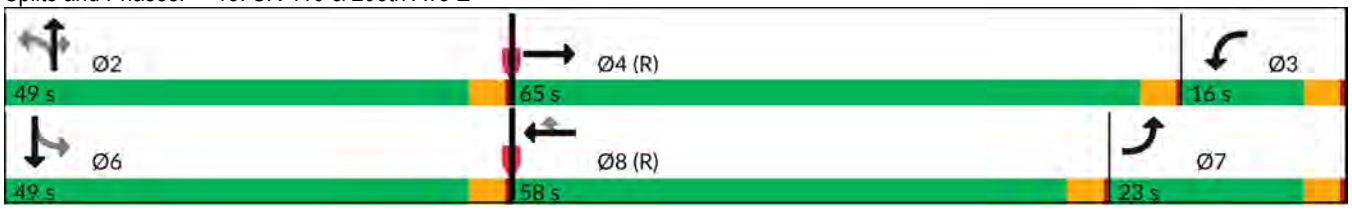
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

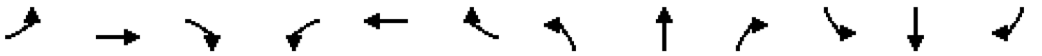
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	1340	245	75	1075	60	250	25	100	60	20	45
Future Volume (vph)	150	1340	245	75	1075	60	250	25	100	60	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		600	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			25	
Link Distance (ft)		1005			1116			428			525	
Travel Time (s)		15.2			16.9			9.7			14.3	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	65.0		16.0	58.0	58.0	49.0	49.0	49.0	49.0	49.0	
Total Split (%)	17.7%	50.0%		12.3%	44.6%	44.6%	37.7%	37.7%	37.7%	37.7%	37.7%	
Maximum Green (s)	19.0	61.0		12.0	54.0	54.0	45.0	45.0	45.0	45.0	45.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min	Min	Min	Min	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		2			2	2	5	5	5	5	5	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 75 (58%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 18: SR 410 & 208th Ave E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1340	245	75	1075	60	250	25	100	60	20	45
Future Volume (veh/h)	150	1340	245	75	1075	60	250	25	100	60	20	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	152	1354	247	76	1086	61	253	25	101	61	20	45
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	262	2052	374	166	1488	662	359	30	551	96	36	51
Arrive On Green	0.15	0.47	0.47	0.18	0.83	0.83	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	4373	797	1795	3582	1594	885	87	1591	158	105	147
Grp Volume(v), veh/h	152	1062	539	76	1086	61	278	0	101	126	0	0
Grp Sat Flow(s),veh/h/ln	1795	1716	1740	1795	1791	1594	972	0	1591	410	0	0
Q Serve(g_s), s	10.3	30.9	31.0	4.9	16.9	0.9	0.0	0.0	5.8	8.6	0.0	0.0
Cycle Q Clear(g_c), s	10.3	30.9	31.0	4.9	16.9	0.9	34.8	0.0	5.8	43.4	0.0	0.0
Prop In Lane	1.00		0.46	1.00		1.00	0.91		1.00	0.48		0.36
Lane Grp Cap(c), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
V/C Ratio(X)	0.58	0.66	0.66	0.46	0.73	0.09	0.71	0.00	0.18	0.69	0.00	0.00
Avail Cap(c_a), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.8	26.5	26.5	50.1	7.9	6.5	39.2	0.0	29.7	50.5	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.7	1.3	1.7	2.7	0.2	6.1	0.0	0.2	10.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	12.1	12.5	2.1	3.6	0.4	8.8	0.0	2.2	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.8	27.2	27.8	51.8	10.6	6.7	45.2	0.0	29.8	60.8	0.0	0.0
LnGrp LOS	D	C	C	D	B	A	D		C	E		
Approach Vol, veh/h		1753			1223			379			126	
Approach Delay, s/veh		29.6			13.0			41.1			60.8	
Approach LOS		C			B			D			E	

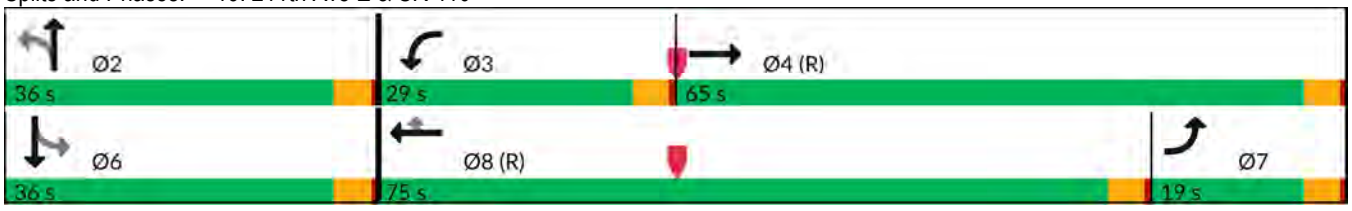
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	49.0	16.0	65.0	49.0	23.0	58.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	45.0	12.0	61.0	45.0	19.0	54.0
Max Q Clear Time (g_c+I1), s	36.8	6.9	33.0	45.4	12.3	18.9
Green Ext Time (p_c), s	1.0	0.1	8.7	0.0	0.2	6.1

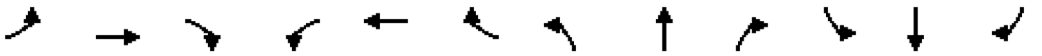
Intersection Summary	
HCM 7th Control Delay, s/veh	26.1
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1345	115	170	985	100	145	10	80	70	15	80
Future Volume (vph)	85	1345	115	170	985	100	145	10	80	70	15	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1116			1084			668			351	
Travel Time (s)		16.9			16.4			18.2			9.6	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Detector Phase	7	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	19.0	65.0		29.0	75.0	75.0	36.0	36.0		36.0	36.0	
Total Split (%)	14.6%	50.0%		22.3%	57.7%	57.7%	27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	15.0	61.0		25.0	71.0	71.0	32.0	32.0		32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	None	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 97 (75%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 19: 211th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1345	115	170	985	100	145	10	80	70	15	80
Future Volume (veh/h)	85	1345	115	170	985	100	145	10	80	70	15	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1416	121	179	1037	105	153	11	84	74	16	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	312	2923	250	205	1956	873	232	35	270	236	49	259
Arrive On Green	0.35	1.00	1.00	0.23	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1795	4829	413	1795	3582	1598	1305	188	1438	1311	262	1376
Grp Volume(v), veh/h	89	1006	531	179	1037	105	153	0	95	74	0	100
Grp Sat Flow(s),veh/h/ln	1795	1716	1811	1795	1791	1598	1305	0	1626	1311	0	1638
Q Serve(g_s), s	4.7	0.0	0.0	12.5	0.0	0.0	14.9	0.0	6.5	6.7	0.0	6.9
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	21.8	0.0	6.5	13.3	0.0	6.9
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.88	1.00		0.84
Lane Grp Cap(c), veh/h	312	2077	1096	205	1956	873	232	0	306	236	0	308
V/C Ratio(X)	0.29	0.48	0.48	0.87	0.53	0.12	0.66	0.00	0.31	0.31	0.00	0.32
Avail Cap(c_a), veh/h	312	2077	1096	345	1956	873	308	0	400	312	0	403
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	49.2	0.0	0.0	55.1	0.0	45.5	51.2	0.0	45.6
Incr Delay (d2), s/veh	0.4	0.7	1.3	8.6	0.7	0.2	3.2	0.0	0.6	0.8	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.2	0.4	5.3	0.2	0.0	5.2	0.0	2.7	2.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.0	0.7	1.3	57.8	0.7	0.2	58.3	0.0	46.1	52.0	0.0	46.3
LnGrp LOS	D	A	A	E	A	A	E		D	D		D
Approach Vol, veh/h		1626			1321			248			174	
Approach Delay, s/veh		2.9			8.4			53.6			48.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.4	18.9	82.7		28.4	26.6	75.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		32.0	25.0	61.0		32.0	15.0	71.0				
Max Q Clear Time (g_c+I1), s		23.8	14.5	2.0		15.3	6.7	2.0				
Green Ext Time (p_c), s		0.6	0.4	8.9		0.6	0.1	6.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	11.1
HCM 7th LOS	B

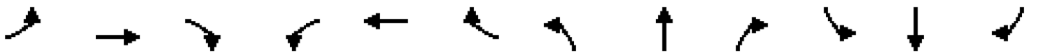
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	895	360	260	720	95	175	195	125	155	480	265
Future Volume (vph)	325	895	360	260	720	95	175	195	125	155	480	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	42.0	42.0	26.0	37.0	37.0	20.0	42.0		20.0	42.0	42.0
Total Split (%)	23.8%	32.3%	32.3%	20.0%	28.5%	28.5%	15.4%	32.3%		15.4%	32.3%	32.3%
Maximum Green (s)	27.0	38.0	38.0	22.0	33.0	33.0	16.0	38.0		16.0	38.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		1	1		0	0	0	0		0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 20: 214th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	325	895	360	260	720	95	175	195	125	155	480	265
Future Volume (veh/h)	325	895	360	260	720	95	175	195	125	155	480	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	339	932	375	271	750	99	182	203	130	161	500	276
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	495	1308	583	295	909	405	243	224	143	255	534	452
Arrive On Green	0.28	0.37	0.37	0.16	0.25	0.25	0.07	0.21	0.21	0.14	0.28	0.28
Sat Flow, veh/h	1795	3582	1595	1795	3582	1594	3483	1074	688	1833	1924	1629
Grp Volume(v), veh/h	339	932	375	271	750	99	182	0	333	161	500	276
Grp Sat Flow(s),veh/h/ln	1795	1791	1595	1795	1791	1594	1742	0	1761	1833	1924	1629
Q Serve(g_s), s	21.9	29.0	25.4	19.3	25.7	6.4	6.7	0.0	24.0	10.8	33.0	10.2
Cycle Q Clear(g_c), s	21.9	29.0	25.4	19.3	25.7	6.4	6.7	0.0	24.0	10.8	33.0	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	495	1308	583	295	909	405	243	0	367	255	534	452
V/C Ratio(X)	0.68	0.71	0.64	0.92	0.82	0.24	0.75	0.00	0.91	0.63	0.94	0.61
Avail Cap(c_a), veh/h	495	1308	583	304	909	405	429	0	515	255	562	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	0.76	0.76	0.76	0.86	0.00	0.86	0.81	0.81	0.81
Uniform Delay (d), s/veh	42.0	35.4	34.2	53.4	45.8	38.6	59.4	0.0	50.3	52.8	45.8	11.6
Incr Delay (d2), s/veh	3.3	2.9	4.7	25.4	6.5	1.1	4.0	0.0	13.9	4.0	19.7	1.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	12.7	10.2	10.6	11.9	2.6	3.1	0.0	11.9	5.2	18.4	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.4	38.3	38.9	78.9	52.3	39.7	63.3	0.0	64.2	56.9	65.5	13.3
LnGrp LOS	D	D	D	E	D	D	E		E	E	E	B
Approach Vol, veh/h		1646			1120			515			937	
Approach Delay, s/veh		39.9			57.6			63.9			48.7	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	31.1	25.4	51.5	13.1	40.1	39.9	37.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	38.0	22.0	38.0	16.0	38.0	27.0	33.0
Max Q Clear Time (g_c+I1), s	12.8	26.0	21.3	31.0	8.7	35.0	23.9	27.7
Green Ext Time (p_c), s	0.2	1.1	0.1	3.5	0.4	1.1	0.4	1.9

Intersection Summary	
HCM 7th Control Delay, s/veh	49.5
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	150		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		6362			2994			1099			1172	
Travel Time (s)		96.4			45.4			21.4			26.6	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8						6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	28.0	28.0	28.0	28.0	28.0		21.0	21.0		21.0	21.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		17.0	17.0		17.0	17.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 52.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 21: 234th Ave E/233rd Ave E & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1826	1826	1826	1885	1885	1885
Adj Flow Rate, veh/h	68	750	224	68	719	36	135	73	10	52	167	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	1	1	1
Cap, veh/h	329	1366	607	298	1335	67	233	211	29	355	235	117
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.13	0.13	0.13	0.20	0.20	0.20
Sat Flow, veh/h	709	3554	1579	581	3471	174	1739	1572	215	1795	1188	591
Grp Volume(v), veh/h	68	750	224	68	371	384	135	0	83	52	0	250
Grp Sat Flow(s),veh/h/ln	709	1777	1579	581	1791	1854	1739	0	1787	1795	0	1779
Q Serve(g_s), s	3.5	7.0	4.3	4.4	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Cycle Q Clear(g_c), s	10.3	7.0	4.3	11.3	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.12	1.00		0.33
Lane Grp Cap(c), veh/h	329	1366	607	298	689	713	233	0	239	355	0	352
V/C Ratio(X)	0.21	0.55	0.37	0.23	0.54	0.54	0.58	0.00	0.35	0.15	0.00	0.71
Avail Cap(c_a), veh/h	458	2016	895	404	1016	1051	699	0	718	721	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	10.2	9.3	14.6	10.1	10.1	17.2	0.0	16.6	14.0	0.0	15.8
Incr Delay (d2), s/veh	0.3	0.3	0.4	0.4	0.7	0.6	2.3	0.0	0.9	0.2	0.0	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.8	1.0	0.5	1.8	1.9	1.2	0.0	0.7	0.4	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.4	10.5	9.7	15.0	10.8	10.7	19.5	0.0	17.5	14.2	0.0	18.5
LnGrp LOS	B	B	A	B	B	B	B		B	B		B
Approach Vol, veh/h		1042			823			218			302	
Approach Delay, s/veh		10.6			11.1			18.7			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.7		20.3		12.4		20.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		24.0		17.0		24.0				
Max Q Clear Time (g_c+I1), s		5.1		12.3		7.6		13.3				
Green Ext Time (p_c), s		0.6		4.0		0.8		2.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.4									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	105	110	135	580	245	105
Future Vol, veh/h	105	110	135	580	245	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	108	113	139	598	253	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1183	307	361	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	210	736	1203	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	736	1203	-	-	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s/v	29.08	1.58	0
HCM LOS	D		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1	SBLn2
Capacity (veh/h)	-	-	1203	-	186	736
HCM Lane V/C Ratio	-	-	0.116	-	0.582	0.154
HCM Control Delay (s/veh)	-	-	8.4	-	48.3	10.8
HCM Lane LOS	-	-	A	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	3.2	0.5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	545	290	70	65	80
Future Vol, veh/h	120	545	290	70	65	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	125	568	302	73	68	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	375	0	-	0	1156	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1189	-	-	-	218	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	436	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	185	706
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	436	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.51	0	21.79
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	325	-	-	-	185	706
HCM Lane V/C Ratio	0.105	-	-	-	0.366	0.118
HCM Control Delay (s/veh)	8.4	0	-	-	35.3	10.8
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	1.6	0.4

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	500	290	30	15	120
Future Vol, veh/h	120	500	290	30	15	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	121	505	293	30	15	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	323	0	-	0	1056	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1237	-	-	-	250	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1237	-	-	-	216	732
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.59	0	12.23
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	348	-	-	-	216	732
HCM Lane V/C Ratio	0.098	-	-	-	0.07	0.166
HCM Control Delay (s/veh)	8.2	0	-	-	23	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Future Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	1	1	1
Mvmt Flow	5	0	5	0	0	5	11	95	5	16	147	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	303	308	155	297	313	97	163	0	0	100	0	0
Stage 1	187	187	-	118	118	-	-	-	-	-	-	-
Stage 2	116	121	-	179	195	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	652	608	893	657	604	962	1409	-	-	1499	-	-
Stage 1	817	747	-	888	800	-	-	-	-	-	-	-
Stage 2	891	798	-	825	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	636	596	893	640	592	962	1409	-	-	1499	-	-
Mov Cap-2 Maneuver	636	596	-	640	592	-	-	-	-	-	-	-
Stage 1	808	739	-	881	793	-	-	-	-	-	-	-
Stage 2	879	791	-	811	733	-	-	-	-	-	-	-

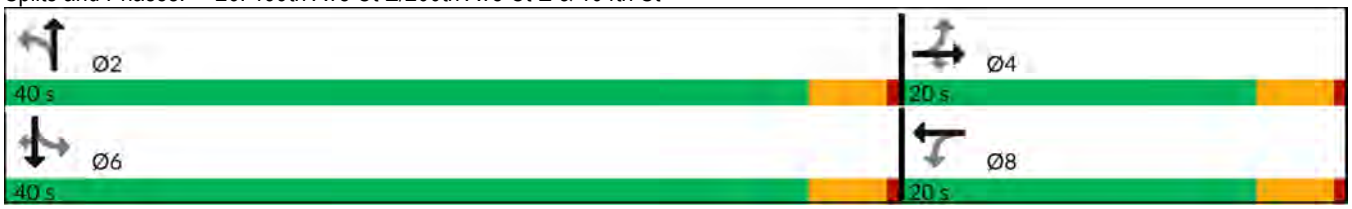
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.92	8.76	0.72	0.66
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	170	-	-	743	962	156	-	-
HCM Lane V/C Ratio	0.007	-	-	0.014	0.005	0.011	-	-
HCM Control Delay (s/veh)	7.6	0	-	9.9	8.8	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		100
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1430			519			1065			1383	
Travel Time (s)		32.5			11.8			29.0			37.7	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0		40.0	40.0		40.0	40.0	40.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	66.7%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 59.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 26: 199th Ave Ct E/200th Ave Ct E & 104th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	226	1	21	5	1	5	21	826	5	5	1042	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	386	1	416	112	43	54	169	1127	7	314	1126	954
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1010	4	1598	84	166	208	440	1872	11	660	1870	1585
Grp Volume(v), veh/h	227	0	21	11	0	0	21	0	831	5	1042	226
Grp Sat Flow(s),veh/h/ln	1014	0	1598	458	0	0	440	0	1883	660	1870	1585
Q Serve(g_s), s	0.0	0.0	0.6	0.1	0.0	0.0	2.6	0.0	18.3	0.3	29.1	3.8
Cycle Q Clear(g_c), s	13.3	0.0	0.6	13.4	0.0	0.0	31.7	0.0	18.3	18.6	29.1	3.8
Prop In Lane	1.00		1.00	0.45		0.45	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	416	209	0	0	169	0	1134	314	1126	954
V/C Ratio(X)	0.59	0.00	0.05	0.05	0.00	0.00	0.12	0.00	0.73	0.02	0.93	0.24
Avail Cap(c_a), veh/h	409	0	440	232	0	0	176	0	1166	325	1158	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	16.1	17.0	0.0	0.0	24.6	0.0	8.2	14.8	10.4	5.4
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	2.3	0.0	12.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.2	0.1	0.0	0.0	0.3	0.0	6.3	0.0	12.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.8	0.0	16.2	17.1	0.0	0.0	24.9	0.0	10.6	14.9	22.6	5.5
LnGrp LOS	C		B	B			C		B	B	C	A
Approach Vol, veh/h		248			11			852			1273	
Approach Delay, s/veh		22.2			17.1			10.9			19.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	39.0	19.2	39.0	19.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	36.0	16.0	36.0	16.0
Max Q Clear Time (g_c+I1), s	33.7	15.3	31.1	15.4
Green Ext Time (p_c), s	1.4	0.1	3.5	0.0

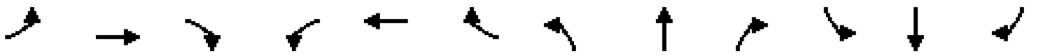
Intersection Summary	
HCM 7th Control Delay, s/veh	16.7
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		5428			4422			1245			2683	
Travel Time (s)		105.7			86.1			24.3			52.3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0		36.0	36.0	36.0
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	60.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		32.0	32.0		32.0	32.0	32.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 46.7	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 27: 214th Ave E & 120th St E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	274	121	79	16	63	42	37	253	16	116	474	368
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	563	347	226	483	343	229	142	631	37	228	668	726
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1289	1056	690	1192	1045	697	72	1388	81	244	1469	1598
Grp Volume(v), veh/h	274	0	200	16	0	105	306	0	0	590	0	368
Grp Sat Flow(s),veh/h/ln	1289	0	1746	1192	0	1742	1540	0	0	1713	0	1598
Q Serve(g_s), s	7.1	0.0	3.2	0.4	0.0	1.6	0.4	0.0	0.0	0.0	0.0	6.0
Cycle Q Clear(g_c), s	8.7	0.0	3.2	3.6	0.0	1.6	10.7	0.0	0.0	10.2	0.0	6.0
Prop In Lane	1.00		0.40	1.00		0.40	0.12		0.05	0.20		1.00
Lane Grp Cap(c), veh/h	563	0	573	483	0	572	810	0	0	896	0	726
V/C Ratio(X)	0.49	0.00	0.35	0.03	0.00	0.18	0.38	0.00	0.00	0.66	0.00	0.51
Avail Cap(c_a), veh/h	840	0	948	739	0	946	1442	0	0	1584	0	1388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	9.4	10.7	0.0	8.8	6.6	0.0	0.0	8.1	0.0	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.0	0.0	0.2	0.3	0.0	0.0	0.8	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.9	0.1	0.0	0.4	1.0	0.0	0.0	2.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.7	10.8	0.0	9.0	6.9	0.0	0.0	9.0	0.0	7.7
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		474			121			306			958	
Approach Delay, s/veh		11.4			9.2			6.9			8.5	
Approach LOS		B			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.7		16.1		20.7		16.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0		20.0		32.0		20.0				
Max Q Clear Time (g_c+I1), s		12.7		10.7		12.2		5.6				
Green Ext Time (p_c), s		1.3		1.4		4.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh		9.0										
HCM 7th LOS		A										

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	295	165	70	215	155	75
Future Vol, veh/h	295	165	70	215	155	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	311	174	74	226	163	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	484	0	771	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1084	-	370	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1084	-	341	654
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.1	26.36
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	-	-	442	-
HCM Lane V/C Ratio	0.599	-	-	0.068	-
HCM Control Delay (s/veh)	26.4	-	-	8.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	605	450	40	45	190
Future Vol, veh/h	185	605	450	40	45	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	195	637	474	42	47	200

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	516	0	-	0	1521	495
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	1026	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1055	-	-	-	130	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	346	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1055	-	-	-	93	575
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	346	-

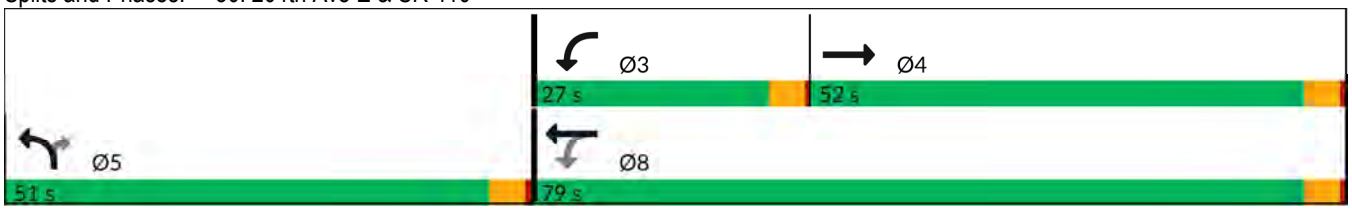
Approach	EB	WB	SB
HCM Control Delay, s/v	2.15	0	61.59
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	422	-	-	-	289
HCM Lane V/C Ratio	0.185	-	-	-	0.856
HCM Control Delay (s/veh)	9.2	0	-	-	61.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1280	390	325	1100	230	460
Future Volume (vph)	1280	390	325	1100	230	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	0%	
Storage Length (ft)		0	350		75	0
Storage Lanes		0	1		2	1
Taper Length (ft)			25		25	
Right Turn on Red		No				No
Link Speed (mph)	45			45	30	
Link Distance (ft)	1801			1005	1430	
Travel Time (s)	27.3			15.2	32.5	
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	5	
Permitted Phases			8			5
Detector Phase	4		3	8	5	5
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	8.0	8.0
Total Split (s)	52.0		27.0	79.0	51.0	51.0
Total Split (%)	40.0%		20.8%	60.8%	39.2%	39.2%
Maximum Green (s)	48.0		23.0	75.0	47.0	47.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		None	Min	None	None
Walk Time (s)			5.0	5.0		
Flash Dont Walk (s)			11.0	11.0		
Pedestrian Calls (#/hr)			0	0		

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 30: 204th Ave E & SR 410



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1280	390	325	1100	230	460
Future Volume (veh/h)	1280	390	325	1100	230	460
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1949	1949	1870	1870
Adj Flow Rate, veh/h	1320	402	335	1134	237	474
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	1394	423	356	2001	1376	631
Arrive On Green	0.71	0.71	0.31	1.00	0.40	0.40
Sat Flow, veh/h	4084	1188	1856	3800	3456	1585
Grp Volume(v), veh/h	1157	565	335	1134	237	474
Grp Sat Flow(s),veh/h/ln	1716	1671	1856	1851	1728	1585
Q Serve(g_s), s	38.7	39.2	17.6	0.0	5.8	33.4
Cycle Q Clear(g_c), s	38.7	39.2	17.6	0.0	5.8	33.4
Prop In Lane		0.71	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1222	595	356	2001	1376	631
V/C Ratio(X)	0.95	0.95	0.94	0.57	0.17	0.75
Avail Cap(c_a), veh/h	1267	617	400	2136	1376	631
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.78	0.78	0.68	0.68
Uniform Delay (d), s/veh	17.6	17.7	29.0	0.0	25.3	33.6
Incr Delay (d2), s/veh	4.2	8.1	24.3	0.2	0.0	3.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	7.2	10.6	0.1	2.4	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	21.8	25.8	53.2	0.2	25.3	37.1
LnGrp LOS	C	C	D	A	C	D
Approach Vol, veh/h	1722			1469	711	
Approach Delay, s/veh	23.1			12.3	33.1	
Approach LOS	C			B	C	

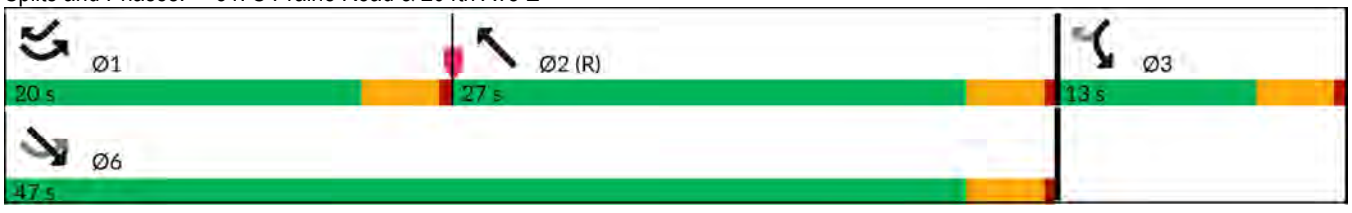
Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	55.8	24.0	50.3	74.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	47.0	23.0	48.0	75.0
Max Q Clear Time (g_c+I1), s	35.4	19.6	41.2	2.0
Green Ext Time (p_c), s	2.2	0.3	5.1	10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	20.9
HCM 7th LOS	C

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	365	725	450	135	200	340
Future Volume (vph)	365	725	450	135	200	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	130	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		25	25		30	
Link Distance (ft)		1097	4369		1430	
Travel Time (s)		29.9	119.2		32.5	
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6					3
Detector Phase	1	6	2		3	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		8.0	20.0
Total Split (s)	20.0	47.0	27.0		13.0	20.0
Total Split (%)	33.3%	78.3%	45.0%		21.7%	33.3%
Maximum Green (s)	16.0	43.0	23.0		9.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	C-Min		None	Min
Walk Time (s)	5.0	5.0	5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	3	0	1			3

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NWT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 31: S Prairie Road & 204th Ave E





Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	365	725	450	135	200	340
Future Volume (veh/h)	365	725	450	135	200	340
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	376	747	464	139	206	351
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	585	1351	722	216	269	449
Arrive On Green	0.13	0.72	0.52	0.52	0.15	0.15
Sat Flow, veh/h	1795	1885	1392	417	1795	1598
Grp Volume(v), veh/h	376	747	0	603	206	351
Grp Sat Flow(s),veh/h/ln	1795	1885	0	1810	1795	1598
Q Serve(g_s), s	5.0	11.2	0.0	14.4	6.6	9.0
Cycle Q Clear(g_c), s	5.0	11.2	0.0	14.4	6.6	9.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	585	1351	0	939	269	449
V/C Ratio(X)	0.64	0.55	0.00	0.64	0.76	0.78
Avail Cap(c_a), veh/h	828	1351	0	939	269	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	0.00	0.23	0.27	0.27
Uniform Delay (d), s/veh	7.9	4.0	0.0	10.4	24.5	19.9
Incr Delay (d2), s/veh	0.3	0.1	0.0	0.8	3.6	2.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.6	0.0	5.0	2.9	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.3	4.1	0.0	11.2	28.1	22.3
LnGrp LOS	A	A		B	C	C
Approach Vol, veh/h		1123	603		557	
Approach Delay, s/veh		5.5	11.2		24.5	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.9	35.1				47.0	13.0
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	16.0	23.0				43.0	9.0
Max Q Clear Time (g_c+I1), s	7.0	16.4				13.2	11.0
Green Ext Time (p_c), s	0.8	2.3				6.5	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	11.6
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	25	205	105	60	395
Future Vol, veh/h	100	25	205	105	60	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	105	26	216	111	63	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	271	0	0	326	0
Stage 1	271	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	349	770	-	-	1233	-
Stage 1	777	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	770	-	-	1233	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	20.1	0	1.07
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	237	-
HCM Lane V/C Ratio	-	-	0.357	0.051	-
HCM Control Delay (s/veh)	-	-	20.1	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-

Intersection	
Int Delay, s/veh	3.4

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	80	535	1105	20	15	75
Future Vol, veh/h	80	535	1105	20	15	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	84	563	1163	21	16	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1184	0	-	0	1905	1174
Stage 1	-	-	-	-	1174	-
Stage 2	-	-	-	-	732	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	593	-	-	-	75	233
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	593	-	-	-	59	233
Mov Cap-2 Maneuver	-	-	-	-	59	-
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	474	-

Approach	NB	SB	SE
HCM Control Delay, s/v	1.57	0	58.07
HCM LOS			F

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	234	-	157	-	-
HCM Lane V/C Ratio	0.142	-	0.605	-	-
HCM Control Delay (s/veh)	12.1	0	58.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	3.2	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	180	35	140	435
Future Vol, veh/h	20	40	180	35	140	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	42	188	36	146	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	951	206	0	0	224	0
Stage 1	206	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	290	837	-	-	1351	-
Stage 1	831	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	837	-	-	1351	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	403	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.9	0	1.94
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	438	-
HCM Lane V/C Ratio	-	-	0.134	0.108	-
HCM Control Delay (s/veh)	-	-	13.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	205	45	100	135
Future Vol, veh/h	10	20	205	45	100	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	4	4	2	2	1	1
Mvmt Flow	11	21	216	47	105	142
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay, s/veh	7.9	8.9	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	43%
Vol Thru, %	82%	0%	57%
Vol Right, %	18%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	30	235
LT Vol	0	10	100
Through Vol	205	0	135
RT Vol	45	20	0
Lane Flow Rate	263	32	247
Geometry Grp	1	1	1
Degree of Util (X)	0.297	0.041	0.292
Departure Headway (Hd)	4.067	4.723	4.255
Convergence, Y/N	Yes	Yes	Yes
Cap	871	763	834
Service Time	2.155	2.723	2.336
HCM Lane V/C Ratio	0.302	0.042	0.296
HCM Control Delay, s/veh	8.9	7.9	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.1	1.2

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	15	105	30	35	335
Future Vol, veh/h	45	15	105	30	35	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	16	111	32	37	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	126	0	0	142	0
Stage 1	126	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	494	924	-	-	1441	-
Stage 1	899	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	479	924	-	-	1441	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.48	0	0.72
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	170	-
HCM Lane V/C Ratio	-	-	0.116	0.026	-
HCM Control Delay (s/veh)	-	-	12.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	5.5

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	55	175	150	770	50	495
Future Vol, veh/h	55	175	150	770	50	495
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	57	180	155	794	52	510

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1410	307	562	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	1103	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	153	736	1014	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	736	1014	-	-	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	319	-	-	-	-	-

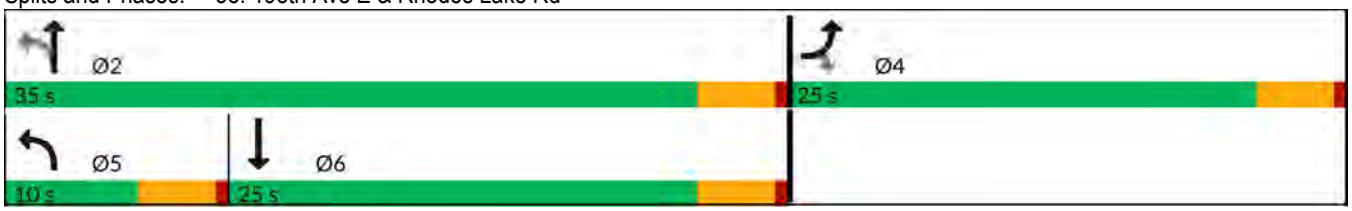
Approach	SB	NE	SW
HCM Control Delay, s/v	34.84	1.5	0
HCM LOS	D		

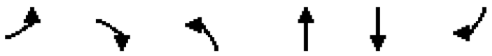
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	1014	-	348	-	-
HCM Lane V/C Ratio	0.152	-	0.682	-	-
HCM Control Delay (s/veh)	9.2	-	34.8	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.5	-	4.8	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	450	255	725	890	70
Future Volume (vph)	115	450	255	725	890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175	0	325			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	30			30	30	
Link Distance (ft)	1957			1413	624	
Travel Time (s)	44.5			32.1	14.2	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	25.0	25.0	10.0	35.0	25.0	
Total Split (%)	41.7%	41.7%	16.7%	58.3%	41.7%	
Maximum Green (s)	21.0	21.0	6.0	31.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 38: 198th Ave E & Rhodes Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	450	255	725	890	70
Future Volume (veh/h)	115	450	255	725	890	70
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	121	474	268	763	937	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	597	532	373	977	1145	90
Arrive On Green	0.33	0.33	0.11	0.52	0.34	0.34
Sat Flow, veh/h	1795	1598	1781	1870	3457	266
Grp Volume(v), veh/h	121	474	268	763	499	512
Grp Sat Flow(s),veh/h/ln	1795	1598	1781	1870	1791	1837
Q Serve(g_s), s	2.7	15.5	5.0	18.1	14.0	14.0
Cycle Q Clear(g_c), s	2.7	15.5	5.0	18.1	14.0	14.0
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	597	532	373	977	610	626
V/C Ratio(X)	0.20	0.89	0.72	0.78	0.82	0.82
Avail Cap(c_a), veh/h	684	609	373	1052	683	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	17.4	12.1	10.6	16.6	16.6
Incr Delay (d2), s/veh	0.2	14.1	6.6	3.6	7.1	6.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.1	2.2	6.7	6.2	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.3	31.6	18.7	14.2	23.7	23.5
LnGrp LOS	B	C	B	B	C	C
Approach Vol, veh/h	595			1031	1011	
Approach Delay, s/veh	27.8			15.4	23.6	
Approach LOS	C			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.8		22.3	10.0	22.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0		21.0	6.0	21.0
Max Q Clear Time (g_c+I1), s		20.1		17.5	7.0	16.0
Green Ext Time (p_c), s		4.1		0.8	0.0	2.7

Intersection Summary	
HCM 7th Control Delay, s/veh	21.3
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	130	2565	2070	80	0	125
Future Vol, veh/h	130	2565	2070	80	0	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	300	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	134	2644	2134	82	0	129

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2216	0	-	0	-	1067
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	-	-	3.31
Pot Cap-1 Maneuver	236	-	-	-	0	220
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	236	-	-	-	-	220
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SW
HCM Control Delay, s/v	1.86	0	42.35
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	236	-	-	-	220
HCM Lane V/C Ratio	0.568	-	-	-	0.587
HCM Control Delay (s/veh)	38.6	-	-	-	42.3
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	3.2	-	-	-	3.3

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	130	35	10	405	40	10
Future Vol, veh/h	130	35	10	405	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	137	37	11	426	42	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	174	0	603	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	447	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1403	-	464	893
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	459	893
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	640	-

Approach	NB	SB	SW
HCM Control Delay, s/v	0	0.18	12.89
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	43	-	509
HCM Lane V/C Ratio	-	-	0.008	-	0.103
HCM Control Delay (s/veh)	-	-	7.6	0	12.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	39.2

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	675	155	155	465	90	145
Future Vol, veh/h	675	155	155	465	90	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	696	160	160	479	93	149

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	856	0	1575	776
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	789	-	122	399
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	789	-	~ 88	399
Mov Cap-2 Maneuver	-	-	-	-	~ 88	-
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	NE
HCM Control Delay, s/v	0	2.68	274.24
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	-	-	450	-
HCM Lane V/C Ratio	1.429	-	-	0.203	-
HCM Control Delay (s/veh)	274.2	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	15.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix B

Intersection Operations Analysis – 2049 Land Use Alternative 1

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	25	200	30	60	230
Future Vol, veh/h	5	25	200	30	60	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	26	211	32	63	242

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	226	0	0	242	0
Stage 1	226	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	469	816	-	-	1330	-
Stage 1	814	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	816	-	-	1330	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.26	0	1.62
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	715	372	-
HCM Lane V/C Ratio	-	-	0.044	0.047	-
HCM Control Delay (s/veh)	-	-	10.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Future Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	53	100	79	21	5	37	42	58	1	37	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8	8.4	8.2	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	3%	75%	2%
Vol Thru, %	31%	33%	20%	85%
Vol Right, %	42%	63%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	150	100	41
LT Vol	35	5	75	1
Through Vol	40	50	20	35
RT Vol	55	95	5	5
Lane Flow Rate	137	158	105	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.179	0.135	0.055
Departure Headway (Hd)	4.348	4.076	4.611	4.586
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	883	779	782
Service Time	2.369	2.093	2.63	2.611
HCM Lane V/C Ratio	0.166	0.179	0.135	0.055
HCM Control Delay, s/veh	8.2	8	8.4	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.5	0.2

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	40	195	400	65
Future Vol, veh/h	20	40	40	195	400	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	21	42	42	205	421	68
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.7	9.8	13.1
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	17%	33%	0%
Vol Thru, %	83%	0%	86%
Vol Right, %	0%	67%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	60	465
LT Vol	40	20	0
Through Vol	195	0	400
RT Vol	0	40	65
Lane Flow Rate	247	63	489
Geometry Grp	1	1	1
Degree of Util (X)	0.317	0.091	0.582
Departure Headway (Hd)	4.607	5.159	4.28
Convergence, Y/N	Yes	Yes	Yes
Cap	779	692	842
Service Time	2.638	3.209	2.306
HCM Lane V/C Ratio	0.317	0.091	0.581
HCM Control Delay, s/veh	9.8	8.7	13.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.4	0.3	3.8

Intersection	
Int Delay, s/veh	35.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	100	85	90	235	365	150
Future Vol, veh/h	100	85	90	235	365	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	105	89	95	247	384	158

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	342	0	-	0	518	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	300	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1223	-	-	-	517	821
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1223	-	-	-	471	821
Mov Cap-2 Maneuver	-	-	-	-	471	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s/v	4.44	0	68.84
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	973	-	-	-	537
HCM Lane V/C Ratio	0.086	-	-	-	1.009
HCM Control Delay (s/veh)	8.2	0	-	-	68.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	14.6

Intersection	
Int Delay, s/veh	62.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	5	5	5	65	1	60	20	570	100	165	1010	5
Future Vol, veh/h	5	5	5	65	1	60	20	570	100	165	1010	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	3	3	3	1	1	1	1	1	1
Mvmt Flow	5	5	5	68	1	63	21	594	104	172	1052	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2034	2138	1055	2086	2089	646	1057	0	0	698	0	0
Stage 1	1398	1398	-	688	688	-	-	-	-	-	-	-
Stage 2	636	740	-	1398	1401	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	40	47	266	~ 38	52	470	662	-	-	903	-	-
Stage 1	168	201	-	435	446	-	-	-	-	-	-	-
Stage 2	455	413	-	173	206	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	37	266	~ 26	41	470	662	-	-	903	-	-
Mov Cap-2 Maneuver	27	37	-	~ 26	41	-	-	-	-	-	-	-
Stage 1	136	162	-	421	432	-	-	-	-	-	-	-
Stage 2	381	400	-	133	167	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/veh	$ 26.55	$ 968.97	0.31	1.39
HCM LOS	F	F		

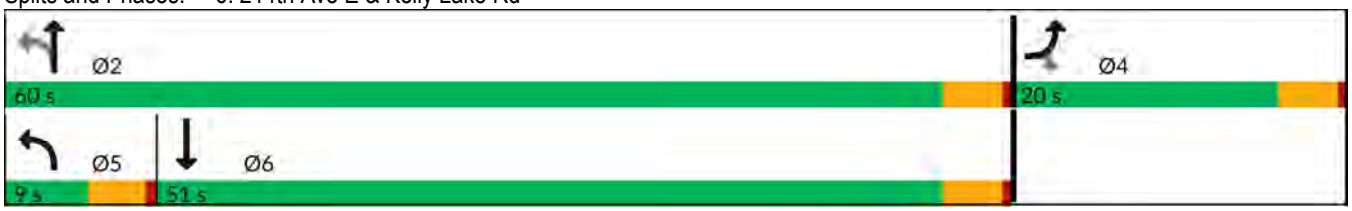
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	662	-	-	44	48	903	-	-
HCM Lane V/C Ratio	0.031	-	-	0.355	2.743	0.19	-	-
HCM Control Delay (s/veh)	10.6	-	-	126.6	$ 969	9.9	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	14	0.7	-	-

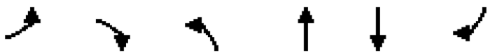
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	295	205	625	1010	80
Future Volume (vph)	70	295	205	625	1010	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			35	35	
Link Distance (ft)	2403			1356	1630	
Travel Time (s)	65.5			26.4	31.8	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	9.0	60.0	51.0	
Total Split (%)	25.0%	25.0%	11.3%	75.0%	63.8%	
Maximum Green (s)	16.0	16.0	5.0	56.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 6: 214th Ave E & Kelly Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	295	205	625	1010	80
Future Volume (veh/h)	70	295	205	625	1010	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	74	311	216	658	1063	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	356	317	202	1320	1005	79
Arrive On Green	0.20	0.20	0.06	0.70	0.59	0.59
Sat Flow, veh/h	1781	1585	1795	1885	1711	135
Grp Volume(v), veh/h	74	311	216	658	0	1147
Grp Sat Flow(s),veh/h/ln	1781	1585	1795	1885	0	1846
Q Serve(g_s), s	2.8	15.6	5.0	12.9	0.0	47.0
Cycle Q Clear(g_c), s	2.8	15.6	5.0	12.9	0.0	47.0
Prop In Lane	1.00	1.00	1.00			0.07
Lane Grp Cap(c), veh/h	356	317	202	1320	0	1085
V/C Ratio(X)	0.21	0.98	1.07	0.50	0.00	1.06
Avail Cap(c_a), veh/h	356	317	202	1320	0	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.7	31.8	24.8	5.5	0.0	16.5
Incr Delay (d2), s/veh	0.3	45.2	82.5	0.3	0.0	43.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	16.4	6.8	3.7	0.0	29.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	27.0	77.1	107.3	5.8	0.0	60.4
LnGrp LOS	C	E	F	A		F
Approach Vol, veh/h	385			874	1147	
Approach Delay, s/veh	67.5			30.9	60.4	
Approach LOS	E			C	E	

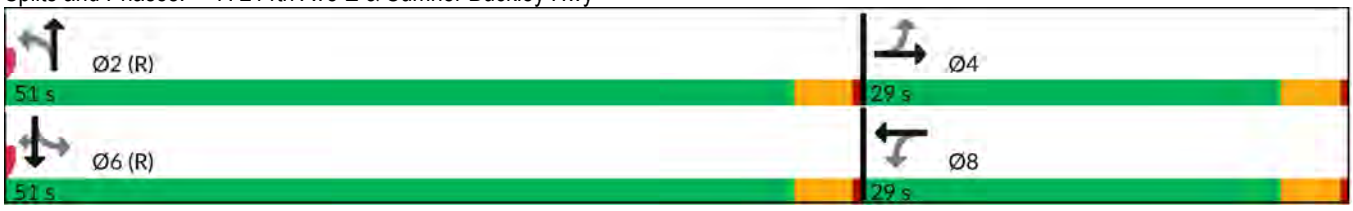
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.0		20.0	9.0	51.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		56.0		16.0	5.0	47.0
Max Q Clear Time (g_c+I1), s		14.9		17.6	7.0	49.0
Green Ext Time (p_c), s		3.1		0.0	0.0	0.0

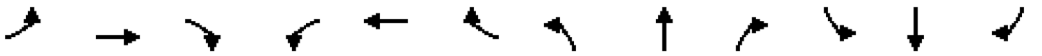
Intersection Summary	
HCM 7th Control Delay, s/veh	50.8
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	310	90	25	175	65	45	530	40	120	920	255
Future Volume (vph)	280	310	90	25	175	65	45	530	40	120	920	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		2632			1239			2614			1356	
Travel Time (s)		59.8			28.2			50.9			26.4	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	29.0	29.0		29.0	29.0		51.0	51.0		51.0	51.0	51.0
Total Split (%)	36.3%	36.3%		36.3%	36.3%		63.8%	63.8%		63.8%	63.8%	63.8%
Maximum Green (s)	25.0	25.0		25.0	25.0		47.0	47.0		47.0	47.0	47.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: 214th Ave E & Sumner Buckley Hwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	310	90	25	175	65	45	530	40	120	920	255
Future Volume (veh/h)	280	310	90	25	175	65	45	530	40	120	920	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	295	326	95	26	184	68	47	558	42	126	968	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	318	438	128	192	410	152	65	579	41	218	1108	939
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.78	0.78	0.78	0.59	0.59	0.59
Sat Flow, veh/h	1137	1403	409	974	1313	485	29	985	70	825	1885	1598
Grp Volume(v), veh/h	295	0	421	26	0	252	647	0	0	126	968	268
Grp Sat Flow(s),veh/h/ln	1137	0	1812	974	0	1798	1084	0	0	825	1885	1598
Q Serve(g_s), s	16.0	0.0	16.7	2.0	0.0	9.0	12.2	0.0	0.0	0.0	34.8	6.7
Cycle Q Clear(g_c), s	25.0	0.0	16.7	18.6	0.0	9.0	47.0	0.0	0.0	44.9	34.8	6.7
Prop In Lane	1.00		0.23	1.00		0.27	0.07		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	318	0	566	192	0	562	685	0	0	218	1108	939
V/C Ratio(X)	0.93	0.00	0.74	0.14	0.00	0.45	0.94	0.00	0.00	0.58	0.87	0.29
Avail Cap(c_a), veh/h	318	0	566	192	0	562	685	0	0	218	1108	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.93	0.00	0.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	33.8	0.0	24.6	33.0	0.0	22.0	12.3	0.0	0.0	16.1	14.0	8.2
Incr Delay (d2), s/veh	32.4	0.0	5.3	0.3	0.0	0.6	22.0	0.0	0.0	1.0	1.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	7.6	0.5	0.0	3.7	7.8	0.0	0.0	1.9	12.4	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.2	0.0	29.9	33.3	0.0	22.6	34.3	0.0	0.0	17.1	15.0	8.2
LnGrp LOS	E		C	C		C	C			B	B	A
Approach Vol, veh/h		716			278			647			1362	
Approach Delay, s/veh		44.9			23.6			34.3			13.9	
Approach LOS		D			C			C			B	

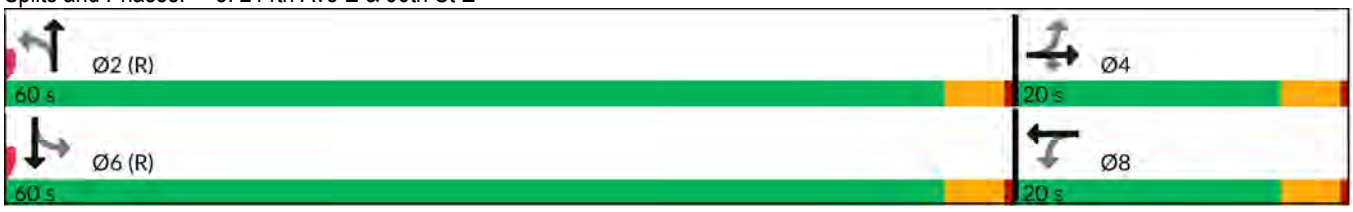
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.0		29.0		51.0		29.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		47.0		25.0		47.0		25.0				
Max Q Clear Time (g_c+I1), s		49.0		27.0		46.9		20.6				
Green Ext Time (p_c), s		0.0		0.0		0.1		0.5				

Intersection Summary	
HCM 7th Control Delay, s/veh	26.6
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	20	50	45	20	20	35	490	55	60	810	25
Future Volume (vph)	35	20	50	45	20	20	35	490	55	60	810	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		261			692			981			2614	
Travel Time (s)		5.9			15.7			19.1			50.9	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0		60.0	60.0		60.0	60.0	
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%		75.0%	75.0%		75.0%	75.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 11 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 214th Ave E & 96th St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	20	50	45	20	20	35	490	55	60	810	25
Future Volume (veh/h)	35	20	50	45	20	20	35	490	55	60	810	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	36	21	52	47	21	21	36	510	57	62	844	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	159	77	153	121	43	29	606	1339	150	713	1493	46
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.80	0.80	0.80	1.00	1.00	1.00
Sat Flow, veh/h	893	801	1598	543	452	307	642	1666	186	869	1857	57
Grp Volume(v), veh/h	57	0	52	89	0	0	36	0	567	62	0	870
Grp Sat Flow(s),veh/h/ln	1695	0	1598	1302	0	0	642	0	1852	869	0	1914
Q Serve(g_s), s	0.0	0.0	2.4	3.3	0.0	0.0	0.9	0.0	6.9	0.7	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	2.4	5.6	0.0	0.0	0.9	0.0	6.9	7.6	0.0	0.0
Prop In Lane	0.63		1.00	0.53		0.24	1.00		0.10	1.00		0.03
Lane Grp Cap(c), veh/h	236	0	153	194	0	0	606	0	1489	713	0	1539
V/C Ratio(X)	0.24	0.00	0.34	0.46	0.00	0.00	0.06	0.00	0.38	0.09	0.00	0.57
Avail Cap(c_a), veh/h	395	0	320	348	0	0	606	0	1489	713	0	1539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.52	0.00	0.52	0.44	0.00	0.44
Uniform Delay (d), s/veh	33.7	0.0	33.8	35.4	0.0	0.0	1.6	0.0	2.2	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.3	1.7	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.0	1.7	0.0	0.0	0.1	0.0	1.2	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.3	0.0	35.1	37.1	0.0	0.0	1.7	0.0	2.6	0.5	0.0	0.7
LnGrp LOS	C		D	D			A		A	A		A
Approach Vol, veh/h		109			89			603			932	
Approach Delay, s/veh		34.7			37.1			2.5			0.7	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	68.3	11.7	68.3	11.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	56.0	16.0	56.0	16.0
Max Q Clear Time (g_c+I1), s	8.9	4.4	9.6	7.6
Green Ext Time (p_c), s	3.0	0.2	5.5	0.1

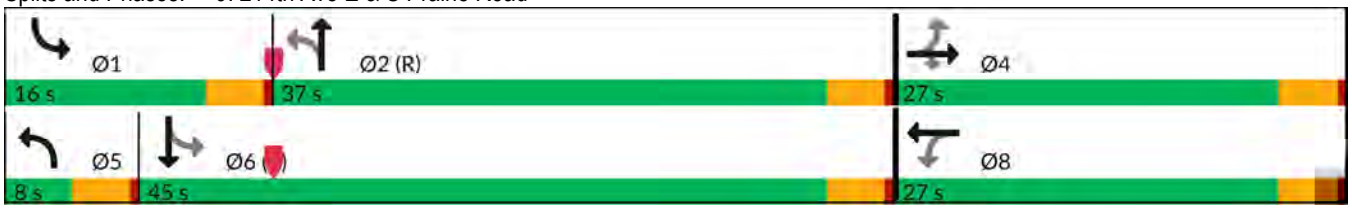
Intersection Summary	
HCM 7th Control Delay, s/veh	5.3
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	455	445	5	270	180	200	365	5	275	705	135
Future Volume (vph)	40	455	445	5	270	180	200	365	5	275	705	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4369			2155			1288			3394	
Travel Time (s)		119.2			58.8			25.1			66.1	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0		8.0	37.0		16.0	45.0	
Total Split (%)	33.8%	33.8%	33.8%	33.8%	33.8%		10.0%	46.3%		20.0%	56.3%	
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0		4.0	33.0		12.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 56 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 9: 214th Ave E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	455	445	5	270	180	200	365	5	275	705	135
Future Volume (veh/h)	40	455	445	5	270	180	200	365	5	275	705	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	41	469	459	5	278	186	206	376	5	284	727	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	71	450	459	45	219	144	331	845	11	603	966	
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.46	0.46	0.11	0.51	0.00
Sat Flow, veh/h	79	1564	1598	0	763	502	1795	1856	25	1795	1885	0
Grp Volume(v), veh/h	510	0	459	469	0	0	206	0	381	284	727	0
Grp Sat Flow(s),veh/h/ln	1643	0	1598	1265	0	0	1795	0	1881	1795	1885	0
Q Serve(g_s), s	0.0	0.0	23.0	0.0	0.0	0.0	4.0	0.0	11.1	6.2	24.5	0.0
Cycle Q Clear(g_c), s	23.0	0.0	23.0	23.0	0.0	0.0	4.0	0.0	11.1	6.2	24.5	0.0
Prop In Lane	0.08		1.00	0.01		0.40	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	521	0	459	409	0	0	331	0	856	603	966	
V/C Ratio(X)	0.98	0.00	1.00	1.15	0.00	0.00	0.62	0.00	0.44	0.47	0.75	
Avail Cap(c_a), veh/h	521	0	459	409	0	0	331	0	856	679	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.00	0.74	1.00	0.00	0.00	1.00	0.00	1.00	0.40	0.40	0.00
Uniform Delay (d), s/veh	28.8	0.0	28.5	26.9	0.0	0.0	17.6	0.0	14.9	9.6	15.5	0.0
Incr Delay (d2), s/veh	28.6	0.0	35.9	90.8	0.0	0.0	3.6	0.0	1.7	0.2	2.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	13.1	17.3	0.0	0.0	2.1	0.0	4.7	2.1	9.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.4	0.0	64.4	117.7	0.0	0.0	21.2	0.0	16.6	9.8	17.7	0.0
LnGrp LOS	E		E	F			C		B	A	B	
Approach Vol, veh/h		969			469			587			1011	
Approach Delay, s/veh		60.7			117.7			18.2			15.5	
Approach LOS		E			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	40.4		27.0	8.0	45.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	33.0		23.0	4.0	41.0		23.0				
Max Q Clear Time (g_c+I1), s	8.2	13.1		25.0	6.0	26.5		25.0				
Green Ext Time (p_c), s	0.4	1.4		0.0	0.0	3.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	46.2
HCM 7th LOS	D

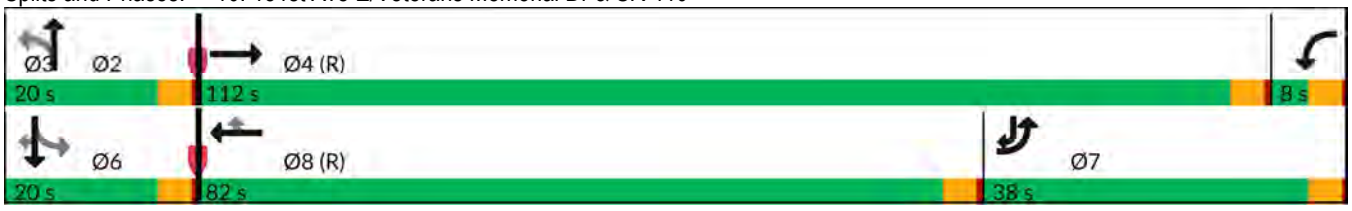
Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		0	100		250	0		0	0		50
Storage Lanes	2		0	1		1	0		0	0		2
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1510			1091			468			786	
Travel Time (s)		22.9			16.5			12.8			21.4	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	8.0
Total Split (s)	38.0	112.0		8.0	82.0	82.0	20.0	20.0		20.0	20.0	38.0
Total Split (%)	27.1%	80.0%		5.7%	58.6%	58.6%	14.3%	14.3%		14.3%	14.3%	27.1%
Maximum Green (s)	34.0	108.0		4.0	78.0	78.0	16.0	16.0		16.0	16.0	34.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead						Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		Min	Min	None
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: 181st Ave E/Veterans Memorial Dr & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	629	1985	5	10	1593	36	10	21	10	67	26	521
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	846	2827	7	51	1980	883	37	64	22	117	39	1004
Arrive On Green	0.24	0.77	0.77	0.06	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3665	9	1781	3554	1585	42	561	195	637	338	2812
Grp Volume(v), veh/h	629	969	1021	10	1593	36	41	0	0	93	0	521
Grp Sat Flow(s),veh/h/ln	1742	1791	1884	1781	1777	1585	798	0	0	975	0	1406
Q Serve(g_s), s	23.4	37.8	37.8	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.4	37.8	37.8	0.7	0.0	0.0	14.3	0.0	0.0	14.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.24		0.24	0.72		1.00
Lane Grp Cap(c), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
V/C Ratio(X)	0.74	0.70	0.70	0.20	0.80	0.04	0.33	0.00	0.00	0.60	0.00	0.52
Avail Cap(c_a), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	49.0	8.0	8.0	64.5	0.0	0.0	56.5	0.0	0.0	60.7	0.0	35.5
Incr Delay (d2), s/veh	3.6	3.0	2.9	1.3	2.6	0.1	1.6	0.0	0.0	4.7	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	12.4	13.0	0.4	0.7	0.0	1.4	0.0	0.0	3.5	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.6	11.0	10.8	65.8	2.6	0.1	58.0	0.0	0.0	65.5	0.0	35.9
LnGrp LOS	D	B	B	E	A	A	E			E		D
Approach Vol, veh/h		2619			1639			41			614	
Approach Delay, s/veh		20.9			2.9			58.0			40.4	
Approach LOS		C			A			E			D	

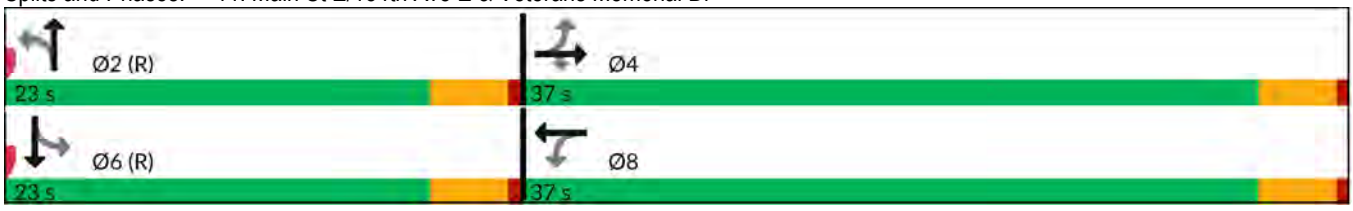
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	8.0	112.0		20.0	38.0	82.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	4.0	108.0		16.0	34.0	78.0				
Max Q Clear Time (g_c+I1), s		16.3	2.7	39.8		16.1	25.4	2.0				
Green Ext Time (p_c), s		0.0	0.0	16.1		0.0	2.0	11.8				

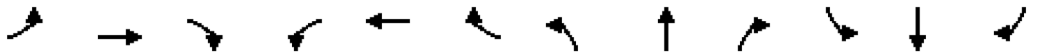
Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		150	100		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		786			1067			1220			789	
Travel Time (s)		21.4			29.1			33.3			21.5	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%	61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 11: Main St E/184th Ave E & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	32	595	58	89	479	26	32	42	142	111	226	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	323	819	694	256	770	42	514	163	552	557	734	68
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	901	1885	1598	786	1772	96	1142	378	1277	1209	1699	158
Grp Volume(v), veh/h	32	595	58	89	0	505	32	0	184	111	0	247
Grp Sat Flow(s),veh/h/ln	901	1885	1598	786	0	1868	1142	0	1655	1209	0	1857
Q Serve(g_s), s	1.7	15.7	1.3	6.3	0.0	12.6	1.1	0.0	4.3	3.9	0.0	5.2
Cycle Q Clear(g_c), s	14.3	15.7	1.3	22.0	0.0	12.6	6.4	0.0	4.3	8.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.77	1.00		0.09
Lane Grp Cap(c), veh/h	323	819	694	256	0	811	514	0	715	557	0	803
V/C Ratio(X)	0.10	0.73	0.08	0.35	0.00	0.62	0.06	0.00	0.26	0.20	0.00	0.31
Avail Cap(c_a), veh/h	427	1037	879	347	0	1027	514	0	715	557	0	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.64	0.00	0.64	0.96	0.00	0.96	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	14.0	10.0	23.1	0.0	13.2	13.2	0.0	10.9	13.5	0.0	11.2
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.5	0.0	0.5	0.2	0.0	0.8	0.8	0.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.1	0.4	1.2	0.0	4.8	0.3	0.0	1.6	1.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.8	15.2	10.0	23.6	0.0	13.7	13.5	0.0	11.7	14.3	0.0	12.1
LnGrp LOS	B	B	A	C		B	B		B	B		B
Approach Vol, veh/h		685			594			216			358	
Approach Delay, s/veh		14.9			15.2			12.0			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	29.9	30.1	29.9	30.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	19.0	33.0	19.0	33.0
Max Q Clear Time (g_c+I1), s	8.4	17.7	10.1	24.0
Green Ext Time (p_c), s	0.7	3.0	1.0	2.1

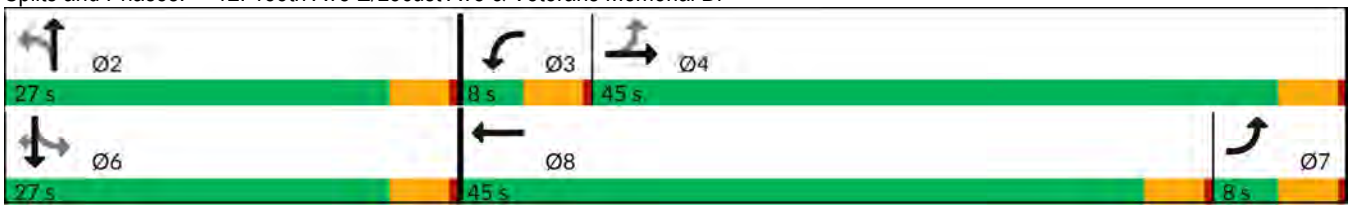
Intersection Summary	
HCM 7th Control Delay, s/veh	14.2
HCM 7th LOS	B

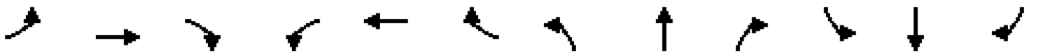
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			2%			-3%	
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1067			412			245			4942	
Travel Time (s)		29.1			11.2			6.7			134.8	
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	8.0	45.0		8.0	45.0		27.0	27.0		27.0	27.0	27.0
Total Split (%)	10.0%	56.3%		10.0%	56.3%		33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	4.0	41.0		4.0	41.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			1		4	4		7	7	7

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 60.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: 188th Ave E/Locust Ave & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1862	1862	1862	1817	1817	1817	1973	1973	1973
Adj Flow Rate, veh/h	121	700	16	42	489	147	16	21	53	216	21	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	4	4	4	3	3	3
Cap, veh/h	255	795	18	58	556	167	65	85	122	273	22	587
Arrive On Green	0.06	0.43	0.43	0.03	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	1836	42	1773	1374	413	0	243	348	478	63	1672
Grp Volume(v), veh/h	121	0	716	42	0	636	90	0	0	237	0	137
Grp Sat Flow(s),veh/h/ln	1795	0	1878	1773	0	1787	591	0	0	541	0	1672
Q Serve(g_s), s	0.0	0.0	22.9	1.5	0.0	21.5	0.0	0.0	0.0	0.0	0.0	3.8
Cycle Q Clear(g_c), s	0.0	0.0	22.9	1.5	0.0	21.5	23.0	0.0	0.0	23.0	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.23	0.18		0.59	0.91		1.00
Lane Grp Cap(c), veh/h	255	0	813	58	0	723	272	0	0	295	0	587
V/C Ratio(X)	0.47	0.00	0.88	0.73	0.00	0.88	0.33	0.00	0.00	0.80	0.00	0.23
Avail Cap(c_a), veh/h	255	0	1175	108	0	1119	272	0	0	295	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	17.0	31.4	0.0	18.0	16.2	0.0	0.0	23.3	0.0	15.0
Incr Delay (d2), s/veh	1.4	0.0	5.7	15.8	0.0	5.4	0.7	0.0	0.0	14.8	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	10.2	0.9	0.0	9.1	0.9	0.0	0.0	4.9	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.8	0.0	22.7	47.2	0.0	23.4	16.9	0.0	0.0	38.2	0.0	15.2
LnGrp LOS	C		C	D		C	B			D		B
Approach Vol, veh/h		837			678			90			374	
Approach Delay, s/veh		23.8			24.9			16.9			29.8	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	27.0	6.1	32.4	27.0	8.0	30.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	23.0	4.0	41.0	23.0	4.0	41.0
Max Q Clear Time (g_c+I1), s	25.0	3.5	24.9	25.0	2.0	23.5
Green Ext Time (p_c), s	0.0	0.0	3.3	0.0	0.1	3.0

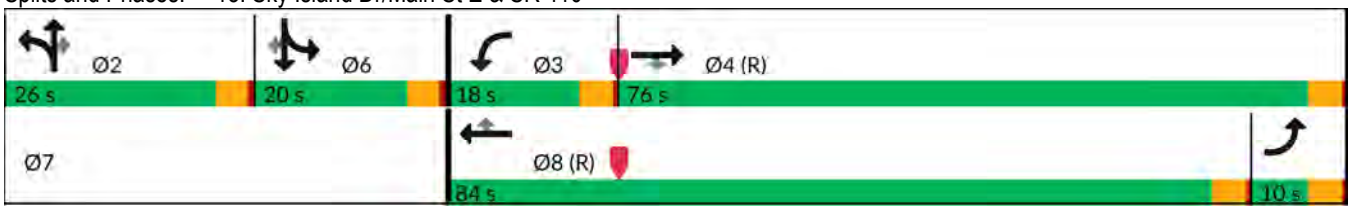
Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			0%			-2%	
Storage Length (ft)	100		200	100		200	100		100	100		100
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1091			3227			439			1220	
Travel Time (s)		16.5			48.9			12.0			33.3	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	76.0	76.0	18.0	84.0	84.0	26.0	26.0	26.0	20.0	20.0	20.0
Total Split (%)	7.1%	54.3%	54.3%	12.9%	60.0%	60.0%	18.6%	18.6%	18.6%	14.3%	14.3%	14.3%
Maximum Green (s)	6.0	72.0	72.0	14.0	80.0	80.0	22.0	22.0	22.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 139 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 13: Sky Island Dr/Main St E & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1924	1924	1924	1864	1864	1864	1885	1885	1885	1964	1964	1964
Adj Flow Rate, veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	240	2202	982	178	2024	903	309	167		343	186	
Arrive On Green	0.26	1.00	1.00	0.10	0.57	0.57	0.09	0.09	0.00	0.09	0.09	0.00
Sat Flow, veh/h	1833	3656	1631	1776	3542	1580	3483	1885	1598	3628	1964	1664
Grp Volume(v), veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Grp Sat Flow(s),veh/h/ln	1833	1828	1631	1776	1771	1580	1742	1885	1598	1814	1964	1664
Q Serve(g_s), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	2202	982	178	2024	903	309	167		343	186	
V/C Ratio(X)	0.15	0.85	0.18	1.02	0.73	0.13	0.52	0.78		0.75	0.82	
Avail Cap(c_a), veh/h	240	2202	982	178	2024	903	547	296		415	224	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.55	0.55	0.55	1.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	45.7	0.0	0.0	63.0	22.0	13.9	61.0	62.5	0.0	61.8	62.2	0.0
Incr Delay (d2), s/veh	0.2	3.1	0.3	56.6	1.3	0.2	1.4	7.8	0.0	5.9	17.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.1	9.0	16.8	1.7	2.8	5.0	0.0	4.8	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.9	3.1	0.3	119.6	23.3	14.0	62.3	70.2	0.0	67.7	79.3	0.0
LnGrp LOS	D	A	A	F	C	B	E	E		E	E	
Approach Vol, veh/h		2081			1768			293			410	
Approach Delay, s/veh		3.6			32.6			65.9			72.0	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.4	18.0	88.3	17.3	22.3	84.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	22.0	14.0	72.0	16.0	6.0	80.0
Max Q Clear Time (g_c+I1), s	11.5	16.0	2.0	12.6	4.1	44.6
Green Ext Time (p_c), s	0.9	0.0	18.1	0.6	0.0	10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Notes

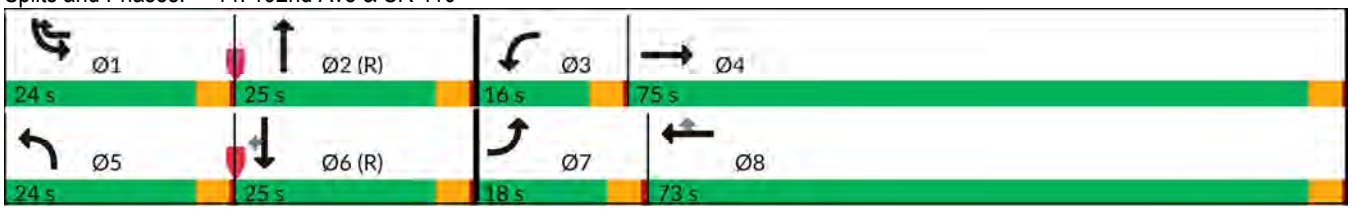
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	2030	185	100	1520	410	145	115	50	365	135	80
Future Volume (vph)	125	2030	185	100	1520	410	145	115	50	365	135	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	300		250	150		300	50		0	100		150
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3227			1056			370			601	
Travel Time (s)		48.9			16.0			8.4			13.7	
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	8.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	18.0	75.0		16.0	73.0	24.0	24.0	25.0		24.0	25.0	25.0
Total Split (%)	12.9%	53.6%		11.4%	52.1%	17.1%	17.1%	17.9%		17.1%	17.9%	17.9%
Maximum Green (s)	14.0	71.0		12.0	69.0	20.0	20.0	21.0		20.0	21.0	21.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0			5.0	5.0
Flash Don't Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		1			1			1			1	1

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 14: 192nd Ave & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2030	185	100	1520	410	145	115	50	365	135	80
Future Volume (veh/h)	125	2030	185	100	1520	410	145	115	50	365	135	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	128	2071	189	102	1551	418	148	117	51	372	138	82
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	151	2324	210	123	1690	933	173	253	110	427	435	363
Arrive On Green	0.09	0.49	0.49	0.14	0.95	0.95	0.10	0.20	0.20	0.12	0.23	0.23
Sat Flow, veh/h	1773	4743	429	1790	3571	1558	1795	1239	540	3483	1885	1575
Grp Volume(v), veh/h	128	1474	786	102	1551	418	148	0	168	372	138	82
Grp Sat Flow(s),veh/h/ln	1773	1694	1784	1790	1785	1558	1795	0	1779	1742	1885	1575
Q Serve(g_s), s	10.0	55.0	56.2	7.8	24.6	3.3	11.4	0.0	11.6	14.7	8.5	5.9
Cycle Q Clear(g_c), s	10.0	55.0	56.2	7.8	24.6	3.3	11.4	0.0	11.6	14.7	8.5	5.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	151	1660	874	123	1690	933	173	0	364	427	435	363
V/C Ratio(X)	0.85	0.89	0.90	0.83	0.92	0.45	0.85	0.00	0.46	0.87	0.32	0.23
Avail Cap(c_a), veh/h	177	1718	905	153	1760	963	256	0	364	498	435	363
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.14	0.37	0.37	0.37	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	32.2	32.6	59.6	2.6	1.2	62.3	0.0	48.9	60.4	44.7	43.7
Incr Delay (d2), s/veh	4.9	0.9	2.0	10.9	3.3	0.1	16.4	0.0	4.2	14.0	1.9	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	21.5	23.4	3.6	2.2	0.6	6.0	0.0	5.6	7.3	4.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	33.2	34.5	70.5	5.9	1.3	78.7	0.0	53.1	74.3	46.6	45.2
LnGrp LOS	E	C	C	E	A	A	E		D	E	D	D
Approach Vol, veh/h		2388			2071			316			592	
Approach Delay, s/veh		35.5			8.2			65.1			63.8	
Approach LOS		D			A			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	32.6	13.6	72.6	17.5	36.3	15.9	70.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	21.0	12.0	71.0	20.0	21.0	14.0	69.0
Max Q Clear Time (g_c+I1), s	16.7	13.6	9.8	58.2	13.4	10.5	12.0	26.6
Green Ext Time (p_c), s	0.5	0.5	0.0	10.4	0.2	0.7	0.1	18.9

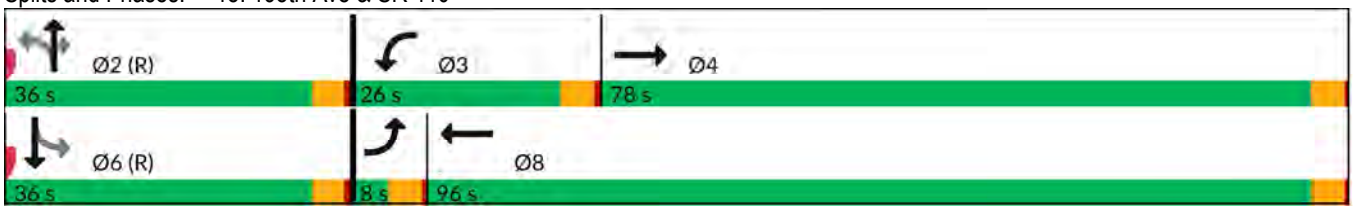
Intersection Summary	
HCM 7th Control Delay, s/veh	29.8
HCM 7th LOS	C

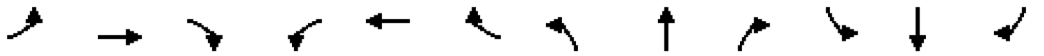
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2425	75	245	2065	40	70	5	295	20	5	25
Future Volume (vph)	10	2425	75	245	2065	40	70	5	295	20	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1230			413			224	
Travel Time (s)		16.0			18.6			9.4			5.1	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	
Total Split (s)	8.0	78.0		26.0	96.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	5.7%	55.7%		18.6%	68.6%		25.7%	25.7%	25.7%	25.7%	25.7%	
Maximum Green (s)	4.0	74.0		22.0	92.0		32.0	32.0	32.0	32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		3			1		1	1	1	1	1	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 15: 195th Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2425	75	245	2065	40	70	5	295	20	5	25
Future Volume (veh/h)	10	2425	75	245	2065	40	70	5	295	20	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	10	2500	77	253	2129	41	72	5	304	21	5	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	16	2658	81	275	2399	46	341	22	376	239	61	318
Arrive On Green	0.01	0.53	0.53	0.15	0.67	0.67	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1773	5063	155	1790	3582	69	1236	94	1596	1062	260	1351
Grp Volume(v), veh/h	10	1667	910	253	1057	1113	77	0	304	21	0	31
Grp Sat Flow(s),veh/h/ln	1773	1694	1830	1790	1785	1865	1330	0	1596	1062	0	1610
Q Serve(g_s), s	0.8	64.4	65.7	19.5	67.1	68.4	6.1	0.0	25.2	2.3	0.0	2.1
Cycle Q Clear(g_c), s	0.8	64.4	65.7	19.5	67.1	68.4	8.2	0.0	25.2	10.5	0.0	2.1
Prop In Lane	1.00		0.08	1.00		0.04	0.94		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	16	1779	961	275	1196	1249	363	0	376	239	0	379
V/C Ratio(X)	0.61	0.94	0.95	0.92	0.88	0.89	0.21	0.00	0.81	0.09	0.00	0.08
Avail Cap(c_a), veh/h	51	1791	967	281	1196	1249	363	0	376	239	0	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.11	0.58	0.58	0.58	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	31.1	31.4	58.4	18.7	18.9	44.8	0.0	50.6	48.4	0.0	41.7
Incr Delay (d2), s/veh	4.1	1.4	3.0	22.4	5.0	5.1	1.3	0.0	17.0	0.7	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	24.8	27.8	10.4	25.7	27.4	2.4	0.0	11.6	0.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	73.2	32.5	34.4	80.8	23.7	24.1	46.1	0.0	67.5	49.1	0.0	42.1
LnGrp LOS	E	C	C	F	C	C	D		E	D		D
Approach Vol, veh/h		2587			2423			381			52	
Approach Delay, s/veh		33.3			29.8			63.2			45.0	
Approach LOS		C			C			E			D	

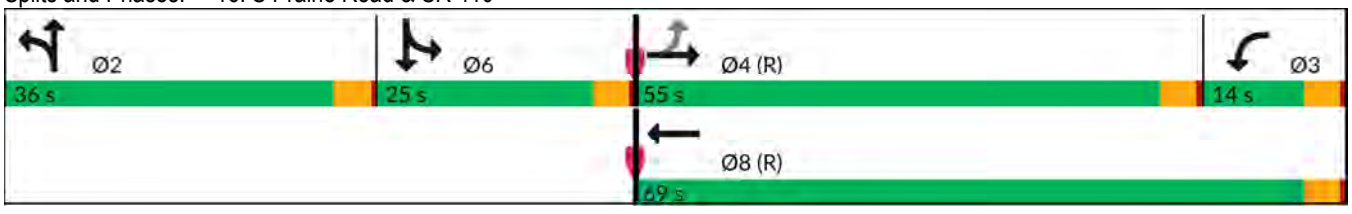
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	37.0	25.5	77.5	37.0	5.3	97.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	32.0	22.0	74.0	32.0	4.0	92.0
Max Q Clear Time (g_c+I1), s	27.2	21.5	67.7	12.5	2.8	70.4
Green Ext Time (p_c), s	0.7	0.0	5.8	0.2	0.0	16.6

Intersection Summary	
HCM 7th Control Delay, s/veh	34.0
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1330	1370	135	1125	130	1185	180	65	260	230	50
Future Volume (vph)	55	1330	1370	135	1125	130	1185	180	65	260	230	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			3%			0%	
Storage Length (ft)	300		0	350		300	500		750	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1230			1801			998			1675	
Travel Time (s)		18.6			27.3			27.2			45.7	
Turn Type	Perm	NA	Free	Prot	NA		Split	NA		Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4		Free									
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	55.0	55.0		14.0	69.0		36.0	36.0		25.0	25.0	
Total Split (%)	42.3%	42.3%		10.8%	53.1%		27.7%	27.7%		19.2%	19.2%	
Maximum Green (s)	51.0	51.0		10.0	65.0		32.0	32.0		21.0	21.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 16: S Prairie Road & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1330	1370	135	1125	130	1185	180	65	260	230	50
Future Volume (veh/h)	55	1330	1370	135	1125	130	1185	180	65	260	230	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1964	1964	1964	1832	1832	1832	1856	1856	1856
Adj Flow Rate, veh/h	57	1371	0	139	1160	134	1222	186	0	268	237	52
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	155	1388		144	2431	281	1211	451		285	237	52
Arrive On Green	0.39	0.39	0.00	0.08	0.50	0.50	0.25	0.25	0.00	0.16	0.16	0.16
Sat Flow, veh/h	424	3537	1578	1870	4861	561	4921	1832	0	1767	1470	322
Grp Volume(v), veh/h	57	1371	0	139	853	441	1222	186	0	268	0	289
Grp Sat Flow(s),veh/h/ln	424	1769	1578	1870	1787	1849	1640	1832	0	1767	0	1792
Q Serve(g_s), s	15.4	50.0	0.0	9.6	20.4	20.4	32.0	11.1	0.0	19.5	0.0	21.0
Cycle Q Clear(g_c), s	35.8	50.0	0.0	9.6	20.4	20.4	32.0	11.1	0.0	19.5	0.0	21.0
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.00	1.00		0.18
Lane Grp Cap(c), veh/h	155	1388		144	1787	924	1211	451		285	0	290
V/C Ratio(X)	0.37	0.99		0.97	0.48	0.48	1.01	0.41		0.94	0.00	1.00
Avail Cap(c_a), veh/h	155	1388		144	1787	924	1211	451		285	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.23	0.00	0.86	0.86	0.86	0.77	0.77	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.9	39.2	0.0	59.8	21.3	21.3	49.0	41.1	0.0	53.9	0.0	54.5
Incr Delay (d2), s/veh	1.5	9.1	0.0	59.4	0.8	1.5	24.9	0.5	0.0	37.2	0.0	52.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	22.3	0.0	6.8	8.3	8.8	15.9	5.1	0.0	11.7	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.4	48.3	0.0	119.2	22.1	22.9	73.9	41.6	0.0	91.1	0.0	106.8
LnGrp LOS	D	D		F	C	C	F	D		F		F
Approach Vol, veh/h		1428			1433			1408			557	
Approach Delay, s/veh		48.2			31.8			69.6			99.2	
Approach LOS		D			C			E			F	

Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		36.0	14.0	55.0		25.0		69.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0	10.0	51.0		21.0		65.0				
Max Q Clear Time (g_c+I1), s		34.0	11.6	52.0		23.0		22.4				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0		6.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	55.5
HCM 7th LOS	E

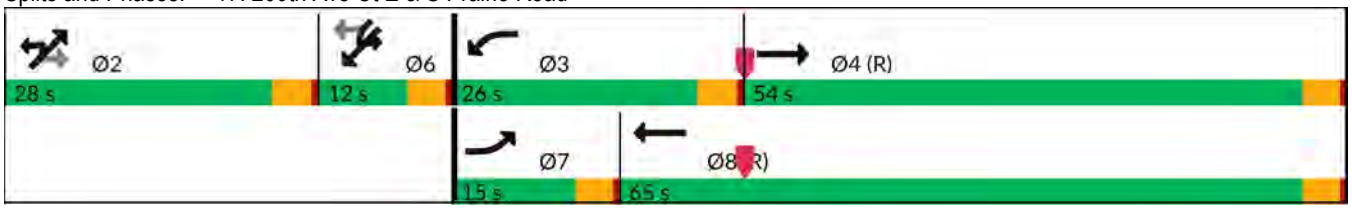
Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	225		225	350		250	100		0
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			Yes			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		998			1097			486			264	
Travel Time (s)		27.2			29.9			13.3			7.2	
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			Free						2			6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	15.0	54.0		26.0	65.0		28.0	28.0	28.0	12.0	12.0	12.0
Total Split (%)	12.5%	45.0%		21.7%	54.2%		23.3%	23.3%	23.3%	10.0%	10.0%	10.0%
Maximum Green (s)	11.0	50.0		22.0	61.0		24.0	24.0	24.0	8.0	8.0	8.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		5.0			5.0							
Flash Dont Walk (s)		11.0			11.0							
Pedestrian Calls (#/hr)		0			0							

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 17: 200th Ave Ct E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	77	832	0	362	536	46	709	0	66	51	77	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	99	785		329	1819	156	718	0	320	49	74	105
Arrive On Green	0.05	0.42	0.00	0.18	0.55	0.55	0.20	0.00	0.20	0.07	0.07	0.07
Sat Flow, veh/h	1795	1885	1598	1795	3338	286	3591	0	1598	736	1112	1573
Grp Volume(v), veh/h	77	832	0	362	287	295	709	0	66	128	0	56
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	1833	1795	0	1598	1848	0	1573
Q Serve(g_s), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Cycle Q Clear(g_c), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	99	785		329	976	999	718	0	320	123	0	105
V/C Ratio(X)	0.78	1.06		1.10	0.29	0.30	0.99	0.00	0.21	1.04	0.00	0.53
Avail Cap(c_a), veh/h	165	785		329	976	999	718	0	320	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.28	0.28	0.00	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	35.0	0.0	49.0	14.8	14.8	47.8	0.0	40.1	56.0	0.0	54.2
Incr Delay (d2), s/veh	3.8	35.3	0.0	70.0	0.5	0.5	30.3	0.0	0.3	91.8	0.0	5.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	30.3	0.0	16.3	4.4	4.5	13.6	0.0	1.7	6.9	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.8	70.3	0.0	119.0	15.3	15.3	78.1	0.0	40.4	147.8	0.0	59.4
LnGrp LOS	E	F		F	B	B	E		D	F		E
Approach Vol, veh/h		909			944			775			184	
Approach Delay, s/veh		69.4			55.1			74.9			120.9	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	28.0	26.0	54.0		12.0	10.6	69.4					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	24.0	22.0	50.0		8.0	11.0	61.0					
Max Q Clear Time (g_c+I1), s	25.6	24.0	52.0		10.0	7.1	12.5					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.1	2.6					

Intersection Summary	
HCM 7th Control Delay, s/veh	69.5
HCM 7th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

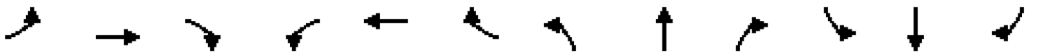
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1340	245	75	1075	105	250	35	105	105	30	100
Future Volume (vph)	205	1340	245	75	1075	105	250	35	105	105	30	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		600	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			25	
Link Distance (ft)		1005			1116			428			525	
Travel Time (s)		15.2			16.9			9.7			14.3	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	26.0	62.0		16.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	
Total Split (%)	20.0%	47.7%		12.3%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	
Maximum Green (s)	22.0	58.0		12.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min	Min	Min	Min	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		2			2	2	5	5	5	5	5	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 75 (58%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 18: SR 410 & 208th Ave E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1340	245	75	1075	105	250	35	105	105	30	100
Future Volume (veh/h)	205	1340	245	75	1075	105	250	35	105	105	30	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	207	1354	247	76	1086	106	253	35	106	106	30	101
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	304	1951	356	166	1323	588	345	41	587	88	32	60
Arrive On Green	0.17	0.45	0.45	0.18	0.74	0.74	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1795	4373	797	1795	3582	1593	794	110	1591	129	88	161
Grp Volume(v), veh/h	207	1062	539	76	1086	106	288	0	106	237	0	0
Grp Sat Flow(s),veh/h/ln	1795	1716	1740	1795	1791	1593	904	0	1591	379	0	0
Q Serve(g_s), s	14.1	32.3	32.3	4.9	26.2	2.6	0.0	0.0	5.9	9.7	0.0	0.0
Cycle Q Clear(g_c), s	14.1	32.3	32.3	4.9	26.2	2.6	38.3	0.0	5.9	48.0	0.0	0.0
Prop In Lane	1.00		0.46	1.00		1.00	0.88		1.00	0.45		0.43
Lane Grp Cap(c), veh/h	304	1531	776	166	1323	588	386	0	587	180	0	0
V/C Ratio(X)	0.68	0.69	0.69	0.46	0.82	0.18	0.75	0.00	0.18	1.32	0.00	0.00
Avail Cap(c_a), veh/h	304	1531	776	166	1323	588	386	0	587	180	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.26	0.26	0.26	0.84	0.84	0.84	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	50.7	28.9	28.9	50.1	14.1	11.1	37.9	0.0	27.7	53.6	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.7	1.4	1.7	4.9	0.6	7.7	0.0	0.1	176.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	12.8	13.1	2.1	5.8	1.0	9.2	0.0	2.2	14.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.3	29.6	30.2	51.8	19.1	11.6	45.7	0.0	27.9	229.9	0.0	0.0
LnGrp LOS	D	C	C	D	B	B	D		C	F		
Approach Vol, veh/h		1808			1268			394			237	
Approach Delay, s/veh		32.4			20.4			40.9			229.9	
Approach LOS		C			C			D			F	

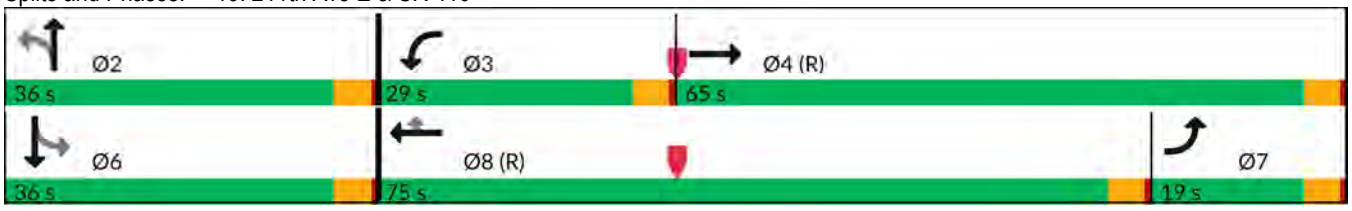
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		52.0	16.0	62.0		52.0	26.0	52.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		48.0	12.0	58.0		48.0	22.0	48.0				
Max Q Clear Time (g_c+I1), s		40.3	6.9	34.3		50.0	16.1	28.2				
Green Ext Time (p_c), s		1.1	0.1	8.3		0.0	0.3	5.7				

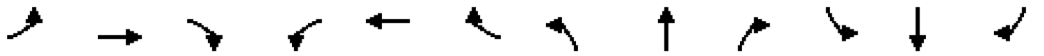
Intersection Summary	
HCM 7th Control Delay, s/veh	41.8
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1385	120	170	1025	100	150	10	80	70	15	80
Future Volume (vph)	85	1385	120	170	1025	100	150	10	80	70	15	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1116			1084			668			351	
Travel Time (s)		16.9			16.4			18.2			9.6	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Detector Phase	7	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	19.0	65.0		29.0	75.0	75.0	36.0	36.0		36.0	36.0	
Total Split (%)	14.6%	50.0%		22.3%	57.7%	57.7%	27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	15.0	61.0		25.0	71.0	71.0	32.0	32.0		32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	None	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 97 (75%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 19: 211th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1385	120	170	1025	100	150	10	80	70	15	80
Future Volume (veh/h)	85	1385	120	170	1025	100	150	10	80	70	15	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1458	126	179	1079	105	158	11	84	74	16	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	305	2904	251	205	1956	873	237	36	275	241	50	263
Arrive On Green	0.34	1.00	1.00	0.23	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1795	4824	417	1795	3582	1598	1305	188	1438	1311	262	1376
Grp Volume(v), veh/h	89	1037	547	179	1079	105	158	0	95	74	0	100
Grp Sat Flow(s),veh/h/ln	1795	1716	1810	1795	1791	1598	1305	0	1626	1311	0	1638
Q Serve(g_s), s	4.7	0.0	0.0	12.5	0.0	0.0	15.4	0.0	6.5	6.7	0.0	6.8
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	22.3	0.0	6.5	13.2	0.0	6.8
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.88	1.00		0.84
Lane Grp Cap(c), veh/h	305	2065	1089	205	1956	873	237	0	311	241	0	314
V/C Ratio(X)	0.29	0.50	0.50	0.87	0.55	0.12	0.67	0.00	0.31	0.31	0.00	0.32
Avail Cap(c_a), veh/h	305	2065	1089	345	1956	873	308	0	400	312	0	403
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.63	0.63	0.63	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	49.2	0.0	0.0	54.8	0.0	45.1	50.8	0.0	45.3
Incr Delay (d2), s/veh	0.4	0.7	1.3	8.1	0.7	0.2	3.5	0.0	0.5	0.7	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.2	0.4	5.3	0.2	0.0	5.3	0.0	2.7	2.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.6	0.7	1.3	57.3	0.7	0.2	58.4	0.0	45.7	51.5	0.0	45.8
LnGrp LOS	D	A	A	E	A	A	E		D	D		D
Approach Vol, veh/h		1673			1363			253			174	
Approach Delay, s/veh		2.9			8.1			53.6			48.3	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.9	18.9	82.2		28.9	26.1	75.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		32.0	25.0	61.0		32.0	15.0	71.0				
Max Q Clear Time (g_c+I1), s		24.3	14.5	2.0		15.2	6.7	2.0				
Green Ext Time (p_c), s		0.6	0.4	9.4		0.6	0.1	6.6				

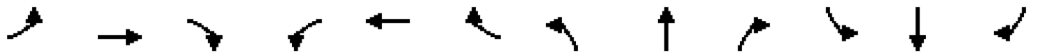
Intersection Summary	
HCM 7th Control Delay, s/veh	10.9
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	920	365	260	745	95	180	195	125	155	480	275
Future Volume (vph)	335	920	365	260	745	95	180	195	125	155	480	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	32.0	42.0	42.0	26.0	36.0	36.0	20.0	42.0		20.0	42.0	42.0
Total Split (%)	24.6%	32.3%	32.3%	20.0%	27.7%	27.7%	15.4%	32.3%		15.4%	32.3%	32.3%
Maximum Green (s)	28.0	38.0	38.0	22.0	32.0	32.0	16.0	38.0		16.0	38.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		1	1		0	0	0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 20: 214th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	335	920	365	260	745	95	180	195	125	155	480	275
Future Volume (veh/h)	335	920	365	260	745	95	180	195	125	155	480	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	349	958	380	271	776	99	188	203	130	161	500	286
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	506	1302	580	295	882	392	249	224	143	258	534	452
Arrive On Green	0.28	0.36	0.36	0.16	0.25	0.25	0.07	0.21	0.21	0.14	0.28	0.28
Sat Flow, veh/h	1795	3582	1595	1795	3582	1594	3483	1074	688	1833	1924	1629
Grp Volume(v), veh/h	349	958	380	271	776	99	188	0	333	161	500	286
Grp Sat Flow(s),veh/h/ln	1795	1791	1595	1795	1791	1594	1742	0	1761	1833	1924	1629
Q Serve(g_s), s	22.5	30.2	25.9	19.3	27.1	6.5	6.9	0.0	24.0	10.8	33.0	10.5
Cycle Q Clear(g_c), s	22.5	30.2	25.9	19.3	27.1	6.5	6.9	0.0	24.0	10.8	33.0	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	506	1302	580	295	882	392	249	0	367	258	534	452
V/C Ratio(X)	0.69	0.74	0.66	0.92	0.88	0.25	0.76	0.00	0.91	0.62	0.94	0.63
Avail Cap(c_a), veh/h	506	1302	580	304	882	392	429	0	515	258	562	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.78	0.78	0.78	0.87	0.00	0.87	0.81	0.81	0.81
Uniform Delay (d), s/veh	41.6	36.0	34.6	53.4	47.2	39.4	59.2	0.0	50.3	52.6	45.8	11.3
Incr Delay (d2), s/veh	3.4	3.2	4.9	25.9	9.9	1.2	4.0	0.0	14.1	3.7	19.6	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	13.3	10.5	10.6	12.9	2.6	3.2	0.0	11.9	5.2	18.4	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.0	39.2	39.4	79.3	57.0	40.6	63.3	0.0	64.3	56.3	65.4	13.4
LnGrp LOS	D	D	D	E	E	D	E		E	E	E	B
Approach Vol, veh/h		1687			1146			521			947	
Approach Delay, s/veh		40.4			60.9			63.9			48.2	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	31.1	25.4	51.2	13.3	40.1	40.6	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	38.0	22.0	38.0	16.0	38.0	28.0	32.0
Max Q Clear Time (g_c+I1), s	12.8	26.0	21.3	32.2	8.9	35.0	24.5	29.1
Green Ext Time (p_c), s	0.2	1.1	0.1	3.1	0.4	1.1	0.5	1.2

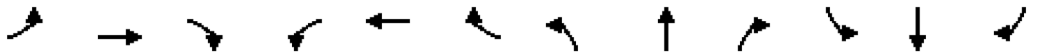
Intersection Summary	
HCM 7th Control Delay, s/veh	50.4
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	700	215	65	660	35	130	70	10	50	160	80
Future Volume (vph)	65	700	215	65	660	35	130	70	10	50	160	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	150		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		6362			2994			1099			1172	
Travel Time (s)		96.4			45.4			21.4			26.6	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8						6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	28.0	28.0	28.0	28.0	28.0		21.0	21.0		21.0	21.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		17.0	17.0		17.0	17.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 52.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 21: 234th Ave E/233rd Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	700	215	65	660	35	130	70	10	50	160	80
Future Volume (veh/h)	65	700	215	65	660	35	130	70	10	50	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1826	1826	1826	1885	1885	1885
Adj Flow Rate, veh/h	68	729	224	68	688	36	135	73	10	52	167	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	1	1	1
Cap, veh/h	336	1342	596	302	1308	68	235	212	29	357	236	117
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.13	0.13	0.13	0.20	0.20	0.20
Sat Flow, veh/h	730	3554	1579	593	3462	181	1739	1572	215	1795	1188	591
Grp Volume(v), veh/h	68	729	224	68	356	368	135	0	83	52	0	250
Grp Sat Flow(s),veh/h/ln	730	1777	1579	593	1791	1853	1739	0	1787	1795	0	1779
Q Serve(g_s), s	3.3	6.7	4.3	4.2	6.4	6.4	3.0	0.0	1.8	1.0	0.0	5.5
Cycle Q Clear(g_c), s	9.7	6.7	4.3	10.9	6.4	6.4	3.0	0.0	1.8	1.0	0.0	5.5
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.12	1.00		0.33
Lane Grp Cap(c), veh/h	336	1342	596	302	677	700	235	0	241	357	0	354
V/C Ratio(X)	0.20	0.54	0.38	0.23	0.53	0.53	0.58	0.00	0.34	0.15	0.00	0.71
Avail Cap(c_a), veh/h	481	2049	910	420	1033	1068	710	0	730	733	0	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	10.1	9.4	14.4	10.1	10.1	16.9	0.0	16.3	13.8	0.0	15.5
Incr Delay (d2), s/veh	0.3	0.3	0.4	0.4	0.6	0.6	2.2	0.0	0.8	0.2	0.0	2.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.7	1.0	0.5	1.7	1.8	1.2	0.0	0.7	0.4	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.1	10.5	9.8	14.8	10.7	10.7	19.1	0.0	17.2	13.9	0.0	18.1
LnGrp LOS	B	B	A	B	B	B	B		B	B		B
Approach Vol, veh/h		1021			792			218			302	
Approach Delay, s/veh		10.6			11.0			18.4			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.6		19.7		12.3		19.7				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		24.0		17.0		24.0				
Max Q Clear Time (g_c+I1), s		5.0		11.7		7.5		12.9				
Green Ext Time (p_c), s		0.6		4.0		0.8		2.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	105	110	135	580	245	105
Future Vol, veh/h	105	110	135	580	245	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	108	113	139	598	253	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1183	307	361	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	210	736	1203	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	736	1203	-	-	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s/v	29.08	1.58	0
HCM LOS	D		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1	SBLn2
Capacity (veh/h)	-	-	1203	-	186	736
HCM Lane V/C Ratio	-	-	0.116	-	0.582	0.154
HCM Control Delay (s/veh)	-	-	8.4	-	48.3	10.8
HCM Lane LOS	-	-	A	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	3.2	0.5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	545	290	70	65	80
Future Vol, veh/h	120	545	290	70	65	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	125	568	302	73	68	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	375	0	-	0	1156	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1189	-	-	-	218	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	436	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	185	706
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	436	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.51	0	21.79
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	325	-	-	-	185	706
HCM Lane V/C Ratio	0.105	-	-	-	0.366	0.118
HCM Control Delay (s/veh)	8.4	0	-	-	35.3	10.8
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	1.6	0.4

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	500	290	30	15	120
Future Vol, veh/h	120	500	290	30	15	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	121	505	293	30	15	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	323	0	-	0	1056	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1237	-	-	-	250	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1237	-	-	-	216	732
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.59	0	12.23
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	348	-	-	-	216	732
HCM Lane V/C Ratio	0.098	-	-	-	0.07	0.166
HCM Control Delay (s/veh)	8.2	0	-	-	23	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Future Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	1	1	1
Mvmt Flow	5	0	5	0	0	5	11	95	5	16	147	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	303	308	155	297	313	97	163	0	0	100	0	0
Stage 1	187	187	-	118	118	-	-	-	-	-	-	-
Stage 2	116	121	-	179	195	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	652	608	893	657	604	962	1409	-	-	1499	-	-
Stage 1	817	747	-	888	800	-	-	-	-	-	-	-
Stage 2	891	798	-	825	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	636	596	893	640	592	962	1409	-	-	1499	-	-
Mov Cap-2 Maneuver	636	596	-	640	592	-	-	-	-	-	-	-
Stage 1	808	739	-	881	793	-	-	-	-	-	-	-
Stage 2	879	791	-	811	733	-	-	-	-	-	-	-

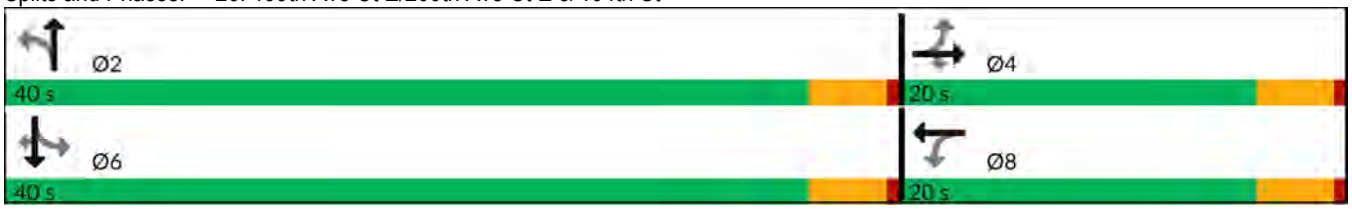
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.92	8.76	0.72	0.66
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	170	-	-	743	962	156	-	-
HCM Lane V/C Ratio	0.007	-	-	0.014	0.005	0.011	-	-
HCM Control Delay (s/veh)	7.6	0	-	9.9	8.8	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		100
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1430			519			1065			1383	
Travel Time (s)		32.5			11.8			29.0			37.7	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0		40.0	40.0		40.0	40.0	40.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	66.7%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 59.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 26: 199th Ave Ct E/200th Ave Ct E & 104th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	226	1	21	5	1	5	21	826	5	5	1042	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	386	1	416	112	43	54	169	1127	7	314	1126	954
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1010	4	1598	84	166	208	440	1872	11	660	1870	1585
Grp Volume(v), veh/h	227	0	21	11	0	0	21	0	831	5	1042	226
Grp Sat Flow(s),veh/h/ln	1014	0	1598	458	0	0	440	0	1883	660	1870	1585
Q Serve(g_s), s	0.0	0.0	0.6	0.1	0.0	0.0	2.6	0.0	18.3	0.3	29.1	3.8
Cycle Q Clear(g_c), s	13.3	0.0	0.6	13.4	0.0	0.0	31.7	0.0	18.3	18.6	29.1	3.8
Prop In Lane	1.00		1.00	0.45		0.45	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	416	209	0	0	169	0	1134	314	1126	954
V/C Ratio(X)	0.59	0.00	0.05	0.05	0.00	0.00	0.12	0.00	0.73	0.02	0.93	0.24
Avail Cap(c_a), veh/h	409	0	440	232	0	0	176	0	1166	325	1158	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	16.1	17.0	0.0	0.0	24.6	0.0	8.2	14.8	10.4	5.4
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	2.3	0.0	12.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.2	0.1	0.0	0.0	0.3	0.0	6.3	0.0	12.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.8	0.0	16.2	17.1	0.0	0.0	24.9	0.0	10.6	14.9	22.6	5.5
LnGrp LOS	C		B	B			C		B	B	C	A
Approach Vol, veh/h		248			11			852			1273	
Approach Delay, s/veh		22.2			17.1			10.9			19.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.0		19.2		39.0		19.2				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		36.0		16.0		36.0		16.0				
Max Q Clear Time (g_c+I1), s		33.7		15.3		31.1		15.4				
Green Ext Time (p_c), s		1.4		0.1		3.5		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.7									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		5428			4422			1245			2683	
Travel Time (s)		105.7			86.1			24.3			52.3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0		36.0	36.0	36.0
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	60.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		32.0	32.0		32.0	32.0	32.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 46.7	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 27: 214th Ave E & 120th St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	274	121	79	16	63	42	37	253	16	116	474	368
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	563	347	226	483	343	229	142	631	37	228	668	726
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1289	1056	690	1192	1045	697	72	1388	81	244	1469	1598
Grp Volume(v), veh/h	274	0	200	16	0	105	306	0	0	590	0	368
Grp Sat Flow(s),veh/h/ln	1289	0	1746	1192	0	1742	1540	0	0	1713	0	1598
Q Serve(g_s), s	7.1	0.0	3.2	0.4	0.0	1.6	0.4	0.0	0.0	0.0	0.0	6.0
Cycle Q Clear(g_c), s	8.7	0.0	3.2	3.6	0.0	1.6	10.7	0.0	0.0	10.2	0.0	6.0
Prop In Lane	1.00		0.40	1.00		0.40	0.12		0.05	0.20		1.00
Lane Grp Cap(c), veh/h	563	0	573	483	0	572	810	0	0	896	0	726
V/C Ratio(X)	0.49	0.00	0.35	0.03	0.00	0.18	0.38	0.00	0.00	0.66	0.00	0.51
Avail Cap(c_a), veh/h	840	0	948	739	0	946	1442	0	0	1584	0	1388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	9.4	10.7	0.0	8.8	6.6	0.0	0.0	8.1	0.0	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.0	0.0	0.2	0.3	0.0	0.0	0.8	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.9	0.1	0.0	0.4	1.0	0.0	0.0	2.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.7	10.8	0.0	9.0	6.9	0.0	0.0	9.0	0.0	7.7
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		474			121			306			958	
Approach Delay, s/veh		11.4			9.2			6.9			8.5	
Approach LOS		B			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.7		16.1		20.7		16.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0		20.0		32.0		20.0				
Max Q Clear Time (g_c+I1), s		12.7		10.7		12.2		5.6				
Green Ext Time (p_c), s		1.3		1.4		4.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.0									
HCM 7th LOS			A									

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	295	165	70	215	155	75
Future Vol, veh/h	295	165	70	215	155	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	311	174	74	226	163	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	484	0	771	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1084	-	370	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1084	-	341	654
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.1	26.36
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	-	-	442	-
HCM Lane V/C Ratio	0.599	-	-	0.068	-
HCM Control Delay (s/veh)	26.4	-	-	8.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	605	450	40	45	190
Future Vol, veh/h	185	605	450	40	45	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	195	637	474	42	47	200

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	516	0	-	0	1521	495
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	1026	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1055	-	-	-	130	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	346	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1055	-	-	-	93	575
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	346	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.15	0	61.59
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	422	-	-	-	289
HCM Lane V/C Ratio	0.185	-	-	-	0.856
HCM Control Delay (s/veh)	9.2	0	-	-	61.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1325	390	335	1145	230	470
Future Volume (vph)	1325	390	335	1145	230	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	0%	
Storage Length (ft)		0	350		75	0
Storage Lanes		0	1		2	1
Taper Length (ft)			25		25	
Right Turn on Red		No				No
Link Speed (mph)	45			45	30	
Link Distance (ft)	1801			1005	1430	
Travel Time (s)	27.3			15.2	32.5	
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	5	
Permitted Phases			8			5
Detector Phase	4		3	8	5	5
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	8.0	8.0
Total Split (s)	52.0		27.0	79.0	51.0	51.0
Total Split (%)	40.0%		20.8%	60.8%	39.2%	39.2%
Maximum Green (s)	48.0		23.0	75.0	47.0	47.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		None	Min	None	None
Walk Time (s)			5.0	5.0		
Flash Dont Walk (s)			11.0	11.0		
Pedestrian Calls (#/hr)			0	0		

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 30: 204th Ave E & SR 410



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1325	390	335	1145	230	470
Future Volume (veh/h)	1325	390	335	1145	230	470
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1949	1949	1870	1870
Adj Flow Rate, veh/h	1366	402	345	1180	237	485
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	1427	418	365	2044	1335	612
Arrive On Green	0.72	0.72	0.32	1.00	0.39	0.39
Sat Flow, veh/h	4120	1158	1856	3800	3456	1585
Grp Volume(v), veh/h	1186	582	345	1180	237	485
Grp Sat Flow(s),veh/h/ln	1716	1677	1856	1851	1728	1585
Q Serve(g_s), s	40.4	41.0	18.5	0.0	5.9	35.2
Cycle Q Clear(g_c), s	40.4	41.0	18.5	0.0	5.9	35.2
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1240	606	365	2044	1335	612
V/C Ratio(X)	0.96	0.96	0.94	0.58	0.18	0.79
Avail Cap(c_a), veh/h	1267	619	397	2136	1335	612
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.69	0.69	0.64	0.64
Uniform Delay (d), s/veh	17.1	17.2	29.6	0.0	26.3	35.3
Incr Delay (d2), s/veh	3.4	6.8	23.6	0.2	0.0	4.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	6.9	10.7	0.1	2.5	13.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	20.5	24.0	53.2	0.2	26.3	39.9
LnGrp LOS	C	C	D	A	C	D
Approach Vol, veh/h	1768			1525	722	
Approach Delay, s/veh	21.7			12.2	35.4	
Approach LOS	C			B	D	

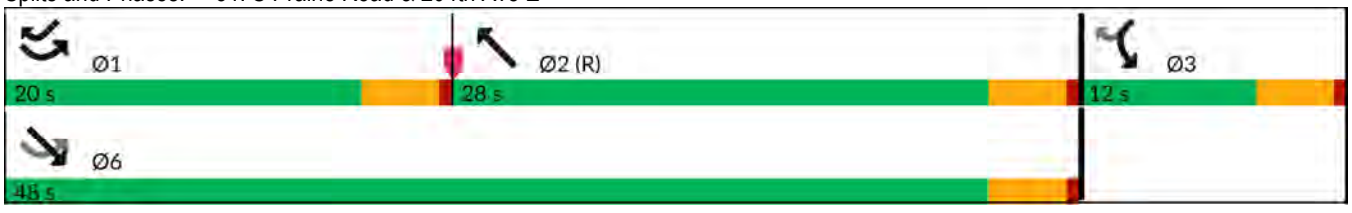
Timer - Assigned Phs	2	3	4		8
Phs Duration (G+Y+Rc), s	54.2	24.8	51.0		75.8
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	47.0	23.0	48.0		75.0
Max Q Clear Time (g_c+I1), s	37.2	20.5	43.0		2.0
Green Ext Time (p_c), s	2.1	0.3	4.0		10.6

Intersection Summary	
HCM 7th Control Delay, s/veh	20.6
HCM 7th LOS	C

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	365	750	485	145	205	340
Future Volume (vph)	365	750	485	145	205	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	130	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		25	25		30	
Link Distance (ft)		1097	4369		1430	
Travel Time (s)		29.9	119.2		32.5	
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6					3
Detector Phase	1	6	2		3	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		8.0	20.0
Total Split (s)	20.0	48.0	28.0		12.0	20.0
Total Split (%)	33.3%	80.0%	46.7%		20.0%	33.3%
Maximum Green (s)	16.0	44.0	24.0		8.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	C-Min		None	Min
Walk Time (s)	5.0	5.0	5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	3	0	1			3

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NWT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 31: S Prairie Road & 204th Ave E



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	365	750	485	145	205	340
Future Volume (veh/h)	365	750	485	145	205	340
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	376	773	500	149	211	351
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	571	1382	752	224	239	416
Arrive On Green	0.13	0.73	0.54	0.54	0.13	0.13
Sat Flow, veh/h	1795	1885	1394	416	1795	1598
Grp Volume(v), veh/h	376	773	0	649	211	351
Grp Sat Flow(s),veh/h/ln	1795	1885	0	1810	1795	1598
Q Serve(g_s), s	4.8	11.1	0.0	15.4	6.9	8.0
Cycle Q Clear(g_c), s	4.8	11.1	0.0	15.4	6.9	8.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	571	1382	0	977	239	416
V/C Ratio(X)	0.66	0.56	0.00	0.66	0.88	0.84
Avail Cap(c_a), veh/h	821	1382	0	977	239	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.27	0.27	0.00	0.09	0.24	0.24
Uniform Delay (d), s/veh	8.3	3.6	0.0	9.9	25.5	21.0
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	9.3	4.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	5.2	3.4	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.6	3.8	0.0	10.2	34.8	25.0
LnGrp LOS	A	A		B	C	C
Approach Vol, veh/h		1149	649		562	
Approach Delay, s/veh		5.3	10.2		28.7	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.6	36.4			48.0	12.0
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0
Max Green Setting (Gmax), s	16.0	24.0			44.0	8.0
Max Q Clear Time (g_c+I1), s	6.8	17.4			13.1	10.0
Green Ext Time (p_c), s	0.9	2.5			6.9	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	145	35	205	135	65	395
Future Vol, veh/h	145	35	205	135	65	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	153	37	216	142	68	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	839	287	0	0	358	0
Stage 1	287	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	337	755	-	-	1201	-
Stage 1	764	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	312	755	-	-	1201	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	26.51	0	1.16
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	352	254	-
HCM Lane V/C Ratio	-	-	0.538	0.057	-
HCM Control Delay (s/veh)	-	-	26.5	8.2	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3	0.2	-

Intersection	
Int Delay, s/veh	5.7

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	100	535	1105	25	20	85
Future Vol, veh/h	100	535	1105	25	20	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	105	563	1163	26	21	89

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1189	0	-	0	1950	1176
Stage 1	-	-	-	-	1176	-
Stage 2	-	-	-	-	774	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	591	-	-	-	70	232
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	453	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	591	-	-	-	52	232
Mov Cap-2 Maneuver	-	-	-	-	52	-
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	453	-

Approach	NB	SB	SE
HCM Control Delay, s/v	1.95	0	90.26
HCM LOS			F

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	283	-	140	-	-
HCM Lane V/C Ratio	0.178	-	0.79	-	-
HCM Control Delay (s/veh)	12.4	0	90.3	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.6	-	4.9	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	180	35	140	435
Future Vol, veh/h	20	40	180	35	140	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	42	188	36	146	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	951	206	0	0	224	0
Stage 1	206	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	290	837	-	-	1351	-
Stage 1	831	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	837	-	-	1351	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	403	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.9	0	1.94
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	438	-
HCM Lane V/C Ratio	-	-	0.134	0.108	-
HCM Control Delay (s/veh)	-	-	13.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	205	45	100	135
Future Vol, veh/h	10	20	205	45	100	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	4	4	2	2	1	1
Mvmt Flow	11	21	216	47	105	142
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay, s/veh	7.9	8.9	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	43%
Vol Thru, %	82%	0%	57%
Vol Right, %	18%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	30	235
LT Vol	0	10	100
Through Vol	205	0	135
RT Vol	45	20	0
Lane Flow Rate	263	32	247
Geometry Grp	1	1	1
Degree of Util (X)	0.297	0.041	0.292
Departure Headway (Hd)	4.067	4.723	4.255
Convergence, Y/N	Yes	Yes	Yes
Cap	871	763	834
Service Time	2.155	2.723	2.336
HCM Lane V/C Ratio	0.302	0.042	0.296
HCM Control Delay, s/veh	8.9	7.9	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.1	1.2

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	15	105	30	35	335
Future Vol, veh/h	45	15	105	30	35	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	16	111	32	37	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	126	0	0	142	0
Stage 1	126	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	494	924	-	-	1441	-
Stage 1	899	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	479	924	-	-	1441	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.48	0	0.72
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	170	-
HCM Lane V/C Ratio	-	-	0.116	0.026	-
HCM Control Delay (s/veh)	-	-	12.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	6.8

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	60	175	155	785	55	510
Future Vol, veh/h	60	175	155	785	55	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	62	180	160	809	57	526

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1448	320	582	0	-	0
Stage 1	320	-	-	-	-	-
Stage 2	1129	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	145	723	997	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	723	997	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	310	-	-	-	-	-

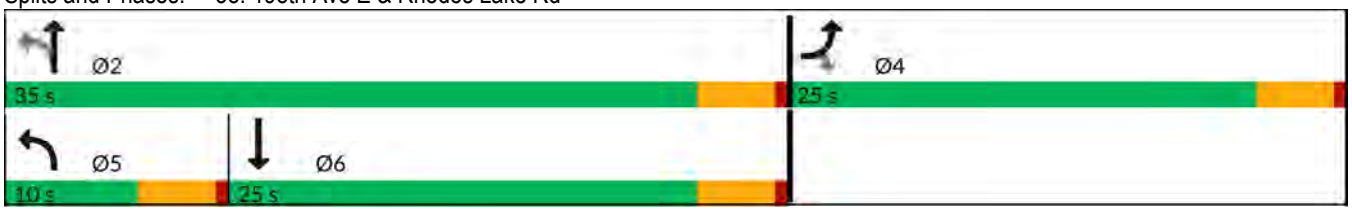
Approach	SB	NE	SW
HCM Control Delay, s/v	44.09	1.53	0
HCM LOS	E		

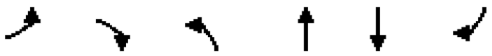
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	997	-	320	-	-
HCM Lane V/C Ratio	0.16	-	0.757	-	-
HCM Control Delay (s/veh)	9.3	-	44.1	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	5.8	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	450	255	725	890	70
Future Volume (vph)	115	450	255	725	890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175	0	325			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	30			30	30	
Link Distance (ft)	1957			1413	624	
Travel Time (s)	44.5			32.1	14.2	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	25.0	25.0	10.0	35.0	25.0	
Total Split (%)	41.7%	41.7%	16.7%	58.3%	41.7%	
Maximum Green (s)	21.0	21.0	6.0	31.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 38: 198th Ave E & Rhodes Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	450	255	725	890	70
Future Volume (veh/h)	115	450	255	725	890	70
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	121	474	268	763	937	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	597	532	373	977	1145	90
Arrive On Green	0.33	0.33	0.11	0.52	0.34	0.34
Sat Flow, veh/h	1795	1598	1781	1870	3457	266
Grp Volume(v), veh/h	121	474	268	763	499	512
Grp Sat Flow(s),veh/h/ln	1795	1598	1781	1870	1791	1837
Q Serve(g_s), s	2.7	15.5	5.0	18.1	14.0	14.0
Cycle Q Clear(g_c), s	2.7	15.5	5.0	18.1	14.0	14.0
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	597	532	373	977	610	626
V/C Ratio(X)	0.20	0.89	0.72	0.78	0.82	0.82
Avail Cap(c_a), veh/h	684	609	373	1052	683	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	17.4	12.1	10.6	16.6	16.6
Incr Delay (d2), s/veh	0.2	14.1	6.6	3.6	7.1	6.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.1	2.2	6.7	6.2	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.3	31.6	18.7	14.2	23.7	23.5
LnGrp LOS	B	C	B	B	C	C
Approach Vol, veh/h	595			1031	1011	
Approach Delay, s/veh	27.8			15.4	23.6	
Approach LOS	C			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.8		22.3	10.0	22.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0		21.0	6.0	21.0
Max Q Clear Time (g_c+I1), s		20.1		17.5	7.0	16.0
Green Ext Time (p_c), s		4.1		0.8	0.0	2.7

Intersection Summary		
HCM 7th Control Delay, s/veh		21.3
HCM 7th LOS		C

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	130	2535	2045	80	0	125
Future Vol, veh/h	130	2535	2045	80	0	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	300	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	134	2613	2108	82	0	129

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2191	0	-	0	-	1054
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	-	-	3.31
Pot Cap-1 Maneuver	241	-	-	-	0	224
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	241	-	-	-	-	224
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SW
HCM Control Delay, s/v	1.81	0	40.83
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	241	-	-	-	224
HCM Lane V/C Ratio	0.555	-	-	-	0.576
HCM Control Delay (s/veh)	37	-	-	-	40.8
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	3	-	-	-	3.2

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	135	35	10	410	40	10
Future Vol, veh/h	135	35	10	410	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	142	37	11	432	42	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	179	0	613	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	453	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1397	-	457	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1397	-	453	887
Mov Cap-2 Maneuver	-	-	-	-	453	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	636	-

Approach	NB	SB	SW
HCM Control Delay, s/v	0	0.18	13.01
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	43	-	502
HCM Lane V/C Ratio	-	-	0.008	-	0.105
HCM Control Delay (s/veh)	-	-	7.6	0	13
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	39.2

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	675	155	155	465	90	145
Future Vol, veh/h	675	155	155	465	90	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	696	160	160	479	93	149

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	856	0	1575	776
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	789	-	122	399
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	789	-	~ 88	399
Mov Cap-2 Maneuver	-	-	-	-	~ 88	-
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	NE
HCM Control Delay, s/v	0	2.68	274.24
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	-	-	450	-
HCM Lane V/C Ratio	1.429	-	-	0.203	-
HCM Control Delay (s/veh)	274.2	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	15.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix C

Intersection Operations Analysis – 2049 Land Use Alternative 2

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	25	200	30	60	230
Future Vol, veh/h	5	25	200	30	60	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	26	211	32	63	242

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	226	0	0	242	0
Stage 1	226	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	469	816	-	-	1330	-
Stage 1	814	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	816	-	-	1330	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.26	0	1.62
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	715	372	-
HCM Lane V/C Ratio	-	-	0.044	0.047	-
HCM Control Delay (s/veh)	-	-	10.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Future Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	53	100	79	21	5	37	42	58	1	37	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8	8.4	8.2	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	3%	75%	2%
Vol Thru, %	31%	33%	20%	85%
Vol Right, %	42%	63%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	150	100	41
LT Vol	35	5	75	1
Through Vol	40	50	20	35
RT Vol	55	95	5	5
Lane Flow Rate	137	158	105	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.179	0.135	0.055
Departure Headway (Hd)	4.348	4.076	4.611	4.586
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	883	779	782
Service Time	2.369	2.093	2.63	2.611
HCM Lane V/C Ratio	0.166	0.179	0.135	0.055
HCM Control Delay, s/veh	8.2	8	8.4	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.5	0.2

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	40	190	400	65
Future Vol, veh/h	20	40	40	190	400	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	21	42	42	200	421	68
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.7	9.7	13.1
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	17%	33%	0%
Vol Thru, %	83%	0%	86%
Vol Right, %	0%	67%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	230	60	465
LT Vol	40	20	0
Through Vol	190	0	400
RT Vol	0	40	65
Lane Flow Rate	242	63	489
Geometry Grp	1	1	1
Degree of Util (X)	0.31	0.09	0.581
Departure Headway (Hd)	4.607	5.148	4.274
Convergence, Y/N	Yes	Yes	Yes
Cap	780	693	847
Service Time	2.636	3.196	2.297
HCM Lane V/C Ratio	0.31	0.091	0.577
HCM Control Delay, s/veh	9.7	8.7	13.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.3	0.3	3.8

Intersection	
Int Delay, s/veh	21.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	85	90	215	335	135
Future Vol, veh/h	90	85	90	215	335	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	95	89	95	226	353	142

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	487	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1245	-	-	-	540	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	768	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1245	-	-	-	496	832
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	SB
HCM Control Delay, s/v	4.18	0	41.71
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	926	-	-	-	562
HCM Lane V/C Ratio	0.076	-	-	-	0.881
HCM Control Delay (s/veh)	8.1	0	-	-	41.7
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	10.1

Intersection	
Int Delay, s/veh	39.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	60	1	55	20	510	95	160	970	5
Future Vol, veh/h	5	5	5	60	1	55	20	510	95	160	970	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	3	3	3	1	1	1	1	1	1
Mvmt Flow	5	5	5	63	1	57	21	531	99	167	1010	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1920	2018	1013	1969	1971	581	1016	0	0	630	0	0
Stage 1	1346	1346	-	622	622	-	-	-	-	-	-	-
Stage 2	573	672	-	1346	1349	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	49	56	281	~ 47	62	512	687	-	-	957	-	-
Stage 1	180	213	-	472	477	-	-	-	-	-	-	-
Stage 2	492	444	-	186	218	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	34	45	281	~ 33	50	512	687	-	-	957	-	-
Mov Cap-2 Maneuver	34	45	-	~ 33	50	-	-	-	-	-	-	-
Stage 1	149	176	-	458	463	-	-	-	-	-	-	-
Stage 2	423	431	-	146	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	96.22	$ 620.85	0.33	1.35
HCM LOS	F	F		

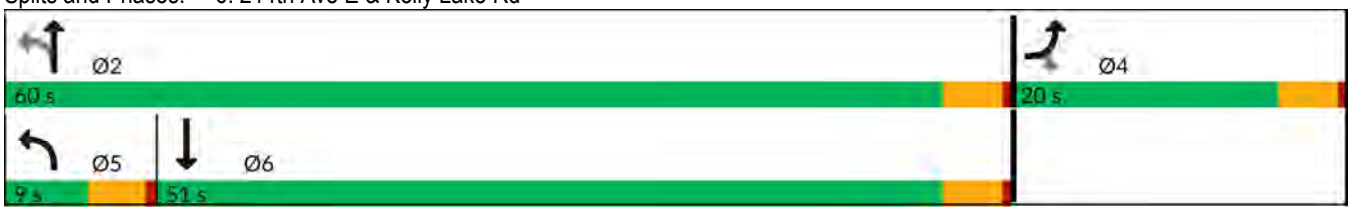
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	687	-	-	54	60	957	-	-
HCM Lane V/C Ratio	0.03	-	-	0.288	2.017	0.174	-	-
HCM Control Delay (s/veh)	10.4	-	-	96.2	$ 620.9	9.6	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	11.5	0.6	-	-

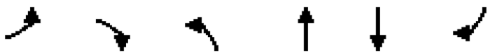
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	280	185	555	965	80
Future Volume (vph)	65	280	185	555	965	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			35	35	
Link Distance (ft)	2403			1356	1630	
Travel Time (s)	65.5			26.4	31.8	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	9.0	60.0	51.0	
Total Split (%)	25.0%	25.0%	11.3%	75.0%	63.8%	
Maximum Green (s)	16.0	16.0	5.0	56.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 6: 214th Ave E & Kelly Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	280	185	555	965	80
Future Volume (veh/h)	65	280	185	555	965	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	68	295	195	584	1016	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	356	317	202	1320	1001	83
Arrive On Green	0.20	0.20	0.06	0.70	0.59	0.59
Sat Flow, veh/h	1781	1585	1795	1885	1704	141
Grp Volume(v), veh/h	68	295	195	584	0	1100
Grp Sat Flow(s),veh/h/ln	1781	1585	1795	1885	0	1845
Q Serve(g_s), s	2.5	14.6	4.6	10.8	0.0	47.0
Cycle Q Clear(g_c), s	2.5	14.6	4.6	10.8	0.0	47.0
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	356	317	202	1320	0	1084
V/C Ratio(X)	0.19	0.93	0.96	0.44	0.00	1.01
Avail Cap(c_a), veh/h	356	317	202	1320	0	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	31.5	24.3	5.2	0.0	16.5
Incr Delay (d2), s/veh	0.3	33.0	52.9	0.2	0.0	31.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	14.7	5.0	3.1	0.0	25.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.9	64.4	77.2	5.4	0.0	47.6
LnGrp LOS	C	E	E	A		F
Approach Vol, veh/h	363			779	1100	
Approach Delay, s/veh	57.4			23.4	47.6	
Approach LOS	E			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.0		20.0	9.0	51.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		56.0		16.0	5.0	47.0
Max Q Clear Time (g_c+I1), s		12.8		16.6	6.6	49.0
Green Ext Time (p_c), s		2.7		0.0	0.0	0.0

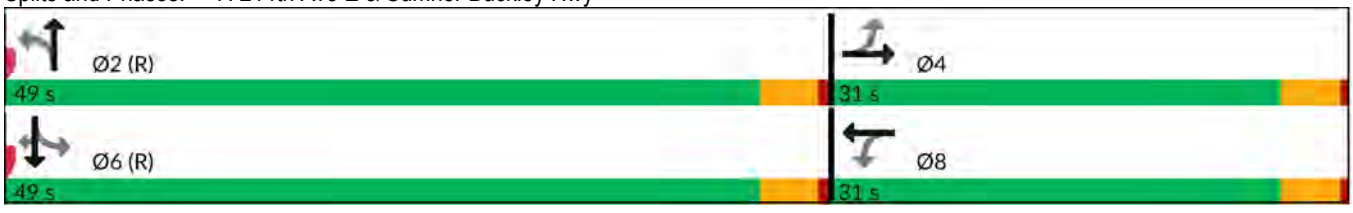
Intersection Summary	
HCM 7th Control Delay, s/veh	40.8
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	310	85	25	175	65	40	445	35	120	860	255
Future Volume (vph)	275	310	85	25	175	65	40	445	35	120	860	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		2632			1239			2614			1356	
Travel Time (s)		59.8			28.2			50.9			26.4	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%		61.3%	61.3%	61.3%
Maximum Green (s)	27.0	27.0		27.0	27.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 7: 214th Ave E & Sumner Buckley Hwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	310	85	25	175	65	40	445	35	120	860	255
Future Volume (veh/h)	275	310	85	25	175	65	40	445	35	120	860	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	289	326	89	26	184	68	42	468	37	126	905	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	351	481	131	228	443	164	67	592	44	219	1060	899
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.75	0.75	0.75	0.56	0.56	0.56
Sat Flow, veh/h	1137	1426	389	979	1313	485	33	1053	79	901	1885	1598
Grp Volume(v), veh/h	289	0	415	26	0	252	547	0	0	126	905	268
Grp Sat Flow(s),veh/h/ln	1137	0	1815	979	0	1798	1165	0	0	901	1885	1598
Q Serve(g_s), s	18.4	0.0	15.7	1.9	0.0	8.6	12.7	0.0	0.0	0.0	32.3	7.1
Cycle Q Clear(g_c), s	27.0	0.0	15.7	17.6	0.0	8.6	45.0	0.0	0.0	42.7	32.3	7.1
Prop In Lane	1.00		0.21	1.00		0.27	0.08		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	613	228	0	607	704	0	0	219	1060	899
V/C Ratio(X)	0.82	0.00	0.68	0.11	0.00	0.42	0.78	0.00	0.00	0.58	0.85	0.30
Avail Cap(c_a), veh/h	351	0	613	228	0	607	704	0	0	219	1060	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.00	0.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	31.7	0.0	22.8	30.3	0.0	20.4	9.0	0.0	0.0	17.0	14.7	9.2
Incr Delay (d2), s/veh	14.6	0.0	3.0	0.2	0.0	0.5	7.8	0.0	0.0	1.0	0.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	6.9	0.4	0.0	3.5	4.0	0.0	0.0	1.9	11.7	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.4	0.0	25.7	30.5	0.0	20.9	16.8	0.0	0.0	18.0	15.6	9.3
LnGrp LOS	D		C	C		C	B			B	B	A
Approach Vol, veh/h		704			278			547			1299	
Approach Delay, s/veh		34.2			21.8			16.8			14.5	
Approach LOS		C			C			B			B	

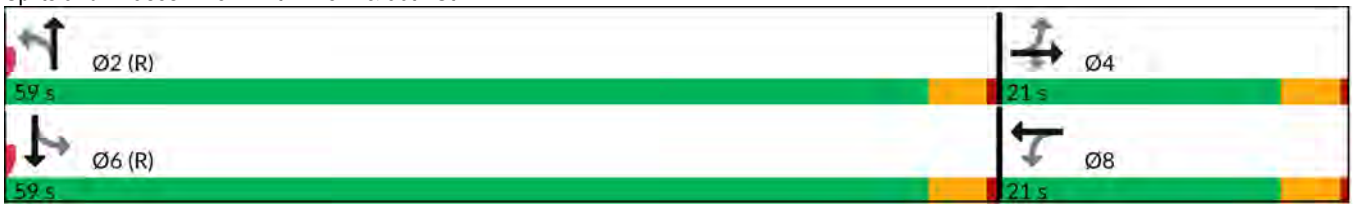
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		49.0		31.0		49.0		31.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		45.0		27.0		45.0		27.0				
Max Q Clear Time (g_c+I1), s		47.0		29.0		44.7		19.6				
Green Ext Time (p_c), s		0.0		0.0		0.2		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			20.6									
HCM 7th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	20	50	45	20	15	35	455	55	55	755	25
Future Volume (vph)	35	20	50	45	20	15	35	455	55	55	755	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		261			692			981			2614	
Travel Time (s)		5.9			15.7			19.1			50.9	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		59.0	59.0		59.0	59.0	
Total Split (%)	26.3%	26.3%	26.3%	26.3%	26.3%		73.8%	73.8%		73.8%	73.8%	
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		55.0	55.0		55.0	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 11 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 214th Ave E & 96th St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	20	50	45	20	15	35	455	55	55	755	25
Future Volume (veh/h)	35	20	50	45	20	15	35	455	55	55	755	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	36	21	52	47	21	16	36	474	57	57	786	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	158	76	149	123	44	23	636	1331	160	744	1494	49
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00
Sat Flow, veh/h	902	813	1598	569	468	244	677	1651	199	898	1852	61
Grp Volume(v), veh/h	57	0	52	84	0	0	36	0	531	57	0	812
Grp Sat Flow(s),veh/h/ln	1715	0	1598	1280	0	0	677	0	1849	898	0	1913
Q Serve(g_s), s	0.0	0.0	2.4	3.1	0.0	0.0	0.9	0.0	6.2	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	2.4	5.4	0.0	0.0	0.9	0.0	6.2	6.8	0.0	0.0
Prop In Lane	0.63		1.00	0.56		0.19	1.00		0.11	1.00		0.03
Lane Grp Cap(c), veh/h	234	0	149	190	0	0	636	0	1492	744	0	1543
V/C Ratio(X)	0.24	0.00	0.35	0.44	0.00	0.00	0.06	0.00	0.36	0.08	0.00	0.53
Avail Cap(c_a), veh/h	416	0	339	366	0	0	636	0	1492	744	0	1543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.57	0.00	0.57	0.45	0.00	0.45
Uniform Delay (d), s/veh	33.9	0.0	34.0	35.5	0.0	0.0	1.6	0.0	2.1	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.4	1.6	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	1.6	0.0	0.0	0.1	0.0	1.0	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.4	0.0	35.4	37.1	0.0	0.0	1.7	0.0	2.5	0.4	0.0	0.6
LnGrp LOS	C		D	D			A		A	A		A
Approach Vol, veh/h		109			84			567			869	
Approach Delay, s/veh		34.9			37.1			2.4			0.6	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	68.5	11.5	68.5	11.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	55.0	17.0	55.0	17.0
Max Q Clear Time (g_c+I1), s	8.2	4.4	8.8	7.4
Green Ext Time (p_c), s	2.8	0.3	4.9	0.1

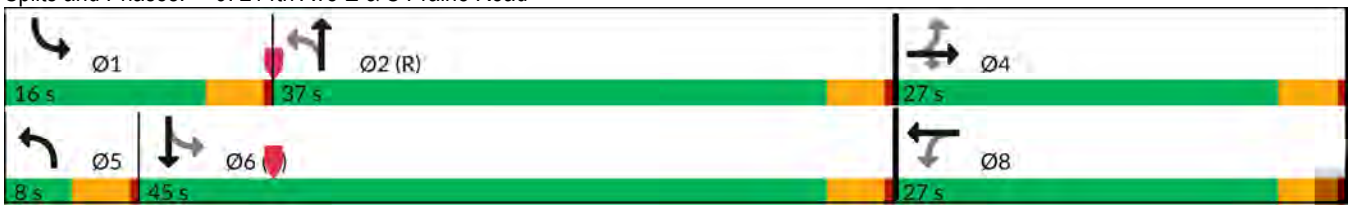
Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	455	445	5	270	180	200	370	5	275	705	135
Future Volume (vph)	40	455	445	5	270	180	200	370	5	275	705	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4369			2155			1288			3394	
Travel Time (s)		119.2			58.8			25.1			66.1	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0		8.0	37.0		16.0	45.0	
Total Split (%)	33.8%	33.8%	33.8%	33.8%	33.8%		10.0%	46.3%		20.0%	56.3%	
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0		4.0	33.0		12.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 56 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 9: 214th Ave E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	455	445	5	270	180	200	370	5	275	705	135
Future Volume (veh/h)	40	455	445	5	270	180	200	370	5	275	705	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	41	469	459	5	278	186	206	381	5	284	727	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	71	450	459	45	219	144	331	845	11	599	966	
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.46	0.46	0.11	0.51	0.00
Sat Flow, veh/h	79	1564	1598	0	763	502	1795	1856	24	1795	1885	0
Grp Volume(v), veh/h	510	0	459	469	0	0	206	0	386	284	727	0
Grp Sat Flow(s),veh/h/ln	1643	0	1598	1265	0	0	1795	0	1881	1795	1885	0
Q Serve(g_s), s	0.0	0.0	23.0	0.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Cycle Q Clear(g_c), s	23.0	0.0	23.0	23.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Prop In Lane	0.08		1.00	0.01		0.40	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	521	0	459	409	0	0	331	0	856	599	966	
V/C Ratio(X)	0.98	0.00	1.00	1.15	0.00	0.00	0.62	0.00	0.45	0.47	0.75	
Avail Cap(c_a), veh/h	521	0	459	409	0	0	331	0	856	676	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.00	0.74	1.00	0.00	0.00	1.00	0.00	1.00	0.43	0.43	0.00
Uniform Delay (d), s/veh	28.8	0.0	28.5	26.9	0.0	0.0	17.6	0.0	14.9	9.6	15.5	0.0
Incr Delay (d2), s/veh	28.6	0.0	35.9	90.8	0.0	0.0	3.6	0.0	1.7	0.3	2.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	13.1	17.3	0.0	0.0	2.1	0.0	4.8	2.1	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.4	0.0	64.4	117.7	0.0	0.0	21.2	0.0	16.6	9.9	17.9	0.0
LnGrp LOS	E		E	F			C		B	A	B	
Approach Vol, veh/h		969			469			592			1011	
Approach Delay, s/veh		60.7			117.7			18.2			15.6	
Approach LOS		E			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	40.4		27.0	8.0	45.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	33.0		23.0	4.0	41.0		23.0				
Max Q Clear Time (g_c+I1), s	8.2	13.3		25.0	6.0	26.5		25.0				
Green Ext Time (p_c), s	0.4	1.4		0.0	0.0	3.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	46.3
HCM 7th LOS	D

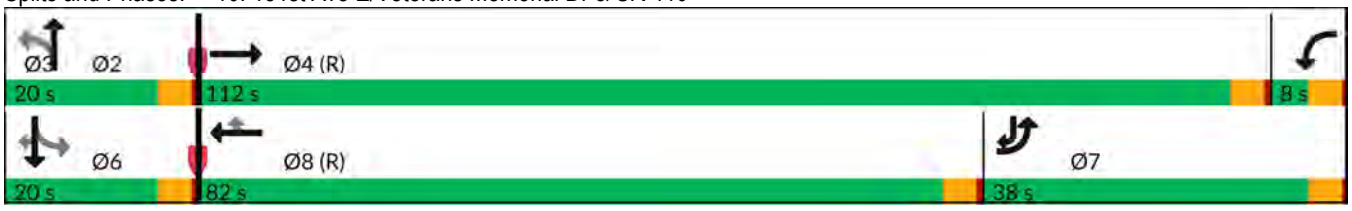
Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		0	100		250	0		0	0		50
Storage Lanes	2		0	1		1	0		0	0		2
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1510			1091			468			786	
Travel Time (s)		22.9			16.5			12.8			21.4	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	8.0
Total Split (s)	38.0	112.0		8.0	82.0	82.0	20.0	20.0		20.0	20.0	38.0
Total Split (%)	27.1%	80.0%		5.7%	58.6%	58.6%	14.3%	14.3%		14.3%	14.3%	27.1%
Maximum Green (s)	34.0	108.0		4.0	78.0	78.0	16.0	16.0		16.0	16.0	34.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead						Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		Min	Min	None
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: 181st Ave E/Veterans Memorial Dr & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	629	1985	5	10	1593	36	10	21	10	67	26	521
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	846	2827	7	51	1980	883	37	64	22	117	39	1004
Arrive On Green	0.24	0.77	0.77	0.06	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3665	9	1781	3554	1585	42	561	195	637	338	2812
Grp Volume(v), veh/h	629	969	1021	10	1593	36	41	0	0	93	0	521
Grp Sat Flow(s),veh/h/ln	1742	1791	1884	1781	1777	1585	798	0	0	975	0	1406
Q Serve(g_s), s	23.4	37.8	37.8	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.4	37.8	37.8	0.7	0.0	0.0	14.3	0.0	0.0	14.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.24		0.24	0.72		1.00
Lane Grp Cap(c), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
V/C Ratio(X)	0.74	0.70	0.70	0.20	0.80	0.04	0.33	0.00	0.00	0.60	0.00	0.52
Avail Cap(c_a), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	49.0	8.0	8.0	64.5	0.0	0.0	56.5	0.0	0.0	60.7	0.0	35.5
Incr Delay (d2), s/veh	3.6	3.0	2.9	1.3	2.6	0.1	1.6	0.0	0.0	4.7	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	12.4	13.0	0.4	0.7	0.0	1.4	0.0	0.0	3.5	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.6	11.0	10.8	65.8	2.6	0.1	58.0	0.0	0.0	65.5	0.0	35.9
LnGrp LOS	D	B	B	E	A	A	E			E		D
Approach Vol, veh/h		2619			1639			41			614	
Approach Delay, s/veh		20.9			2.9			58.0			40.4	
Approach LOS		C			A			E			D	

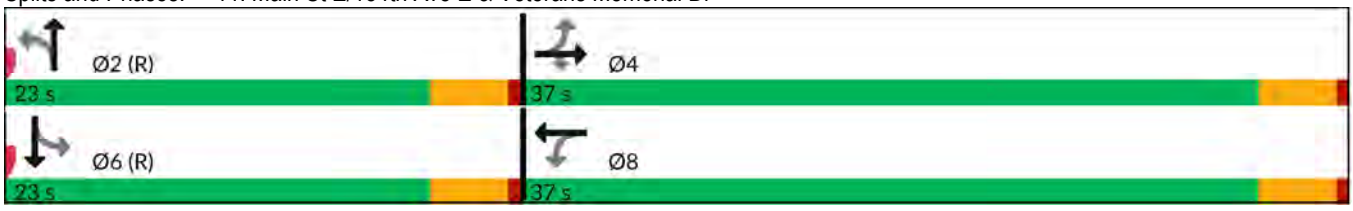
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	8.0	112.0		20.0	38.0	82.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	4.0	108.0		16.0	34.0	78.0				
Max Q Clear Time (g_c+I1), s		16.3	2.7	39.8		16.1	25.4	2.0				
Green Ext Time (p_c), s		0.0	0.0	16.1		0.0	2.0	11.8				

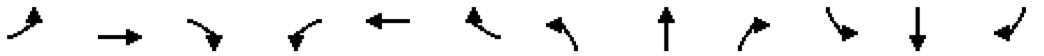
Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		150	100		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		786			1067			1220			789	
Travel Time (s)		21.4			29.1			33.3			21.5	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%	61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 11: Main St E/184th Ave E & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	32	595	58	89	479	26	32	42	142	111	226	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	323	819	694	256	770	42	514	163	552	557	734	68
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	901	1885	1598	786	1772	96	1142	378	1277	1209	1699	158
Grp Volume(v), veh/h	32	595	58	89	0	505	32	0	184	111	0	247
Grp Sat Flow(s),veh/h/ln	901	1885	1598	786	0	1868	1142	0	1655	1209	0	1857
Q Serve(g_s), s	1.7	15.7	1.3	6.3	0.0	12.6	1.1	0.0	4.3	3.9	0.0	5.2
Cycle Q Clear(g_c), s	14.3	15.7	1.3	22.0	0.0	12.6	6.4	0.0	4.3	8.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.77	1.00		0.09
Lane Grp Cap(c), veh/h	323	819	694	256	0	811	514	0	715	557	0	803
V/C Ratio(X)	0.10	0.73	0.08	0.35	0.00	0.62	0.06	0.00	0.26	0.20	0.00	0.31
Avail Cap(c_a), veh/h	427	1037	879	347	0	1027	514	0	715	557	0	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.64	0.00	0.64	0.96	0.00	0.96	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	14.0	10.0	23.1	0.0	13.2	13.2	0.0	10.9	13.5	0.0	11.2
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.5	0.0	0.5	0.2	0.0	0.8	0.8	0.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.1	0.4	1.2	0.0	4.8	0.3	0.0	1.6	1.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.8	15.2	10.0	23.6	0.0	13.7	13.5	0.0	11.7	14.3	0.0	12.1
LnGrp LOS	B	B	A	C		B	B		B	B		B
Approach Vol, veh/h		685			594			216			358	
Approach Delay, s/veh		14.9			15.2			12.0			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	29.9	30.1	29.9	30.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	19.0	33.0	19.0	33.0
Max Q Clear Time (g_c+I1), s	8.4	17.7	10.1	24.0
Green Ext Time (p_c), s	0.7	3.0	1.0	2.1

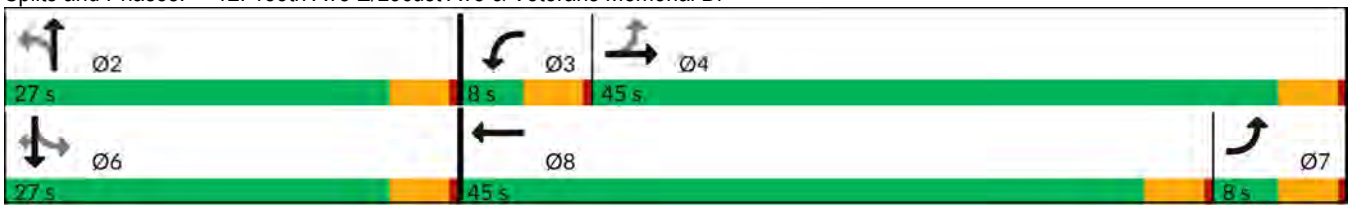
Intersection Summary	
HCM 7th Control Delay, s/veh	14.2
HCM 7th LOS	B

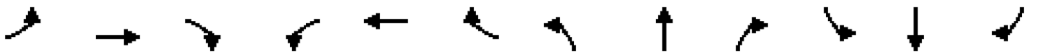
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			2%			-3%	
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1067			412			245			4942	
Travel Time (s)		29.1			11.2			6.7			134.8	
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	8.0	45.0		8.0	45.0		27.0	27.0		27.0	27.0	27.0
Total Split (%)	10.0%	56.3%		10.0%	56.3%		33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	4.0	41.0		4.0	41.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			1		4	4		7	7	7

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 60.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: 188th Ave E/Locust Ave & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1862	1862	1862	1817	1817	1817	1973	1973	1973
Adj Flow Rate, veh/h	121	700	16	42	489	147	16	21	53	216	21	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	4	4	4	3	3	3
Cap, veh/h	255	795	18	58	556	167	65	85	122	273	22	587
Arrive On Green	0.06	0.43	0.43	0.03	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	1836	42	1773	1374	413	0	243	348	478	63	1672
Grp Volume(v), veh/h	121	0	716	42	0	636	90	0	0	237	0	137
Grp Sat Flow(s),veh/h/ln	1795	0	1878	1773	0	1787	591	0	0	541	0	1672
Q Serve(g_s), s	0.0	0.0	22.9	1.5	0.0	21.5	0.0	0.0	0.0	0.0	0.0	3.8
Cycle Q Clear(g_c), s	0.0	0.0	22.9	1.5	0.0	21.5	23.0	0.0	0.0	23.0	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.23	0.18		0.59	0.91		1.00
Lane Grp Cap(c), veh/h	255	0	813	58	0	723	272	0	0	295	0	587
V/C Ratio(X)	0.47	0.00	0.88	0.73	0.00	0.88	0.33	0.00	0.00	0.80	0.00	0.23
Avail Cap(c_a), veh/h	255	0	1175	108	0	1119	272	0	0	295	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	17.0	31.4	0.0	18.0	16.2	0.0	0.0	23.3	0.0	15.0
Incr Delay (d2), s/veh	1.4	0.0	5.7	15.8	0.0	5.4	0.7	0.0	0.0	14.8	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	10.2	0.9	0.0	9.1	0.9	0.0	0.0	4.9	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.8	0.0	22.7	47.2	0.0	23.4	16.9	0.0	0.0	38.2	0.0	15.2
LnGrp LOS	C		C	D		C	B			D		B
Approach Vol, veh/h		837			678			90			374	
Approach Delay, s/veh		23.8			24.9			16.9			29.8	
Approach LOS		C			C			B			C	

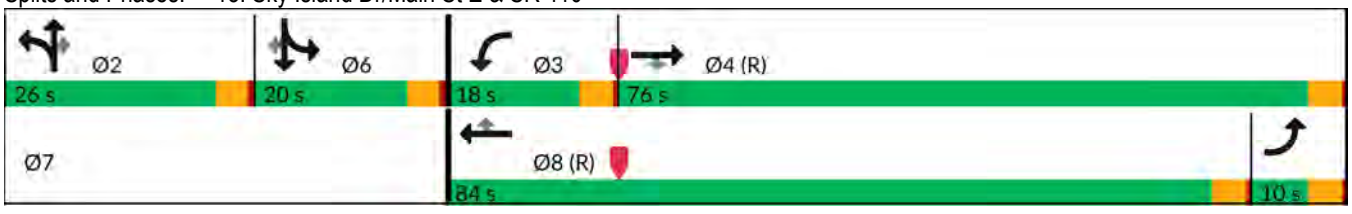
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	6.1	32.4		27.0	8.0	30.5				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		23.0	4.0	41.0		23.0	4.0	41.0				
Max Q Clear Time (g_c+I1), s		25.0	3.5	24.9		25.0	2.0	23.5				
Green Ext Time (p_c), s		0.0	0.0	3.3		0.0	0.1	3.0				

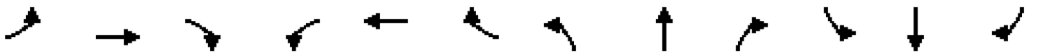
Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			0%			-2%	
Storage Length (ft)	100		200	100		200	100		100	100		100
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1091			3227			439			1220	
Travel Time (s)		16.5			48.9			12.0			33.3	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	76.0	76.0	18.0	84.0	84.0	26.0	26.0	26.0	20.0	20.0	20.0
Total Split (%)	7.1%	54.3%	54.3%	12.9%	60.0%	60.0%	18.6%	18.6%	18.6%	14.3%	14.3%	14.3%
Maximum Green (s)	6.0	72.0	72.0	14.0	80.0	80.0	22.0	22.0	22.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 139 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	

Splits and Phases: 13: Sky Island Dr/Main St E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1924	1924	1924	1864	1864	1864	1885	1885	1885	1964	1964	1964
Adj Flow Rate, veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	240	2202	982	178	2024	903	309	167		343	186	
Arrive On Green	0.26	1.00	1.00	0.10	0.57	0.57	0.09	0.09	0.00	0.09	0.09	0.00
Sat Flow, veh/h	1833	3656	1631	1776	3542	1580	3483	1885	1598	3628	1964	1664
Grp Volume(v), veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Grp Sat Flow(s),veh/h/ln	1833	1828	1631	1776	1771	1580	1742	1885	1598	1814	1964	1664
Q Serve(g_s), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	2202	982	178	2024	903	309	167		343	186	
V/C Ratio(X)	0.15	0.85	0.18	1.02	0.73	0.13	0.52	0.78		0.75	0.82	
Avail Cap(c_a), veh/h	240	2202	982	178	2024	903	547	296		415	224	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.54	0.54	0.54	1.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	45.7	0.0	0.0	63.0	22.0	13.9	61.0	62.5	0.0	61.8	62.2	0.0
Incr Delay (d2), s/veh	0.2	3.1	0.3	56.2	1.3	0.2	1.4	7.8	0.0	5.9	17.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.1	9.0	16.8	1.7	2.8	5.0	0.0	4.8	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.9	3.1	0.3	119.2	23.2	14.0	62.3	70.2	0.0	67.7	79.3	0.0
LnGrp LOS	D	A	A	F	C	B	E	E		E	E	
Approach Vol, veh/h		2081			1768			293			410	
Approach Delay, s/veh		3.6			32.5			65.9			72.0	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.4	18.0	88.3	17.3	22.3	84.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	22.0	14.0	72.0	16.0	6.0	80.0
Max Q Clear Time (g_c+I1), s	11.5	16.0	2.0	12.6	4.1	44.6
Green Ext Time (p_c), s	0.9	0.0	18.1	0.6	0.0	10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Notes

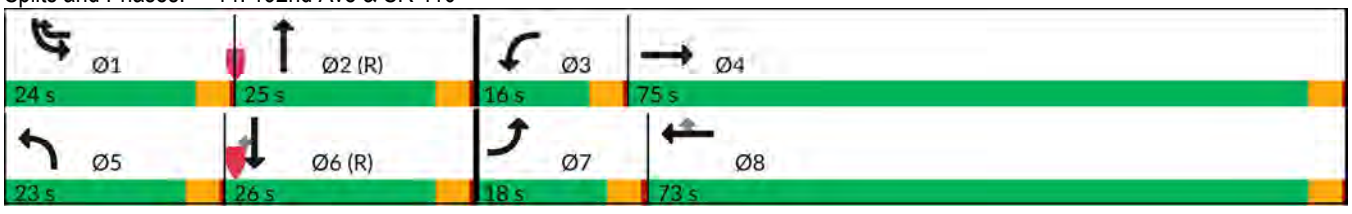
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

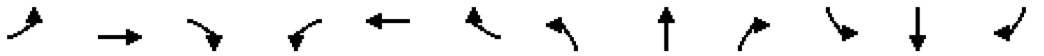
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	2020	185	95	1510	405	145	115	45	360	135	80
Future Volume (vph)	125	2020	185	95	1510	405	145	115	45	360	135	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	300		250	150		300	50		0	100		150
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3227			1056			370			601	
Travel Time (s)		48.9			16.0			8.4			13.7	
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	8.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	18.0	75.0		16.0	73.0	24.0	23.0	25.0		24.0	26.0	26.0
Total Split (%)	12.9%	53.6%		11.4%	52.1%	17.1%	16.4%	17.9%		17.1%	18.6%	18.6%
Maximum Green (s)	14.0	71.0		12.0	69.0	20.0	19.0	21.0		20.0	22.0	22.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0			5.0	5.0
Flash Don't Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		1			1			1			1	1

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 14: 192nd Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2020	185	95	1510	405	145	115	45	360	135	80
Future Volume (veh/h)	125	2020	185	95	1510	405	145	115	45	360	135	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	128	2061	189	97	1541	413	148	117	46	367	138	82
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	151	2318	211	118	1677	924	173	269	106	422	442	369
Arrive On Green	0.09	0.49	0.49	0.13	0.94	0.94	0.10	0.21	0.21	0.12	0.23	0.23
Sat Flow, veh/h	1773	4741	431	1790	3571	1558	1795	1282	504	3483	1885	1575
Grp Volume(v), veh/h	128	1468	782	97	1541	413	148	0	163	367	138	82
Grp Sat Flow(s),veh/h/ln	1773	1694	1784	1790	1785	1558	1795	0	1786	1742	1885	1575
Q Serve(g_s), s	10.0	54.7	55.9	7.4	26.9	3.7	11.4	0.0	11.1	14.5	8.5	5.9
Cycle Q Clear(g_c), s	10.0	54.7	55.9	7.4	26.9	3.7	11.4	0.0	11.1	14.5	8.5	5.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	151	1657	872	118	1677	924	173	0	375	422	442	369
V/C Ratio(X)	0.85	0.89	0.90	0.82	0.92	0.45	0.86	0.00	0.44	0.87	0.31	0.22
Avail Cap(c_a), veh/h	177	1718	905	153	1760	961	244	0	375	498	442	369
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.14	0.39	0.39	0.39	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	32.3	32.6	60.0	3.1	1.4	62.3	0.0	48.1	60.4	44.3	43.3
Incr Delay (d2), s/veh	4.9	0.9	1.9	10.4	3.5	0.1	18.4	0.0	3.6	13.6	1.8	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	21.3	23.2	3.4	2.4	0.6	6.1	0.0	5.4	7.2	4.2	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	33.1	34.5	70.4	6.6	1.6	80.7	0.0	51.8	74.0	46.1	44.6
LnGrp LOS	E	C	C	E	A	A	F		D	E	D	D
Approach Vol, veh/h		2378			2051			311			587	
Approach Delay, s/veh		35.5			8.6			65.5			63.4	
Approach LOS		D			A			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	33.4	13.2	72.5	17.5	36.8	15.9	69.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	21.0	12.0	71.0	19.0	22.0	14.0	69.0
Max Q Clear Time (g_c+I1), s	16.5	13.1	9.4	57.9	13.4	10.5	12.0	28.9
Green Ext Time (p_c), s	0.5	0.5	0.0	10.6	0.2	0.7	0.1	18.3

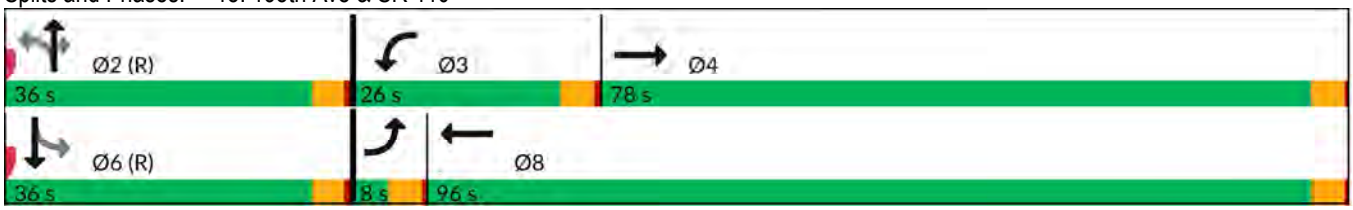
Intersection Summary	
HCM 7th Control Delay, s/veh	29.9
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2405	75	240	2045	35	70	5	290	15	5	25
Future Volume (vph)	10	2405	75	240	2045	35	70	5	290	15	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1230			413			224	
Travel Time (s)		16.0			18.6			9.4			5.1	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	
Total Split (s)	8.0	78.0		26.0	96.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	5.7%	55.7%		18.6%	68.6%		25.7%	25.7%	25.7%	25.7%	25.7%	
Maximum Green (s)	4.0	74.0		22.0	92.0		32.0	32.0	32.0	32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		3			1		1	1	1	1	1	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 15: 195th Ave & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2405	75	240	2045	35	70	5	290	15	5	25
Future Volume (veh/h)	10	2405	75	240	2045	35	70	5	290	15	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	10	2479	77	247	2108	36	72	5	299	15	5	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	16	2652	82	270	2390	41	346	22	382	245	62	324
Arrive On Green	0.01	0.52	0.52	0.15	0.67	0.67	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1773	5061	156	1790	3591	61	1238	94	1596	1066	260	1351
Grp Volume(v), veh/h	10	1654	902	247	1045	1099	77	0	299	15	0	31
Grp Sat Flow(s),veh/h/ln	1773	1694	1829	1790	1785	1867	1332	0	1596	1066	0	1610
Q Serve(g_s), s	0.8	63.6	64.8	19.0	66.0	67.1	6.1	0.0	24.6	1.6	0.0	2.1
Cycle Q Clear(g_c), s	0.8	63.6	64.8	19.0	66.0	67.1	8.2	0.0	24.6	9.8	0.0	2.1
Prop In Lane	1.00		0.09	1.00		0.03	0.94		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	16	1775	959	270	1188	1242	369	0	382	245	0	386
V/C Ratio(X)	0.61	0.93	0.94	0.92	0.88	0.88	0.21	0.00	0.78	0.06	0.00	0.08
Avail Cap(c_a), veh/h	51	1791	967	281	1188	1242	369	0	382	245	0	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.15	0.15	0.15	0.59	0.59	0.59	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	31.0	31.3	58.6	18.9	19.1	44.3	0.0	49.8	47.6	0.0	41.3
Incr Delay (d2), s/veh	5.5	1.7	3.5	21.9	4.8	4.9	1.3	0.0	14.7	0.5	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	24.6	27.6	10.1	25.4	27.0	2.3	0.0	11.1	0.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.6	32.7	34.8	80.5	23.7	24.0	45.6	0.0	64.5	48.1	0.0	41.7
LnGrp LOS	E	C	C	F	C	C	D		E	D		D
Approach Vol, veh/h		2566			2391			376			46	
Approach Delay, s/veh		33.6			29.7			60.7			43.8	
Approach LOS		C			C			E			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.5	25.1	77.4		37.5	5.3	97.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		32.0	22.0	74.0		32.0	4.0	92.0				
Max Q Clear Time (g_c+I1), s		26.6	21.0	66.8		11.8	2.8	69.1				
Green Ext Time (p_c), s		0.7	0.1	6.6		0.1	0.0	17.1				

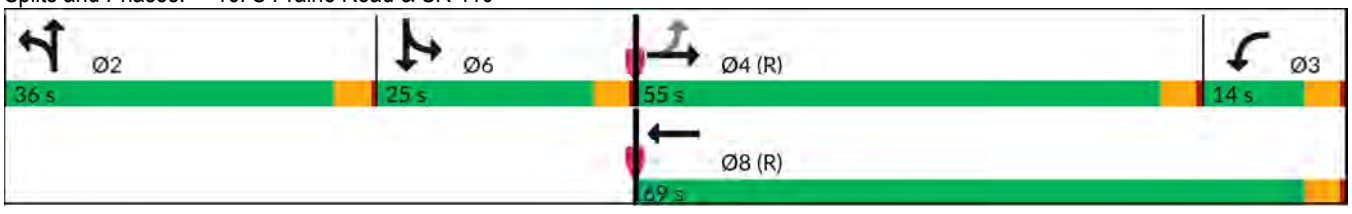
Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Future Volume (vph)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			3%			0%	
Storage Length (ft)	300		0	350		300	500		750	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1230			1801			998			1675	
Travel Time (s)		18.6			27.3			27.2			45.7	
Turn Type	Perm	NA	Free	Prot	NA		Split	NA		Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4		Free									
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	55.0	55.0		14.0	69.0		36.0	36.0		25.0	25.0	
Total Split (%)	42.3%	42.3%		10.8%	53.1%		27.7%	27.7%		19.2%	19.2%	
Maximum Green (s)	51.0	51.0		10.0	65.0		32.0	32.0		21.0	21.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 65 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 16: S Prairie Road & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Future Volume (veh/h)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1964	1964	1964	1832	1832	1832	1856	1856	1856
Adj Flow Rate, veh/h	57	1340	0	134	1129	124	1222	186	0	258	237	52
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	162	1388		144	2445	268	1211	451		285	237	52
Arrive On Green	0.39	0.39	0.00	0.08	0.50	0.50	0.25	0.25	0.00	0.16	0.16	0.16
Sat Flow, veh/h	441	3537	1578	1870	4891	537	4921	1832	0	1767	1470	322
Grp Volume(v), veh/h	57	1340	0	134	825	428	1222	186	0	258	0	289
Grp Sat Flow(s),veh/h/ln	441	1769	1578	1870	1787	1854	1640	1832	0	1767	0	1792
Q Serve(g_s), s	14.6	48.2	0.0	9.3	19.5	19.5	32.0	11.1	0.0	18.6	0.0	21.0
Cycle Q Clear(g_c), s	34.1	48.2	0.0	9.3	19.5	19.5	32.0	11.1	0.0	18.6	0.0	21.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.00	1.00		0.18
Lane Grp Cap(c), veh/h	162	1388		144	1787	927	1211	451		285	0	290
V/C Ratio(X)	0.35	0.97		0.93	0.46	0.46	1.01	0.41		0.90	0.00	1.00
Avail Cap(c_a), veh/h	162	1388		144	1787	927	1211	451		285	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.00	0.86	0.86	0.86	0.77	0.77	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	38.6	0.0	59.7	21.1	21.1	49.0	41.1	0.0	53.5	0.0	54.5
Incr Delay (d2), s/veh	1.5	6.4	0.0	49.9	0.7	1.4	24.9	0.5	0.0	29.8	0.0	52.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	21.1	0.0	6.3	7.9	8.4	15.9	5.1	0.0	10.7	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.4	45.1	0.0	109.5	21.9	22.6	73.9	41.6	0.0	83.3	0.0	106.8
LnGrp LOS	D	D		F	C	C	F	D		F		F
Approach Vol, veh/h		1397			1387			1408			547	
Approach Delay, s/veh		45.1			30.5			69.6			95.7	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	2	3	4		6		8					
Phs Duration (G+Y+Rc), s	36.0	14.0	55.0		25.0		69.0					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s	32.0	10.0	51.0		21.0		65.0					
Max Q Clear Time (g_c+I1), s	34.0	11.3	50.2		23.0		21.5					
Green Ext Time (p_c), s	0.0	0.0	0.6		0.0		6.4					

Intersection Summary	
HCM 7th Control Delay, s/veh	54.0
HCM 7th LOS	D

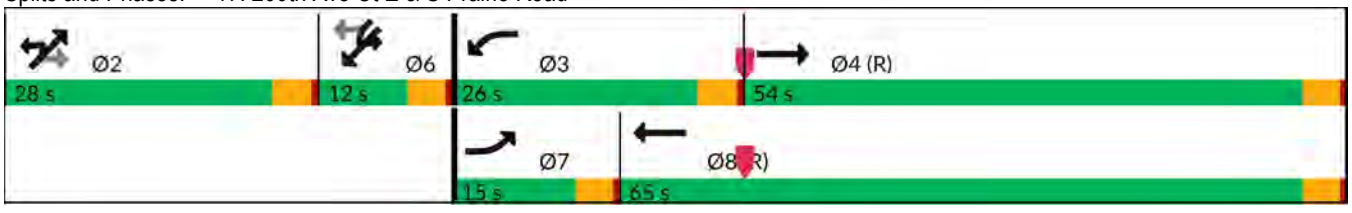
Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	225		225	350		250	100		0
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			Yes			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		998			1097			486			264	
Travel Time (s)		27.2			29.9			13.3			7.2	
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			Free						2			6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	15.0	54.0		26.0	65.0		28.0	28.0	28.0	12.0	12.0	12.0
Total Split (%)	12.5%	45.0%		21.7%	54.2%		23.3%	23.3%	23.3%	10.0%	10.0%	10.0%
Maximum Green (s)	11.0	50.0		22.0	61.0		24.0	24.0	24.0	8.0	8.0	8.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 17: 200th Ave Ct E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	77	832	0	362	536	46	709	0	66	51	77	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	99	785		329	1819	156	718	0	320	49	74	105
Arrive On Green	0.05	0.42	0.00	0.18	0.55	0.55	0.20	0.00	0.20	0.07	0.07	0.07
Sat Flow, veh/h	1795	1885	1598	1795	3338	286	3591	0	1598	736	1112	1573
Grp Volume(v), veh/h	77	832	0	362	287	295	709	0	66	128	0	56
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	1833	1795	0	1598	1848	0	1573
Q Serve(g_s), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Cycle Q Clear(g_c), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	99	785		329	976	999	718	0	320	123	0	105
V/C Ratio(X)	0.78	1.06		1.10	0.29	0.30	0.99	0.00	0.21	1.04	0.00	0.53
Avail Cap(c_a), veh/h	165	785		329	976	999	718	0	320	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.28	0.28	0.00	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	35.0	0.0	49.0	14.8	14.8	47.8	0.0	40.1	56.0	0.0	54.2
Incr Delay (d2), s/veh	3.8	35.3	0.0	70.0	0.5	0.5	30.3	0.0	0.3	91.8	0.0	5.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	30.3	0.0	16.3	4.4	4.5	13.6	0.0	1.7	6.9	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.8	70.3	0.0	119.0	15.3	15.3	78.1	0.0	40.4	147.8	0.0	59.4
LnGrp LOS	E	F		F	B	B	E		D	F		E
Approach Vol, veh/h		909			944			775			184	
Approach Delay, s/veh		69.4			55.1			74.9			120.9	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	28.0	26.0	54.0		12.0	10.6	69.4					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	24.0	22.0	50.0		8.0	11.0	61.0					
Max Q Clear Time (g_c+I1), s	25.6	24.0	52.0		10.0	7.1	12.5					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.1	2.6					

Intersection Summary	
HCM 7th Control Delay, s/veh	69.5
HCM 7th LOS	E

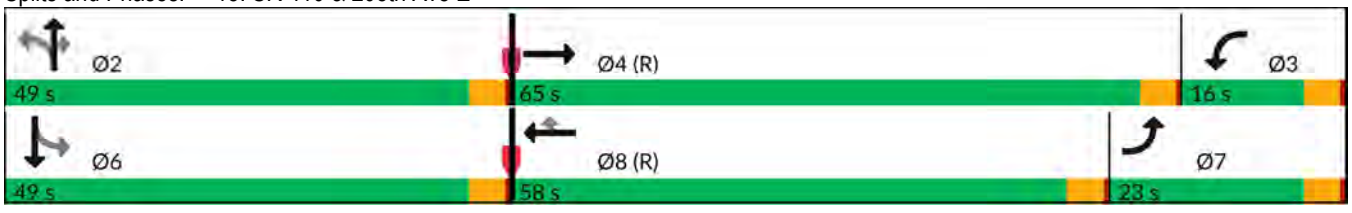
Notes

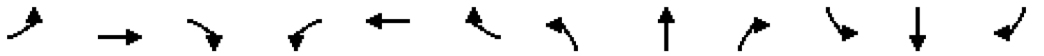
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	1335	245	75	1065	60	250	25	100	60	20	45
Future Volume (vph)	150	1335	245	75	1065	60	250	25	100	60	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		600	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			25	
Link Distance (ft)		1005			1116			428			525	
Travel Time (s)		15.2			16.9			9.7			14.3	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	65.0		16.0	58.0	58.0	49.0	49.0	49.0	49.0	49.0	
Total Split (%)	17.7%	50.0%		12.3%	44.6%	44.6%	37.7%	37.7%	37.7%	37.7%	37.7%	
Maximum Green (s)	19.0	61.0		12.0	54.0	54.0	45.0	45.0	45.0	45.0	45.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min	Min	Min	Min	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		2			2	2	5	5	5	5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 75 (58%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 18: SR 410 & 208th Ave E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1335	245	75	1065	60	250	25	100	60	20	45
Future Volume (veh/h)	150	1335	245	75	1065	60	250	25	100	60	20	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	152	1348	247	76	1076	61	253	25	101	61	20	45
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	262	2050	376	166	1488	662	359	30	551	96	36	51
Arrive On Green	0.15	0.47	0.47	0.18	0.83	0.83	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	4370	800	1795	3582	1594	885	87	1591	158	105	147
Grp Volume(v), veh/h	152	1058	537	76	1076	61	278	0	101	126	0	0
Grp Sat Flow(s),veh/h/ln	1795	1716	1739	1795	1791	1594	972	0	1591	410	0	0
Q Serve(g_s), s	10.3	30.8	30.8	4.9	16.6	0.9	0.0	0.0	5.8	8.6	0.0	0.0
Cycle Q Clear(g_c), s	10.3	30.8	30.8	4.9	16.6	0.9	34.8	0.0	5.8	43.4	0.0	0.0
Prop In Lane	1.00		0.46	1.00		1.00	0.91		1.00	0.48		0.36
Lane Grp Cap(c), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
V/C Ratio(X)	0.58	0.66	0.66	0.46	0.72	0.09	0.71	0.00	0.18	0.69	0.00	0.00
Avail Cap(c_a), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.26	0.26	0.26	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.8	26.5	26.5	50.1	7.8	6.5	39.2	0.0	29.7	50.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.6	1.1	1.7	2.7	0.2	6.1	0.0	0.2	10.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	12.1	12.3	2.1	3.5	0.4	8.8	0.0	2.2	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.6	27.0	27.6	51.8	10.5	6.7	45.2	0.0	29.8	60.8	0.0	0.0
LnGrp LOS	D	C	C	D	B	A	D		C	E		
Approach Vol, veh/h		1747			1213			379			126	
Approach Delay, s/veh		29.4			12.9			41.1			60.8	
Approach LOS		C			B			D			E	

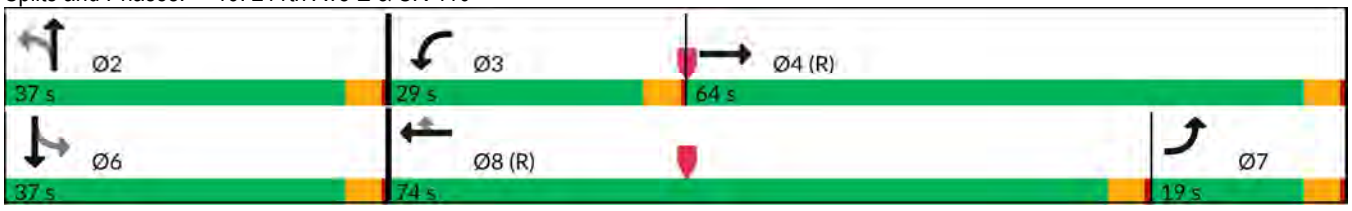
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	49.0	16.0	65.0	49.0	23.0	58.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	45.0	12.0	61.0	45.0	19.0	54.0
Max Q Clear Time (g_c+I1), s	36.8	6.9	32.8	45.4	12.3	18.6
Green Ext Time (p_c), s	1.0	0.1	8.7	0.0	0.2	6.1

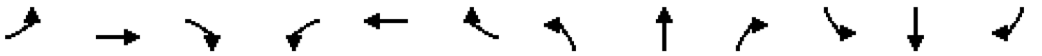
Intersection Summary	
HCM 7th Control Delay, s/veh	26.1
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1330	115	170	965	100	145	10	80	70	15	80
Future Volume (vph)	85	1330	115	170	965	100	145	10	80	70	15	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1116			1084			668			351	
Travel Time (s)		16.9			16.4			18.2			9.6	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Detector Phase	7	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	19.0	64.0		29.0	74.0	74.0	37.0	37.0		37.0	37.0	
Total Split (%)	14.6%	49.2%		22.3%	56.9%	56.9%	28.5%	28.5%		28.5%	28.5%	
Maximum Green (s)	15.0	60.0		25.0	70.0	70.0	33.0	33.0		33.0	33.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	None	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 97 (75%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 19: 211th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1330	115	170	965	100	145	10	80	70	15	80
Future Volume (veh/h)	85	1330	115	170	965	100	145	10	80	70	15	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1400	121	179	1016	105	153	11	84	74	16	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	325	2919	252	205	1929	860	232	35	271	236	49	259
Arrive On Green	0.36	1.00	1.00	0.23	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1795	4824	417	1795	3582	1598	1305	188	1438	1311	262	1376
Grp Volume(v), veh/h	89	996	525	179	1016	105	153	0	95	74	0	100
Grp Sat Flow(s),veh/h/ln	1795	1716	1810	1795	1791	1598	1305	0	1626	1311	0	1638
Q Serve(g_s), s	4.6	0.0	0.0	12.5	0.0	0.0	14.9	0.0	6.5	6.7	0.0	6.9
Cycle Q Clear(g_c), s	4.6	0.0	0.0	12.5	0.0	0.0	21.8	0.0	6.5	13.3	0.0	6.9
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.88	1.00		0.84
Lane Grp Cap(c), veh/h	325	2076	1095	205	1929	860	232	0	306	236	0	308
V/C Ratio(X)	0.27	0.48	0.48	0.87	0.53	0.12	0.66	0.00	0.31	0.31	0.00	0.32
Avail Cap(c_a), veh/h	325	2076	1095	345	1929	860	318	0	413	322	0	416
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	49.2	0.0	0.0	55.0	0.0	45.5	51.2	0.0	45.6
Incr Delay (d2), s/veh	0.4	0.7	1.3	8.7	0.7	0.2	3.2	0.0	0.6	0.7	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.2	0.4	5.3	0.2	0.0	5.2	0.0	2.7	2.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.8	0.7	1.3	57.9	0.7	0.2	58.2	0.0	46.1	51.9	0.0	46.2
LnGrp LOS	D	A	A	E	A	A	E		D	D		D
Approach Vol, veh/h		1610			1300			248			174	
Approach Delay, s/veh		2.8			8.6			53.5			48.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.5	18.9	82.7		28.5	27.5	74.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	25.0	60.0		33.0	15.0	70.0				
Max Q Clear Time (g_c+I1), s		23.8	14.5	2.0		15.3	6.6	2.0				
Green Ext Time (p_c), s		0.7	0.4	8.7		0.6	0.1	6.0				

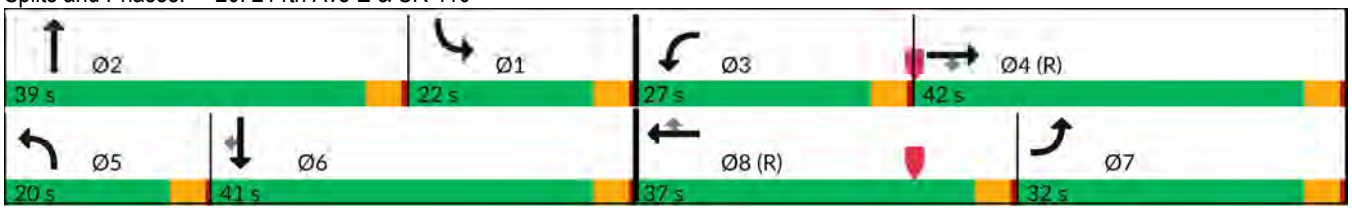
Intersection Summary	
HCM 7th Control Delay, s/veh	11.2
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	32.0	42.0	42.0	27.0	37.0	37.0	20.0	39.0		22.0	41.0	41.0
Total Split (%)	24.6%	32.3%	32.3%	20.8%	28.5%	28.5%	15.4%	30.0%		16.9%	31.5%	31.5%
Maximum Green (s)	28.0	38.0	38.0	23.0	33.0	33.0	16.0	35.0		18.0	37.0	37.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		1	1		0	0	0	0		0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 20: 214th Ave E & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	323	932	375	271	750	94	182	188	130	151	479	255
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	514	1343	598	296	909	405	243	207	143	252	514	435
Arrive On Green	0.29	0.37	0.37	0.17	0.25	0.25	0.07	0.20	0.20	0.14	0.27	0.27
Sat Flow, veh/h	1795	3582	1595	1795	3582	1594	3483	1038	718	1833	1924	1629
Grp Volume(v), veh/h	323	932	375	271	750	94	182	0	318	151	479	255
Grp Sat Flow(s),veh/h/ln	1795	1791	1595	1795	1791	1594	1742	0	1756	1833	1924	1629
Q Serve(g_s), s	20.4	28.6	25.0	19.3	25.7	6.1	6.7	0.0	23.0	10.1	31.6	9.3
Cycle Q Clear(g_c), s	20.4	28.6	25.0	19.3	25.7	6.1	6.7	0.0	23.0	10.1	31.6	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	514	1343	598	296	909	405	243	0	350	252	514	435
V/C Ratio(X)	0.63	0.69	0.63	0.91	0.82	0.23	0.75	0.00	0.91	0.60	0.93	0.59
Avail Cap(c_a), veh/h	514	1343	598	318	909	405	429	0	473	254	548	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	0.78	0.78	0.78	0.86	0.00	0.86	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.4	34.3	33.2	53.4	45.8	38.5	59.4	0.0	50.9	52.7	46.5	11.4
Incr Delay (d2), s/veh	2.1	2.6	4.2	23.9	6.7	1.0	4.0	0.0	15.5	3.3	19.9	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	12.4	10.0	10.5	11.9	2.5	3.1	0.0	11.5	4.8	17.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.5	36.9	37.4	77.3	52.5	39.5	63.3	0.0	66.3	56.0	66.4	12.9
LnGrp LOS	D	D	D	E	D	D	E		E	E	E	B
Approach Vol, veh/h		1630			1115			500			885	
Approach Delay, s/veh		38.1			57.4			65.2			49.2	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	29.9	25.5	52.7	13.1	38.7	41.2	37.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	18.0	35.0	23.0	38.0	16.0	37.0	28.0	33.0
Max Q Clear Time (g_c+I1), s	12.1	25.0	21.3	30.6	8.7	33.6	22.4	27.7
Green Ext Time (p_c), s	0.2	0.9	0.2	3.6	0.4	1.1	0.6	1.9

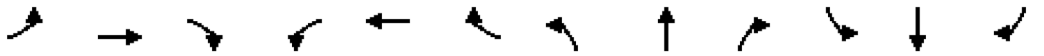
Intersection Summary	
HCM 7th Control Delay, s/veh	49.0
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	150		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		6362			2994			1099			1172	
Travel Time (s)		96.4			45.4			21.4			26.6	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8						6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	28.0	28.0	28.0	28.0	28.0		21.0	21.0		21.0	21.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		17.0	17.0		17.0	17.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 52.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 21: 234th Ave E/233rd Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1826	1826	1826	1885	1885	1885
Adj Flow Rate, veh/h	68	750	224	68	719	36	135	73	10	52	167	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	1	1	1
Cap, veh/h	329	1366	607	298	1335	67	233	211	29	355	235	117
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.13	0.13	0.13	0.20	0.20	0.20
Sat Flow, veh/h	709	3554	1579	581	3471	174	1739	1572	215	1795	1188	591
Grp Volume(v), veh/h	68	750	224	68	371	384	135	0	83	52	0	250
Grp Sat Flow(s),veh/h/ln	709	1777	1579	581	1791	1854	1739	0	1787	1795	0	1779
Q Serve(g_s), s	3.5	7.0	4.3	4.4	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Cycle Q Clear(g_c), s	10.3	7.0	4.3	11.3	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.12	1.00		0.33
Lane Grp Cap(c), veh/h	329	1366	607	298	689	713	233	0	239	355	0	352
V/C Ratio(X)	0.21	0.55	0.37	0.23	0.54	0.54	0.58	0.00	0.35	0.15	0.00	0.71
Avail Cap(c_a), veh/h	458	2016	895	404	1016	1051	699	0	718	721	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	10.2	9.3	14.6	10.1	10.1	17.2	0.0	16.6	14.0	0.0	15.8
Incr Delay (d2), s/veh	0.3	0.3	0.4	0.4	0.7	0.6	2.3	0.0	0.9	0.2	0.0	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.8	1.0	0.5	1.8	1.9	1.2	0.0	0.7	0.4	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.4	10.5	9.7	15.0	10.8	10.7	19.5	0.0	17.5	14.2	0.0	18.5
LnGrp LOS	B	B	A	B	B	B	B		B	B		B
Approach Vol, veh/h		1042			823			218			302	
Approach Delay, s/veh		10.6			11.1			18.7			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.7		20.3		12.4		20.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		24.0		17.0		24.0				
Max Q Clear Time (g_c+I1), s		5.1		12.3		7.6		13.3				
Green Ext Time (p_c), s		0.6		4.0		0.8		2.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.4									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	105	110	135	580	245	105
Future Vol, veh/h	105	110	135	580	245	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	108	113	139	598	253	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1183	307	361	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	210	736	1203	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	736	1203	-	-	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s/v	29.08	1.58	0
HCM LOS	D		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1	SBLn2
Capacity (veh/h)	-	-	1203	-	186	736
HCM Lane V/C Ratio	-	-	0.116	-	0.582	0.154
HCM Control Delay (s/veh)	-	-	8.4	-	48.3	10.8
HCM Lane LOS	-	-	A	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	3.2	0.5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	545	290	70	65	80
Future Vol, veh/h	120	545	290	70	65	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	125	568	302	73	68	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	375	0	-	0	1156	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1189	-	-	-	218	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	436	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	185	706
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	436	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.51	0	21.79
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	325	-	-	-	185	706
HCM Lane V/C Ratio	0.105	-	-	-	0.366	0.118
HCM Control Delay (s/veh)	8.4	0	-	-	35.3	10.8
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	1.6	0.4

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	500	290	30	15	120
Future Vol, veh/h	120	500	290	30	15	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	121	505	293	30	15	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	323	0	-	0	1056	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1237	-	-	-	250	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1237	-	-	-	216	732
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.59	0	12.23
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	348	-	-	-	216	732
HCM Lane V/C Ratio	0.098	-	-	-	0.07	0.166
HCM Control Delay (s/veh)	8.2	0	-	-	23	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Future Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	1	1	1
Mvmt Flow	5	0	5	0	0	5	11	95	5	16	147	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	303	308	155	297	313	97	163	0	0	100	0	0
Stage 1	187	187	-	118	118	-	-	-	-	-	-	-
Stage 2	116	121	-	179	195	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	652	608	893	657	604	962	1409	-	-	1499	-	-
Stage 1	817	747	-	888	800	-	-	-	-	-	-	-
Stage 2	891	798	-	825	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	636	596	893	640	592	962	1409	-	-	1499	-	-
Mov Cap-2 Maneuver	636	596	-	640	592	-	-	-	-	-	-	-
Stage 1	808	739	-	881	793	-	-	-	-	-	-	-
Stage 2	879	791	-	811	733	-	-	-	-	-	-	-

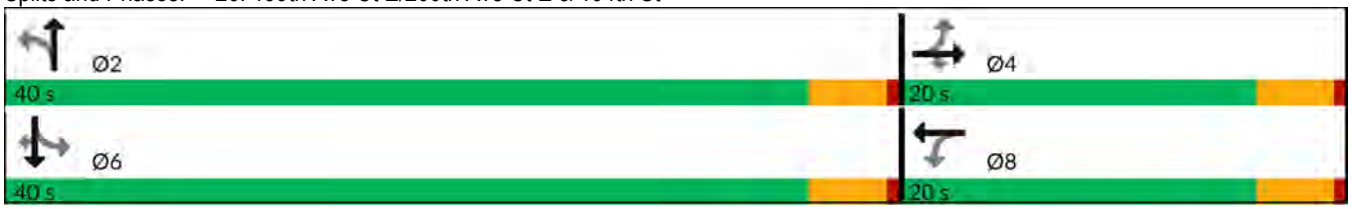
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.92	8.76	0.72	0.66
HCM LOS	A	A		

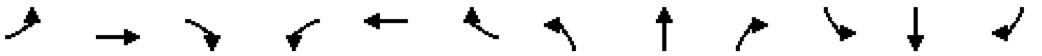
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	170	-	-	743	962	156	-	-
HCM Lane V/C Ratio	0.007	-	-	0.014	0.005	0.011	-	-
HCM Control Delay (s/veh)	7.6	0	-	9.9	8.8	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		100
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1430			519			1065			1383	
Travel Time (s)		32.5			11.8			29.0			37.7	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0		40.0	40.0		40.0	40.0	40.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	66.7%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 59.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 26: 199th Ave Ct E/200th Ave Ct E & 104th St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	226	1	21	5	1	5	21	826	5	5	1042	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	386	1	416	112	43	54	169	1127	7	314	1126	954
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1010	4	1598	84	166	208	440	1872	11	660	1870	1585
Grp Volume(v), veh/h	227	0	21	11	0	0	21	0	831	5	1042	226
Grp Sat Flow(s),veh/h/ln	1014	0	1598	458	0	0	440	0	1883	660	1870	1585
Q Serve(g_s), s	0.0	0.0	0.6	0.1	0.0	0.0	2.6	0.0	18.3	0.3	29.1	3.8
Cycle Q Clear(g_c), s	13.3	0.0	0.6	13.4	0.0	0.0	31.7	0.0	18.3	18.6	29.1	3.8
Prop In Lane	1.00		1.00	0.45		0.45	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	416	209	0	0	169	0	1134	314	1126	954
V/C Ratio(X)	0.59	0.00	0.05	0.05	0.00	0.00	0.12	0.00	0.73	0.02	0.93	0.24
Avail Cap(c_a), veh/h	409	0	440	232	0	0	176	0	1166	325	1158	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	16.1	17.0	0.0	0.0	24.6	0.0	8.2	14.8	10.4	5.4
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	2.3	0.0	12.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.2	0.1	0.0	0.0	0.3	0.0	6.3	0.0	12.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.8	0.0	16.2	17.1	0.0	0.0	24.9	0.0	10.6	14.9	22.6	5.5
LnGrp LOS	C		B	B			C		B	B	C	A
Approach Vol, veh/h		248			11			852			1273	
Approach Delay, s/veh		22.2			17.1			10.9			19.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	39.0	19.2	39.0	19.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	36.0	16.0	36.0	16.0
Max Q Clear Time (g_c+I1), s	33.7	15.3	31.1	15.4
Green Ext Time (p_c), s	1.4	0.1	3.5	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	16.7
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		5428			4422			1245			2683	
Travel Time (s)		105.7			86.1			24.3			52.3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0		36.0	36.0	36.0
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	60.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		32.0	32.0		32.0	32.0	32.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 46.7	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 27: 214th Ave E & 120th St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	274	121	79	16	63	42	37	253	16	116	474	368
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	563	347	226	483	343	229	142	631	37	228	668	726
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1289	1056	690	1192	1045	697	72	1388	81	244	1469	1598
Grp Volume(v), veh/h	274	0	200	16	0	105	306	0	0	590	0	368
Grp Sat Flow(s),veh/h/ln	1289	0	1746	1192	0	1742	1540	0	0	1713	0	1598
Q Serve(g_s), s	7.1	0.0	3.2	0.4	0.0	1.6	0.4	0.0	0.0	0.0	0.0	6.0
Cycle Q Clear(g_c), s	8.7	0.0	3.2	3.6	0.0	1.6	10.7	0.0	0.0	10.2	0.0	6.0
Prop In Lane	1.00		0.40	1.00		0.40	0.12		0.05	0.20		1.00
Lane Grp Cap(c), veh/h	563	0	573	483	0	572	810	0	0	896	0	726
V/C Ratio(X)	0.49	0.00	0.35	0.03	0.00	0.18	0.38	0.00	0.00	0.66	0.00	0.51
Avail Cap(c_a), veh/h	840	0	948	739	0	946	1442	0	0	1584	0	1388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	9.4	10.7	0.0	8.8	6.6	0.0	0.0	8.1	0.0	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.0	0.0	0.2	0.3	0.0	0.0	0.8	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.9	0.1	0.0	0.4	1.0	0.0	0.0	2.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.7	10.8	0.0	9.0	6.9	0.0	0.0	9.0	0.0	7.7
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		474			121			306			958	
Approach Delay, s/veh		11.4			9.2			6.9			8.5	
Approach LOS		B			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.7		16.1		20.7		16.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0		20.0		32.0		20.0				
Max Q Clear Time (g_c+I1), s		12.7		10.7		12.2		5.6				
Green Ext Time (p_c), s		1.3		1.4		4.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh		9.0										
HCM 7th LOS		A										

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	295	165	70	215	155	75
Future Vol, veh/h	295	165	70	215	155	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	311	174	74	226	163	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	484	0	771	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1084	-	370	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1084	-	341	654
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.1	26.36
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	-	-	442	-
HCM Lane V/C Ratio	0.599	-	-	0.068	-
HCM Control Delay (s/veh)	26.4	-	-	8.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	605	450	40	45	190
Future Vol, veh/h	185	605	450	40	45	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	195	637	474	42	47	200

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	516	0	-	0	1521	495
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	1026	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1055	-	-	-	130	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	346	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1055	-	-	-	93	575
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	346	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.15	0	61.59
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	422	-	-	-	289
HCM Lane V/C Ratio	0.185	-	-	-	0.856
HCM Control Delay (s/veh)	9.2	0	-	-	61.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1280	390	325	1100	230	460
Future Volume (vph)	1280	390	325	1100	230	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	0%	
Storage Length (ft)		0	350		75	0
Storage Lanes		0	1		2	1
Taper Length (ft)			25		25	
Right Turn on Red		No				No
Link Speed (mph)	45			45	30	
Link Distance (ft)	1801			1005	1430	
Travel Time (s)	27.3			15.2	32.5	
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	5	
Permitted Phases			8			5
Detector Phase	4		3	8	5	5
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	8.0	8.0
Total Split (s)	52.0		27.0	79.0	51.0	51.0
Total Split (%)	40.0%		20.8%	60.8%	39.2%	39.2%
Maximum Green (s)	48.0		23.0	75.0	47.0	47.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		None	Min	None	None
Walk Time (s)			5.0	5.0		
Flash Dont Walk (s)			11.0	11.0		
Pedestrian Calls (#/hr)			0	0		

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 30: 204th Ave E & SR 410



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1280	390	325	1100	230	460
Future Volume (veh/h)	1280	390	325	1100	230	460
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1949	1949	1870	1870
Adj Flow Rate, veh/h	1320	402	335	1134	237	474
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	1394	423	356	2001	1376	631
Arrive On Green	0.71	0.71	0.31	1.00	0.40	0.40
Sat Flow, veh/h	4084	1188	1856	3800	3456	1585
Grp Volume(v), veh/h	1157	565	335	1134	237	474
Grp Sat Flow(s),veh/h/ln	1716	1671	1856	1851	1728	1585
Q Serve(g_s), s	38.7	39.2	17.6	0.0	5.8	33.4
Cycle Q Clear(g_c), s	38.7	39.2	17.6	0.0	5.8	33.4
Prop In Lane		0.71	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1222	595	356	2001	1376	631
V/C Ratio(X)	0.95	0.95	0.94	0.57	0.17	0.75
Avail Cap(c_a), veh/h	1267	617	400	2136	1376	631
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.78	0.78	0.68	0.68
Uniform Delay (d), s/veh	17.6	17.7	29.0	0.0	25.3	33.6
Incr Delay (d2), s/veh	4.2	8.1	24.3	0.2	0.0	3.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	7.2	10.6	0.1	2.4	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	21.8	25.8	53.2	0.2	25.3	37.1
LnGrp LOS	C	C	D	A	C	D
Approach Vol, veh/h	1722			1469	711	
Approach Delay, s/veh	23.1			12.3	33.1	
Approach LOS	C			B	C	

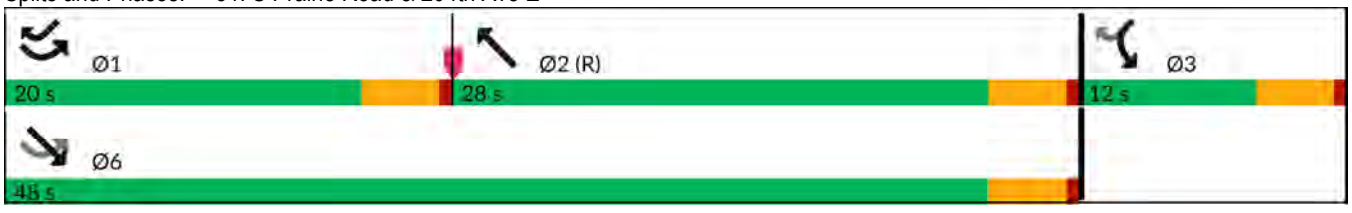
Timer - Assigned Phs	2	3	4		8
Phs Duration (G+Y+Rc), s	55.8	24.0	50.3		74.2
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	47.0	23.0	48.0		75.0
Max Q Clear Time (g_c+I1), s	35.4	19.6	41.2		2.0
Green Ext Time (p_c), s	2.2	0.3	5.1		10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	20.9
HCM 7th LOS	C

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	365	750	485	145	205	340
Future Volume (vph)	365	750	485	145	205	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	130	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		25	25		30	
Link Distance (ft)		1097	4369		1430	
Travel Time (s)		29.9	119.2		32.5	
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6					3
Detector Phase	1	6	2		3	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		8.0	20.0
Total Split (s)	20.0	48.0	28.0		12.0	20.0
Total Split (%)	33.3%	80.0%	46.7%		20.0%	33.3%
Maximum Green (s)	16.0	44.0	24.0		8.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	C-Min		None	Min
Walk Time (s)	5.0	5.0	5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	3	0	1			3

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NWT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 31: S Prairie Road & 204th Ave E





Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	365	750	485	145	205	340
Future Volume (veh/h)	365	750	485	145	205	340
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	376	773	500	149	211	351
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	571	1382	752	224	239	416
Arrive On Green	0.13	0.73	0.54	0.54	0.13	0.13
Sat Flow, veh/h	1795	1885	1394	416	1795	1598
Grp Volume(v), veh/h	376	773	0	649	211	351
Grp Sat Flow(s),veh/h/ln	1795	1885	0	1810	1795	1598
Q Serve(g_s), s	4.8	11.1	0.0	15.4	6.9	8.0
Cycle Q Clear(g_c), s	4.8	11.1	0.0	15.4	6.9	8.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	571	1382	0	977	239	416
V/C Ratio(X)	0.66	0.56	0.00	0.66	0.88	0.84
Avail Cap(c_a), veh/h	821	1382	0	977	239	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.27	0.27	0.00	0.09	0.24	0.24
Uniform Delay (d), s/veh	8.3	3.6	0.0	9.9	25.5	21.0
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	9.3	4.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	5.2	3.4	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.6	3.8	0.0	10.2	34.8	25.0
LnGrp LOS	A	A		B	C	C
Approach Vol, veh/h		1149	649		562	
Approach Delay, s/veh		5.3	10.2		28.7	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.6	36.4				48.0	12.0
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	16.0	24.0				44.0	8.0
Max Q Clear Time (g_c+I1), s	6.8	17.4				13.1	10.0
Green Ext Time (p_c), s	0.9	2.5				6.9	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	25	205	105	60	395
Future Vol, veh/h	100	25	205	105	60	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	105	26	216	111	63	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	271	0	0	326	0
Stage 1	271	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	349	770	-	-	1233	-
Stage 1	777	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	770	-	-	1233	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	20.1	0	1.07
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	237	-
HCM Lane V/C Ratio	-	-	0.357	0.051	-
HCM Control Delay (s/veh)	-	-	20.1	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-

Intersection	
Int Delay, s/veh	3.1

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	80	490	1070	20	15	75
Future Vol, veh/h	80	490	1070	20	15	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	84	516	1126	21	16	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1147	0	-	0	1821	1137
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	684	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	613	-	-	-	85	244
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	499	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	613	-	-	-	68	244
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	499	-

Approach	NB	SB	SE
HCM Control Delay, s/v	1.66	0	49.47
HCM LOS			E

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	253	-	171	-	-
HCM Lane V/C Ratio	0.137	-	0.554	-	-
HCM Control Delay (s/veh)	11.8	0	49.5	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.5	-	2.9	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	180	35	140	435
Future Vol, veh/h	20	40	180	35	140	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	42	188	36	146	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	951	206	0	0	224	0
Stage 1	206	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	290	837	-	-	1351	-
Stage 1	831	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	837	-	-	1351	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	403	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.9	0	1.94
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	438	-
HCM Lane V/C Ratio	-	-	0.134	0.108	-
HCM Control Delay (s/veh)	-	-	13.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	205	45	100	135
Future Vol, veh/h	10	20	205	45	100	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	4	4	2	2	1	1
Mvmt Flow	11	21	216	47	105	142
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay, s/veh	7.9	8.9	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	43%
Vol Thru, %	82%	0%	57%
Vol Right, %	18%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	30	235
LT Vol	0	10	100
Through Vol	205	0	135
RT Vol	45	20	0
Lane Flow Rate	263	32	247
Geometry Grp	1	1	1
Degree of Util (X)	0.297	0.041	0.292
Departure Headway (Hd)	4.067	4.723	4.255
Convergence, Y/N	Yes	Yes	Yes
Cap	871	763	834
Service Time	2.155	2.723	2.336
HCM Lane V/C Ratio	0.302	0.042	0.296
HCM Control Delay, s/veh	8.9	7.9	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.1	1.2

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	15	105	30	35	335
Future Vol, veh/h	45	15	105	30	35	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	16	111	32	37	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	126	0	0	142	0
Stage 1	126	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	494	924	-	-	1441	-
Stage 1	899	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	479	924	-	-	1441	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.48	0	0.72
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	170	-
HCM Lane V/C Ratio	-	-	0.116	0.026	-
HCM Control Delay (s/veh)	-	-	12.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	6.8

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	60	175	155	785	55	510
Future Vol, veh/h	60	175	155	785	55	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	62	180	160	809	57	526

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1448	320	582	0	-	0
Stage 1	320	-	-	-	-	-
Stage 2	1129	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	145	723	997	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	723	997	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	310	-	-	-	-	-

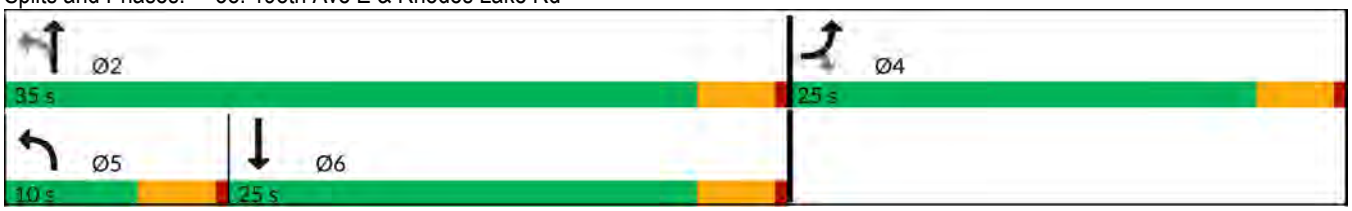
Approach	SB	NE	SW
HCM Control Delay, s/v	44.09	1.53	0
HCM LOS	E		

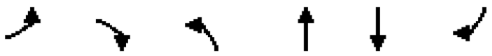
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	997	-	320	-	-
HCM Lane V/C Ratio	0.16	-	0.757	-	-
HCM Control Delay (s/veh)	9.3	-	44.1	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	5.8	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	450	255	725	890	70
Future Volume (vph)	115	450	255	725	890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175	0	325			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	30			30	30	
Link Distance (ft)	1957			1413	624	
Travel Time (s)	44.5			32.1	14.2	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	25.0	25.0	10.0	35.0	25.0	
Total Split (%)	41.7%	41.7%	16.7%	58.3%	41.7%	
Maximum Green (s)	21.0	21.0	6.0	31.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 38: 198th Ave E & Rhodes Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	450	255	725	890	70
Future Volume (veh/h)	115	450	255	725	890	70
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	121	474	268	763	937	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	597	532	373	977	1145	90
Arrive On Green	0.33	0.33	0.11	0.52	0.34	0.34
Sat Flow, veh/h	1795	1598	1781	1870	3457	266
Grp Volume(v), veh/h	121	474	268	763	499	512
Grp Sat Flow(s),veh/h/ln	1795	1598	1781	1870	1791	1837
Q Serve(g_s), s	2.7	15.5	5.0	18.1	14.0	14.0
Cycle Q Clear(g_c), s	2.7	15.5	5.0	18.1	14.0	14.0
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	597	532	373	977	610	626
V/C Ratio(X)	0.20	0.89	0.72	0.78	0.82	0.82
Avail Cap(c_a), veh/h	684	609	373	1052	683	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	17.4	12.1	10.6	16.6	16.6
Incr Delay (d2), s/veh	0.2	14.1	6.6	3.6	7.1	6.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.1	2.2	6.7	6.2	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.3	31.6	18.7	14.2	23.7	23.5
LnGrp LOS	B	C	B	B	C	C
Approach Vol, veh/h	595			1031	1011	
Approach Delay, s/veh	27.8			15.4	23.6	
Approach LOS	C			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.8		22.3	10.0	22.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0		21.0	6.0	21.0
Max Q Clear Time (g_c+I1), s		20.1		17.5	7.0	16.0
Green Ext Time (p_c), s		4.1		0.8	0.0	2.7

Intersection Summary		
HCM 7th Control Delay, s/veh		21.3
HCM 7th LOS		C

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	130	2535	2045	80	0	125
Future Vol, veh/h	130	2535	2045	80	0	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	300	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	134	2613	2108	82	0	129

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2191	0	-	0	-	1054
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	-	-	3.31
Pot Cap-1 Maneuver	241	-	-	-	0	224
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	241	-	-	-	-	224
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SW
HCM Control Delay, s/v	1.81	0	40.83
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	241	-	-	-	224
HCM Lane V/C Ratio	0.555	-	-	-	0.576
HCM Control Delay (s/veh)	37	-	-	-	40.8
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	3	-	-	-	3.2

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	135	35	10	410	40	10
Future Vol, veh/h	135	35	10	410	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	142	37	11	432	42	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	179	0	613	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	453	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1397	-	457	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1397	-	453	887
Mov Cap-2 Maneuver	-	-	-	-	453	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	636	-

Approach	NB	SB	SW
HCM Control Delay, s/v	0	0.18	13.01
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	43	-	502
HCM Lane V/C Ratio	-	-	0.008	-	0.105
HCM Control Delay (s/veh)	-	-	7.6	0	13
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	39.2

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	675	155	155	465	90	145
Future Vol, veh/h	675	155	155	465	90	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	696	160	160	479	93	149

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	856	0	1575	776
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	789	-	122	399
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	789	-	~ 88	399
Mov Cap-2 Maneuver	-	-	-	-	~ 88	-
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	NE
HCM Control Delay, s/v	0	2.68	274.24
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	-	-	450	-
HCM Lane V/C Ratio	1.429	-	-	0.203	-
HCM Control Delay (s/veh)	274.2	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	15.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

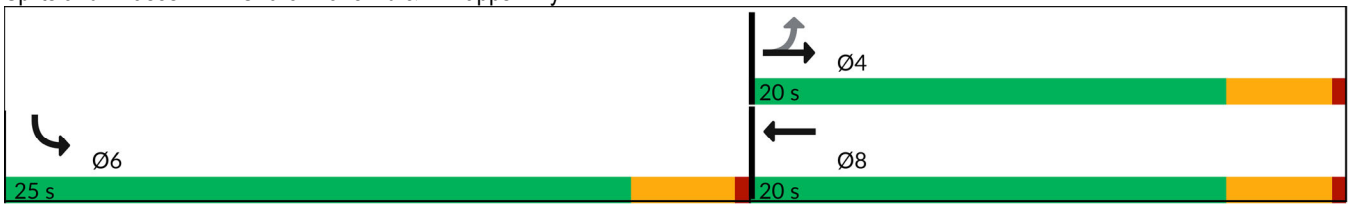
Appendix D

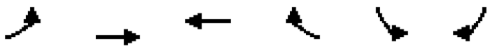
Intersection Operations Analysis – 2049 Preferred Alternative with Improvements

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	85	90	235	365	150
Future Volume (vph)	100	85	90	235	365	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Right Turn on Red				No		No
Link Speed (mph)		30	30		30	
Link Distance (ft)		1117	1181		1295	
Travel Time (s)		25.4	26.8		29.4	
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0		20.0	
Total Split (s)	20.0	20.0	20.0		25.0	
Total Split (%)	44.4%	44.4%	44.4%		55.6%	
Maximum Green (s)	16.0	16.0	16.0		21.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	0.5	0.5	0.5		0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		Min	
Walk Time (s)	5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 37.4	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Church Lake Rd & W Tapps Hwy





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	85	90	235	365	150
Future Volume (veh/h)	100	85	90	235	365	150
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	105	89	95	247	384	158
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	296	194	147	381	488	201
Arrive On Green	0.32	0.32	0.32	0.32	0.40	0.40
Sat Flow, veh/h	315	613	463	1205	1216	500
Grp Volume(v), veh/h	194	0	0	342	543	0
Grp Sat Flow(s),veh/h/ln	928	0	0	1668	1720	0
Q Serve(g_s), s	1.5	0.0	0.0	5.0	7.8	0.0
Cycle Q Clear(g_c), s	6.4	0.0	0.0	5.0	7.8	0.0
Prop In Lane	0.54			0.72	0.71	0.29
Lane Grp Cap(c), veh/h	490	0	0	528	690	0
V/C Ratio(X)	0.40	0.00	0.00	0.65	0.79	0.00
Avail Cap(c_a), veh/h	816	0	0	942	1275	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.3	0.0	0.0	8.3	7.4	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.3	2.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.3	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.9	0.0	0.0	9.7	9.5	0.0
LnGrp LOS	A			A	A	
Approach Vol, veh/h		194	342		543	
Approach Delay, s/veh		8.9	9.7		9.5	
Approach LOS		A	A		A	

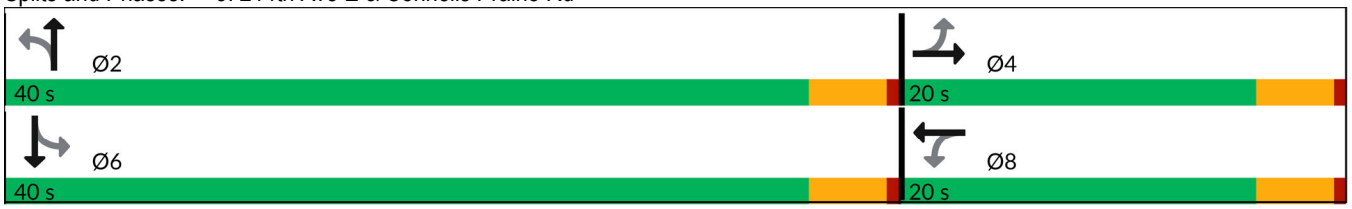
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			13.0		15.4	13.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			16.0		21.0	16.0
Max Q Clear Time (g_c+I1), s			8.4		9.8	7.0
Green Ext Time (p_c), s			0.7		1.5	1.4

Intersection Summary		
HCM 7th Control Delay, s/veh	9.4	
HCM 7th LOS	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	60	1	55	20	510	95	160	970	5
Future Volume (vph)	5	5	5	60	1	55	20	510	95	160	970	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		767			1113			1630			1270	
Travel Time (s)		17.4			21.7			31.8			24.7	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	
Maximum Green (s)	16.0	16.0		16.0	16.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 55	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: 214th Ave E & Connells Prairie Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	1	55	20	510	95	160	970	5
Future Volume (veh/h)	5	5	5	60	1	55	20	510	95	160	970	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	5	5	5	62	1	57	21	531	99	167	1010	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	3	3	3	1	1	1	1	1	1
Cap, veh/h	179	75	57	241	1	74	360	1023	191	600	1240	6
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	374	726	550	776	13	714	560	1545	288	803	1874	9
Grp Volume(v), veh/h	15	0	0	120	0	0	21	0	630	167	0	1015
Grp Sat Flow(s),veh/h/ln	1650	0	0	1503	0	0	560	0	1833	803	0	1884
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	1.0	0.0	6.0	4.6	0.0	13.5
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.6	0.0	0.0	14.5	0.0	6.0	10.7	0.0	13.5
Prop In Lane	0.33		0.33	0.52		0.47	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	312	0	0	316	0	0	360	0	1213	600	0	1247
V/C Ratio(X)	0.05	0.00	0.00	0.38	0.00	0.00	0.06	0.00	0.52	0.28	0.00	0.81
Avail Cap(c_a), veh/h	853	0	0	854	0	0	580	0	1933	915	0	1986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	14.9	0.0	0.0	9.5	0.0	3.0	5.7	0.0	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.3	0.2	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.2	0.4	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.9	0.0	0.0	15.6	0.0	0.0	9.6	0.0	3.3	6.0	0.0	5.7
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		15			120			651			1182	
Approach Delay, s/veh		13.9			15.6			3.5			5.7	
Approach LOS		B			B			A			A	

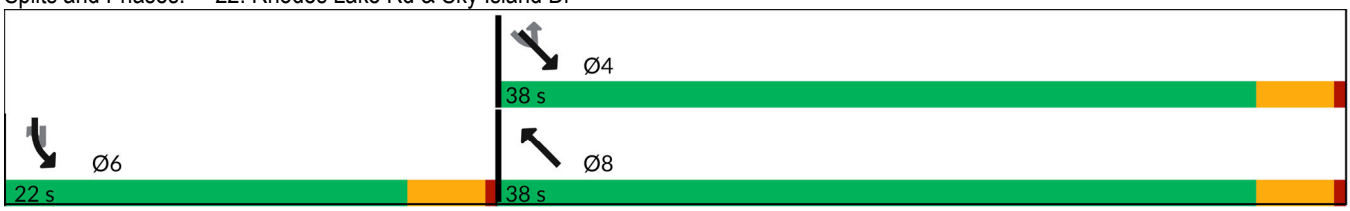
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Phs Duration (G+Y+Rc), s		26.6		7.5		26.6		7.5				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		36.0		16.0		36.0		16.0				
Max Q Clear Time (g_c+I1), s		16.5		2.3		15.5		4.6				
Green Ext Time (p_c), s		3.0		0.0		7.1		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			5.7									
HCM 7th LOS			A									

Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	105	110	135	580	245	105
Future Volume (vph)	105	110	135	580	245	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			25	25	
Link Distance (ft)	1284			1775	1677	
Travel Time (s)	35.0			48.4	45.7	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	6			4	8	
Permitted Phases		6	4			
Detector Phase	6	6	4	4	8	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	
Maximum Green (s)	18.0	18.0	34.0	34.0	34.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	None	None	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 35	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 22: Rhodes Lake Rd & Sky Island Dr



Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	105	110	135	580	245	105
Future Volume (veh/h)	105	110	135	580	245	105
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	108	113	139	598	253	108
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	297	264	692	974	647	276
Arrive On Green	0.17	0.17	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1795	1598	1029	1885	1254	535
Grp Volume(v), veh/h	108	113	139	598	0	361
Grp Sat Flow(s),veh/h/ln	1795	1598	1029	1885	0	1789
Q Serve(g_s), s	1.3	1.6	2.4	5.6	0.0	3.1
Cycle Q Clear(g_c), s	1.3	1.6	5.5	5.6	0.0	3.1
Prop In Lane	1.00	1.00	1.00			0.30
Lane Grp Cap(c), veh/h	297	264	692	974	0	924
V/C Ratio(X)	0.36	0.43	0.20	0.61	0.00	0.39
Avail Cap(c_a), veh/h	1286	1144	1553	2551	0	2420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	9.4	5.3	4.3	0.0	3.7
Incr Delay (d2), s/veh	0.7	1.1	0.1	0.6	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.3	0.8	0.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.1	10.5	5.5	4.9	0.0	4.0
LnGrp LOS	B	B	A	A		A
Approach Vol, veh/h	221			737	361	
Approach Delay, s/veh	10.3			5.0	4.0	
Approach LOS	B			A	A	

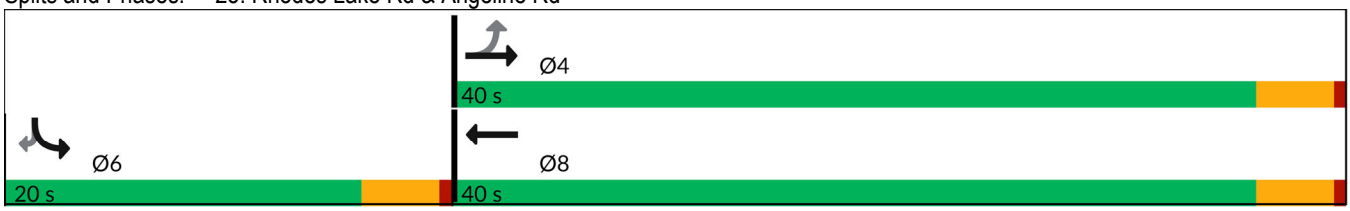
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				17.0		8.2	17.0
Change Period (Y+Rc), s				4.0		4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	34.0
Max Q Clear Time (g_c+I1), s				7.6		3.6	5.1
Green Ext Time (p_c), s				5.3		0.6	2.6

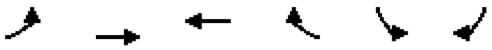
Intersection Summary							
HCM 7th Control Delay, s/veh			5.6				
HCM 7th LOS			A				

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	545	290	70	65	80
Future Volume (vph)	120	545	290	70	65	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	100
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		30	30		30	
Link Distance (ft)		1905	1636		4315	
Travel Time (s)		43.3	37.2		98.1	
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	40.0	40.0	40.0		20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	36.0	36.0	36.0		16.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		Min	Min
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 38.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 23: Rhodes Lake Rd & Angeline Rd





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	545	290	70	65	80
Future Volume (veh/h)	120	545	290	70	65	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	125	568	302	73	68	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	270	844	822	199	263	234
Arrive On Green	0.56	0.56	0.56	0.56	0.15	0.15
Sat Flow, veh/h	205	1505	1467	355	1795	1598
Grp Volume(v), veh/h	693	0	0	375	68	83
Grp Sat Flow(s),veh/h/ln	1710	0	0	1821	1795	1598
Q Serve(g_s), s	2.9	0.0	0.0	3.1	0.9	1.3
Cycle Q Clear(g_c), s	7.6	0.0	0.0	3.1	0.9	1.3
Prop In Lane	0.18			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	1114	0	0	1021	263	234
V/C Ratio(X)	0.62	0.00	0.00	0.37	0.26	0.35
Avail Cap(c_a), veh/h	2351	0	0	2401	1052	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	0.0	3.3	10.3	10.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.5	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.3	0.3	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	4.8	0.0	0.0	3.5	10.9	11.4
LnGrp LOS	A			A	B	B
Approach Vol, veh/h		693	375		151	
Approach Delay, s/veh		4.8	3.5		11.2	
Approach LOS		A	A		B	

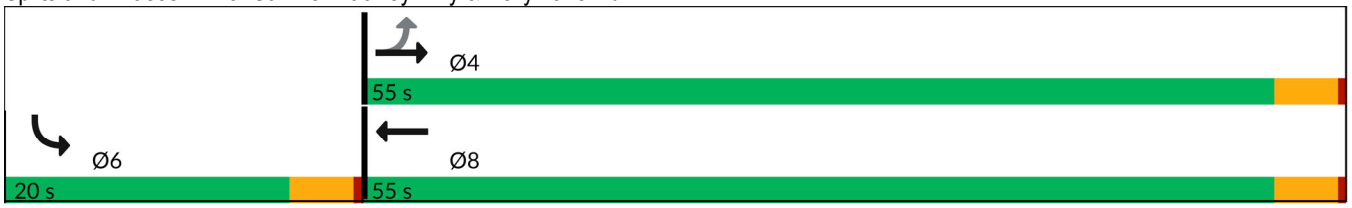
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			19.3		8.0	19.3
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			36.0		16.0	36.0
Max Q Clear Time (g_c+I1), s			9.6		3.3	5.1
Green Ext Time (p_c), s			5.7		0.3	2.5

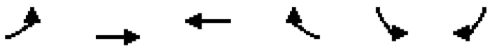
Intersection Summary		
HCM 7th Control Delay, s/veh	5.2	
HCM 7th LOS	A	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	185	605	450	40	45	190
Future Volume (vph)	185	605	450	40	45	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Right Turn on Red				No		No
Link Speed (mph)		45	45		30	
Link Distance (ft)		3028	2632		1453	
Travel Time (s)		45.9	39.9		33.0	
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0		20.0	
Total Split (s)	55.0	55.0	55.0		20.0	
Total Split (%)	73.3%	73.3%	73.3%		26.7%	
Maximum Green (s)	51.0	51.0	51.0		16.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	0.5	0.5	0.5		0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	Min	Min	None		None	
Walk Time (s)	5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 70.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 29: Sumner Buckley Hwy & Kelly Lake Rd





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	605	450	40	45	190
Future Volume (veh/h)	185	605	450	40	45	190
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	637	474	42	47	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	269	764	1110	98	58	246
Arrive On Green	0.66	0.66	0.66	0.66	0.19	0.19
Sat Flow, veh/h	279	1166	1693	150	307	1306
Grp Volume(v), veh/h	832	0	0	516	248	0
Grp Sat Flow(s),veh/h/ln	1445	0	0	1843	1620	0
Q Serve(g_s), s	17.8	0.0	0.0	6.9	7.5	0.0
Cycle Q Clear(g_c), s	24.7	0.0	0.0	6.9	7.5	0.0
Prop In Lane	0.23			0.08	0.19	0.81
Lane Grp Cap(c), veh/h	1034	0	0	1208	305	0
V/C Ratio(X)	0.80	0.00	0.00	0.43	0.81	0.00
Avail Cap(c_a), veh/h	1544	0	0	1837	506	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	4.2	19.9	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.2	5.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	1.1	3.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	9.4	0.0	0.0	4.5	25.1	0.0
LnGrp LOS	A			A	C	
Approach Vol, veh/h		832	516		248	
Approach Delay, s/veh		9.4	4.5		25.1	
Approach LOS		A	A		C	

Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			37.5		13.6	37.5
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			51.0		16.0	51.0
Max Q Clear Time (g_c+I1), s			26.7		9.5	8.9
Green Ext Time (p_c), s			6.9		0.4	3.3

Intersection Summary		
HCM 7th Control Delay, s/veh	10.2	
HCM 7th LOS	B	

Intersection	
Int Delay, s/veh	2.3

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	80	490	1070	20	15	75
Future Vol, veh/h	80	490	1070	20	15	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	84	516	1126	21	16	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1147	0	-	0	1821	1137
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	684	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	613	-	-	-	85	244
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	499	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	613	-	-	-	68	244
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	499	-

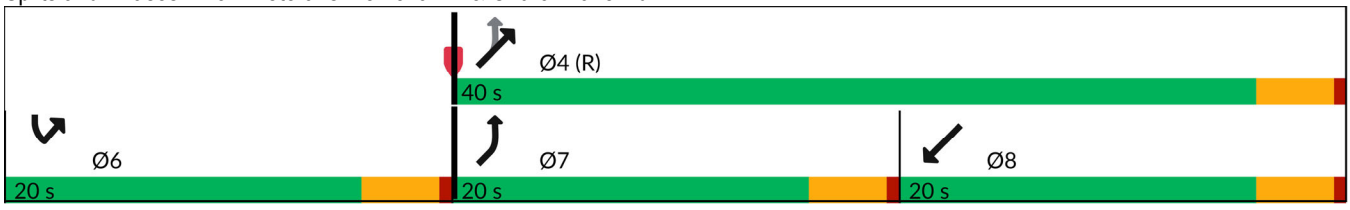
Approach	NB	SB	SE
HCM Control Delay, s/v	1.66	0	34.31
HCM LOS			D

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SELn2	SBT	SBR
Capacity (veh/h)	253	-	68	244	-	-
HCM Lane V/C Ratio	0.137	-	0.231	0.323	-	-
HCM Control Delay (s/veh)	11.8	0	72.9	26.6	-	-
HCM Lane LOS	B	A	F	D	-	-
HCM 95th %tile Q(veh)	0.5	-	0.8	1.3	-	-

Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	60	175	155	785	55	510
Future Volume (vph)	60	175	155	785	55	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			25	25	
Link Distance (ft)	340			412	452	
Travel Time (s)	7.7			11.2	12.3	
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	6		7	4	8	
Permitted Phases			4			
Detector Phase	6		7	4	8	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	20.0		20.0	40.0	20.0	
Total Split (%)	33.3%		33.3%	66.7%	33.3%	
Maximum Green (s)	16.0		16.0	36.0	16.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Min	C-Min	None	
Walk Time (s)	5.0		5.0	5.0	5.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 4:NETL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 37: Veterans Memorial Dr & Church Lake Rd E





Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	60	175	155	785	55	510
Future Volume (veh/h)	60	175	155	785	55	510
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1862	1862
Adj Flow Rate, veh/h	62	20	160	809	57	310
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	80	26	828	1518	169	917
Arrive On Green	0.06	0.06	0.07	0.81	0.67	0.67
Sat Flow, veh/h	1303	420	1795	1885	251	1365
Grp Volume(v), veh/h	83	0	160	809	0	367
Grp Sat Flow(s),veh/h/ln	1744	0	1795	1885	0	1616
Q Serve(g_s), s	2.8	0.0	1.3	8.8	0.0	5.8
Cycle Q Clear(g_c), s	2.8	0.0	1.3	8.8	0.0	5.8
Prop In Lane	0.75	0.24	1.00			0.84
Lane Grp Cap(c), veh/h	108	0	828	1518	0	1085
V/C Ratio(X)	0.77	0.00	0.19	0.53	0.00	0.34
Avail Cap(c_a), veh/h	465	0	1187	1518	0	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.62	0.62	0.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	2.3	2.0	0.0	4.2
Incr Delay (d2), s/veh	11.1	0.0	0.1	0.8	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	1.2	0.0	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	38.8	0.0	2.4	2.8	0.0	4.4
LnGrp LOS	D		A	A		A
Approach Vol, veh/h	83			969	367	
Approach Delay, s/veh	38.8			2.8	4.4	
Approach LOS	D			A	A	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			52.3		7.7	8.0	44.3
Change Period (Y+Rc), s			4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s			36.0		16.0	16.0	16.0
Max Q Clear Time (g_c+I1), s			10.8		4.8	3.3	7.8
Green Ext Time (p_c), s			7.0		0.1	0.3	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	5.3
HCM 7th LOS	A

Envision BONNEY LAKE

Celebrating 100 Years

People | Planet | Prosperity

Appendix H: 2049 Projected Intersection Level of Service (ILOS) Worksheets Without Improvements

June 2025

BONNEY Lake

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printing purposes.

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	25	200	30	60	230
Future Vol, veh/h	5	25	200	30	60	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	26	211	32	63	242

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	226	0	0	242	0
Stage 1	226	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	469	816	-	-	1330	-
Stage 1	814	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	816	-	-	1330	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.26	0	1.62
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	715	372	-
HCM Lane V/C Ratio	-	-	0.044	0.047	-
HCM Control Delay (s/veh)	-	-	10.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Future Vol, veh/h	5	50	95	75	20	5	35	40	55	1	35	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	53	100	79	21	5	37	42	58	1	37	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8	8.4	8.2	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	3%	75%	2%
Vol Thru, %	31%	33%	20%	85%
Vol Right, %	42%	63%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	150	100	41
LT Vol	35	5	75	1
Through Vol	40	50	20	35
RT Vol	55	95	5	5
Lane Flow Rate	137	158	105	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.179	0.135	0.055
Departure Headway (Hd)	4.348	4.076	4.611	4.586
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	883	779	782
Service Time	2.369	2.093	2.63	2.611
HCM Lane V/C Ratio	0.166	0.179	0.135	0.055
HCM Control Delay, s/veh	8.2	8	8.4	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.5	0.2

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	40	190	400	65
Future Vol, veh/h	20	40	40	190	400	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	21	42	42	200	421	68
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	8.7	9.7	13.1
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	17%	33%	0%
Vol Thru, %	83%	0%	86%
Vol Right, %	0%	67%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	230	60	465
LT Vol	40	20	0
Through Vol	190	0	400
RT Vol	0	40	65
Lane Flow Rate	242	63	489
Geometry Grp	1	1	1
Degree of Util (X)	0.31	0.09	0.581
Departure Headway (Hd)	4.607	5.148	4.274
Convergence, Y/N	Yes	Yes	Yes
Cap	780	693	847
Service Time	2.636	3.196	2.297
HCM Lane V/C Ratio	0.31	0.091	0.577
HCM Control Delay, s/veh	9.7	8.7	13.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.3	0.3	3.8

Intersection	
Int Delay, s/veh	21.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	85	90	215	335	135
Future Vol, veh/h	90	85	90	215	335	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	95	89	95	226	353	142

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	487	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1245	-	-	-	540	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	768	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1245	-	-	-	496	832
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	SB
HCM Control Delay, s/v	4.18	0	41.71
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	926	-	-	-	562
HCM Lane V/C Ratio	0.076	-	-	-	0.881
HCM Control Delay (s/veh)	8.1	0	-	-	41.7
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	10.1

Intersection	
Int Delay, s/veh	39.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	5	5	5	60	1	55	20	510	95	160	970	5
Future Vol, veh/h	5	5	5	60	1	55	20	510	95	160	970	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	3	3	3	1	1	1	1	1	1
Mvmt Flow	5	5	5	63	1	57	21	531	99	167	1010	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1920	2018	1013	1969	1971	581	1016	0	0	630	0	0
Stage 1	1346	1346	-	622	622	-	-	-	-	-	-	-
Stage 2	573	672	-	1346	1349	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	49	56	281	~ 47	62	512	687	-	-	957	-	-
Stage 1	180	213	-	472	477	-	-	-	-	-	-	-
Stage 2	492	444	-	186	218	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	34	45	281	~ 33	50	512	687	-	-	957	-	-
Mov Cap-2 Maneuver	34	45	-	~ 33	50	-	-	-	-	-	-	-
Stage 1	149	176	-	458	463	-	-	-	-	-	-	-
Stage 2	423	431	-	146	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	96.22	$ 620.85	0.33	1.35
HCM LOS	F	F		

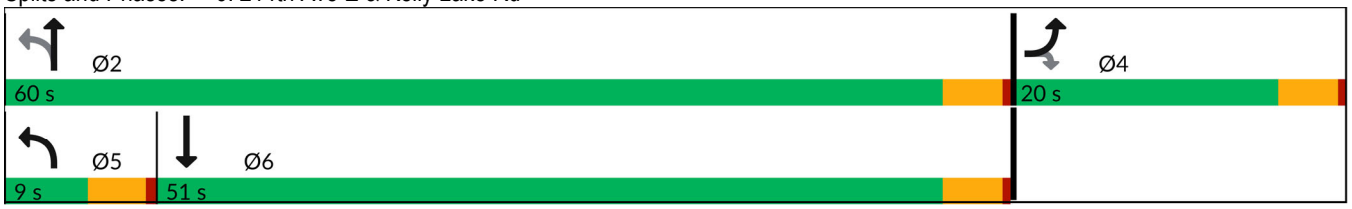
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	687	-	-	54	60	957	-	-
HCM Lane V/C Ratio	0.03	-	-	0.288	2.017	0.174	-	-
HCM Control Delay (s/veh)	10.4	-	-	96.2	$ 620.9	9.6	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	11.5	0.6	-	-

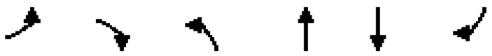
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	280	185	555	965	80
Future Volume (vph)	65	280	185	555	965	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			35	35	
Link Distance (ft)	2403			1356	1630	
Travel Time (s)	65.5			26.4	31.8	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	9.0	60.0	51.0	
Total Split (%)	25.0%	25.0%	11.3%	75.0%	63.8%	
Maximum Green (s)	16.0	16.0	5.0	56.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 6: 214th Ave E & Kelly Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	280	185	555	965	80
Future Volume (veh/h)	65	280	185	555	965	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	68	295	195	584	1016	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	356	317	202	1320	1001	83
Arrive On Green	0.20	0.20	0.06	0.70	0.59	0.59
Sat Flow, veh/h	1781	1585	1795	1885	1704	141
Grp Volume(v), veh/h	68	295	195	584	0	1100
Grp Sat Flow(s),veh/h/ln	1781	1585	1795	1885	0	1845
Q Serve(g_s), s	2.5	14.6	4.6	10.8	0.0	47.0
Cycle Q Clear(g_c), s	2.5	14.6	4.6	10.8	0.0	47.0
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	356	317	202	1320	0	1084
V/C Ratio(X)	0.19	0.93	0.96	0.44	0.00	1.01
Avail Cap(c_a), veh/h	356	317	202	1320	0	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	31.5	24.3	5.2	0.0	16.5
Incr Delay (d2), s/veh	0.3	33.0	52.9	0.2	0.0	31.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	14.7	5.0	3.1	0.0	25.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.9	64.4	77.2	5.4	0.0	47.6
LnGrp LOS	C	E	E	A		F
Approach Vol, veh/h	363			779	1100	
Approach Delay, s/veh	57.4			23.4	47.6	
Approach LOS	E			C	D	

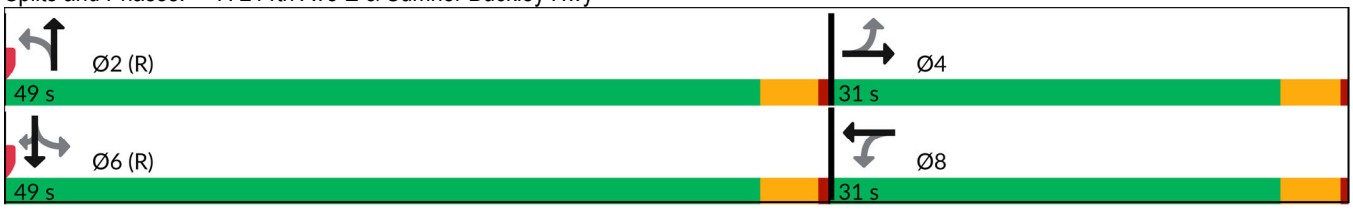
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.0		20.0	9.0	51.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		56.0		16.0	5.0	47.0
Max Q Clear Time (g_c+I1), s		12.8		16.6	6.6	49.0
Green Ext Time (p_c), s		2.7		0.0	0.0	0.0

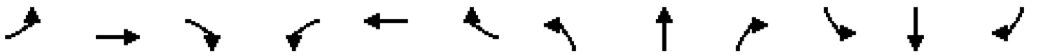
Intersection Summary	
HCM 7th Control Delay, s/veh	40.8
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	310	85	25	175	65	40	445	35	120	860	255
Future Volume (vph)	275	310	85	25	175	65	40	445	35	120	860	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		100
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		2632			1239			2614			1356	
Travel Time (s)		59.8			28.2			50.9			26.4	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%		61.3%	61.3%	61.3%
Maximum Green (s)	27.0	27.0		27.0	27.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: 214th Ave E & Sumner Buckley Hwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	310	85	25	175	65	40	445	35	120	860	255
Future Volume (veh/h)	275	310	85	25	175	65	40	445	35	120	860	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	289	326	89	26	184	68	42	468	37	126	905	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	351	481	131	228	443	164	67	592	44	219	1060	899
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.75	0.75	0.75	0.56	0.56	0.56
Sat Flow, veh/h	1137	1426	389	979	1313	485	33	1053	79	901	1885	1598
Grp Volume(v), veh/h	289	0	415	26	0	252	547	0	0	126	905	268
Grp Sat Flow(s),veh/h/ln	1137	0	1815	979	0	1798	1165	0	0	901	1885	1598
Q Serve(g_s), s	18.4	0.0	15.7	1.9	0.0	8.6	12.7	0.0	0.0	0.0	32.3	7.1
Cycle Q Clear(g_c), s	27.0	0.0	15.7	17.6	0.0	8.6	45.0	0.0	0.0	42.7	32.3	7.1
Prop In Lane	1.00		0.21	1.00		0.27	0.08		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	613	228	0	607	704	0	0	219	1060	899
V/C Ratio(X)	0.82	0.00	0.68	0.11	0.00	0.42	0.78	0.00	0.00	0.58	0.85	0.30
Avail Cap(c_a), veh/h	351	0	613	228	0	607	704	0	0	219	1060	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.00	0.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	31.7	0.0	22.8	30.3	0.0	20.4	9.0	0.0	0.0	17.0	14.7	9.2
Incr Delay (d2), s/veh	14.6	0.0	3.0	0.2	0.0	0.5	7.8	0.0	0.0	1.0	0.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	6.9	0.4	0.0	3.5	4.0	0.0	0.0	1.9	11.7	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.4	0.0	25.7	30.5	0.0	20.9	16.8	0.0	0.0	18.0	15.6	9.3
LnGrp LOS	D		C	C		C	B			B	B	A
Approach Vol, veh/h		704			278			547			1299	
Approach Delay, s/veh		34.2			21.8			16.8			14.5	
Approach LOS		C			C			B			B	

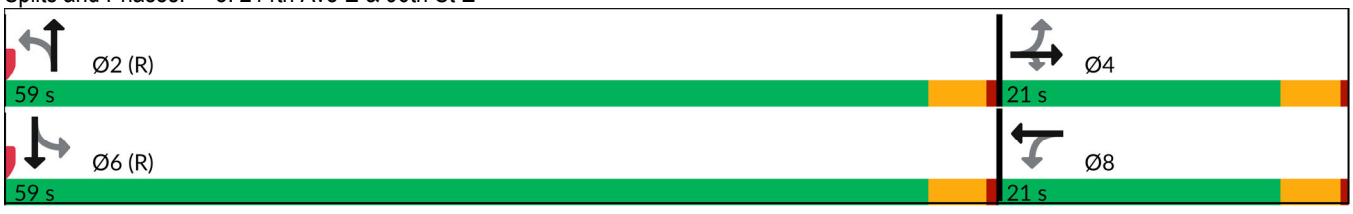
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		49.0		31.0		49.0		31.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		45.0		27.0		45.0		27.0				
Max Q Clear Time (g_c+I1), s		47.0		29.0		44.7		19.6				
Green Ext Time (p_c), s		0.0		0.0		0.2		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			20.6									
HCM 7th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	20	50	45	20	15	35	455	55	55	755	25
Future Volume (vph)	35	20	50	45	20	15	35	455	55	55	755	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		261			692			981			2614	
Travel Time (s)		5.9			15.7			19.1			50.9	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		59.0	59.0		59.0	59.0	
Total Split (%)	26.3%	26.3%	26.3%	26.3%	26.3%		73.8%	73.8%		73.8%	73.8%	
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		55.0	55.0		55.0	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 11 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 214th Ave E & 96th St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	20	50	45	20	15	35	455	55	55	755	25
Future Volume (veh/h)	35	20	50	45	20	15	35	455	55	55	755	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	36	21	52	47	21	16	36	474	57	57	786	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	158	76	149	123	44	23	636	1331	160	744	1494	49
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00
Sat Flow, veh/h	902	813	1598	569	468	244	677	1651	199	898	1852	61
Grp Volume(v), veh/h	57	0	52	84	0	0	36	0	531	57	0	812
Grp Sat Flow(s),veh/h/ln	1715	0	1598	1280	0	0	677	0	1849	898	0	1913
Q Serve(g_s), s	0.0	0.0	2.4	3.1	0.0	0.0	0.9	0.0	6.2	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	2.4	5.4	0.0	0.0	0.9	0.0	6.2	6.8	0.0	0.0
Prop In Lane	0.63		1.00	0.56		0.19	1.00		0.11	1.00		0.03
Lane Grp Cap(c), veh/h	234	0	149	190	0	0	636	0	1492	744	0	1543
V/C Ratio(X)	0.24	0.00	0.35	0.44	0.00	0.00	0.06	0.00	0.36	0.08	0.00	0.53
Avail Cap(c_a), veh/h	416	0	339	366	0	0	636	0	1492	744	0	1543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.57	0.00	0.57	0.45	0.00	0.45
Uniform Delay (d), s/veh	33.9	0.0	34.0	35.5	0.0	0.0	1.6	0.0	2.1	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.4	1.6	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	1.6	0.0	0.0	0.1	0.0	1.0	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.4	0.0	35.4	37.1	0.0	0.0	1.7	0.0	2.5	0.4	0.0	0.6
LnGrp LOS	C		D	D			A		A	A		A
Approach Vol, veh/h		109			84			567			869	
Approach Delay, s/veh		34.9			37.1			2.4			0.6	
Approach LOS		C			D			A			A	

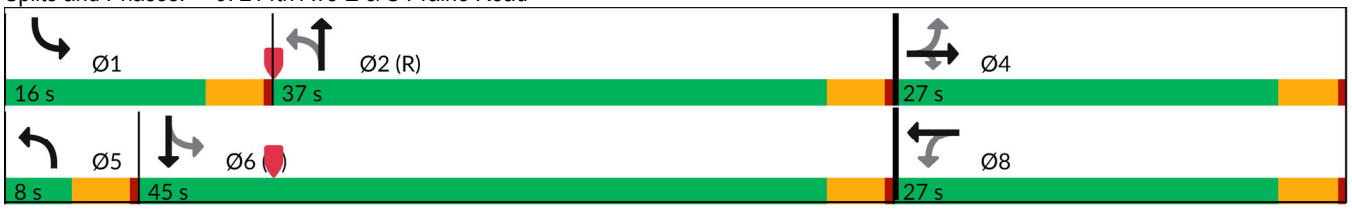
Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	68.5	11.5	68.5	11.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	55.0	17.0	55.0	17.0
Max Q Clear Time (g_c+I1), s	8.2	4.4	8.8	7.4
Green Ext Time (p_c), s	2.8	0.3	4.9	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	5.4
HCM 7th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	455	445	5	270	180	200	370	5	275	705	135
Future Volume (vph)	40	455	445	5	270	180	200	370	5	275	705	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	100		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		4369			2155			1288			3394	
Travel Time (s)		119.2			58.8			25.1			66.1	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0		8.0	37.0		16.0	45.0	
Total Split (%)	33.8%	33.8%	33.8%	33.8%	33.8%		10.0%	46.3%		20.0%	56.3%	
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0		4.0	33.0		12.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 56 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 9: 214th Ave E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	455	445	5	270	180	200	370	5	275	705	135
Future Volume (veh/h)	40	455	445	5	270	180	200	370	5	275	705	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	41	469	459	5	278	186	206	381	5	284	727	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	71	450	459	45	219	144	331	845	11	599	966	
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.46	0.46	0.11	0.51	0.00
Sat Flow, veh/h	79	1564	1598	0	763	502	1795	1856	24	1795	1885	0
Grp Volume(v), veh/h	510	0	459	469	0	0	206	0	386	284	727	0
Grp Sat Flow(s),veh/h/ln	1643	0	1598	1265	0	0	1795	0	1881	1795	1885	0
Q Serve(g_s), s	0.0	0.0	23.0	0.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Cycle Q Clear(g_c), s	23.0	0.0	23.0	23.0	0.0	0.0	4.0	0.0	11.3	6.2	24.5	0.0
Prop In Lane	0.08		1.00	0.01		0.40	1.00		0.01	1.00		0.00
Lane Grp Cap(c), veh/h	521	0	459	409	0	0	331	0	856	599	966	
V/C Ratio(X)	0.98	0.00	1.00	1.15	0.00	0.00	0.62	0.00	0.45	0.47	0.75	
Avail Cap(c_a), veh/h	521	0	459	409	0	0	331	0	856	676	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.00	0.74	1.00	0.00	0.00	1.00	0.00	1.00	0.43	0.43	0.00
Uniform Delay (d), s/veh	28.8	0.0	28.5	26.9	0.0	0.0	17.6	0.0	14.9	9.6	15.5	0.0
Incr Delay (d2), s/veh	28.6	0.0	35.9	90.8	0.0	0.0	3.6	0.0	1.7	0.3	2.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	13.1	17.3	0.0	0.0	2.1	0.0	4.8	2.1	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.4	0.0	64.4	117.7	0.0	0.0	21.2	0.0	16.6	9.9	17.9	0.0
LnGrp LOS	E		E	F			C		B	A	B	
Approach Vol, veh/h		969			469			592			1011	
Approach Delay, s/veh		60.7			117.7			18.2			15.6	
Approach LOS		E			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	40.4		27.0	8.0	45.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	33.0		23.0	4.0	41.0		23.0				
Max Q Clear Time (g_c+I1), s	8.2	13.3		25.0	6.0	26.5		25.0				
Green Ext Time (p_c), s	0.4	1.4		0.0	0.0	3.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	46.3
HCM 7th LOS	D

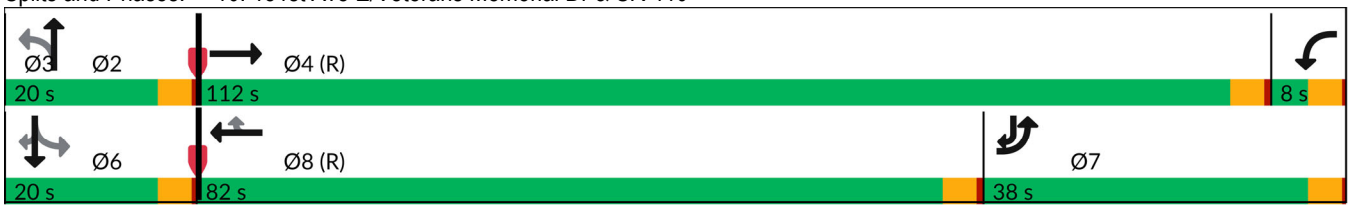
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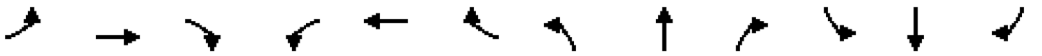
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (vph)	610	1925	5	10	1545	35	10	20	10	65	25	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	700		0	100		250	0		0	0		50
Storage Lanes	2		0	1		1	0		0	0		2
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1510			1091			468			786	
Travel Time (s)		22.9			16.5			12.8			21.4	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	8.0
Total Split (s)	38.0	112.0		8.0	82.0	82.0	20.0	20.0		20.0	20.0	38.0
Total Split (%)	27.1%	80.0%		5.7%	58.6%	58.6%	14.3%	14.3%		14.3%	14.3%	27.1%
Maximum Green (s)	34.0	108.0		4.0	78.0	78.0	16.0	16.0		16.0	16.0	34.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead						Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		Min	Min	None
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: 181st Ave E/Veterans Memorial Dr & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Future Volume (veh/h)	610	1925	5	10	1545	35	10	20	10	65	25	505
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	629	1985	5	10	1593	36	10	21	10	67	26	521
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	846	2827	7	51	1980	883	37	64	22	117	39	1004
Arrive On Green	0.24	0.77	0.77	0.06	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3665	9	1781	3554	1585	42	561	195	637	338	2812
Grp Volume(v), veh/h	629	969	1021	10	1593	36	41	0	0	93	0	521
Grp Sat Flow(s),veh/h/ln	1742	1791	1884	1781	1777	1585	798	0	0	975	0	1406
Q Serve(g_s), s	23.4	37.8	37.8	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.4	37.8	37.8	0.7	0.0	0.0	14.3	0.0	0.0	14.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.24		0.24	0.72		1.00
Lane Grp Cap(c), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
V/C Ratio(X)	0.74	0.70	0.70	0.20	0.80	0.04	0.33	0.00	0.00	0.60	0.00	0.52
Avail Cap(c_a), veh/h	846	1382	1453	51	1980	883	123	0	0	156	0	1004
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	49.0	8.0	8.0	64.5	0.0	0.0	56.5	0.0	0.0	60.7	0.0	35.5
Incr Delay (d2), s/veh	3.6	3.0	2.9	1.3	2.6	0.1	1.6	0.0	0.0	4.7	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	12.4	13.0	0.4	0.7	0.0	1.4	0.0	0.0	3.5	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.6	11.0	10.8	65.8	2.6	0.1	58.0	0.0	0.0	65.5	0.0	35.9
LnGrp LOS	D	B	B	E	A	A	E			E		D
Approach Vol, veh/h		2619			1639			41			614	
Approach Delay, s/veh		20.9			2.9			58.0			40.4	
Approach LOS		C			A			E			D	

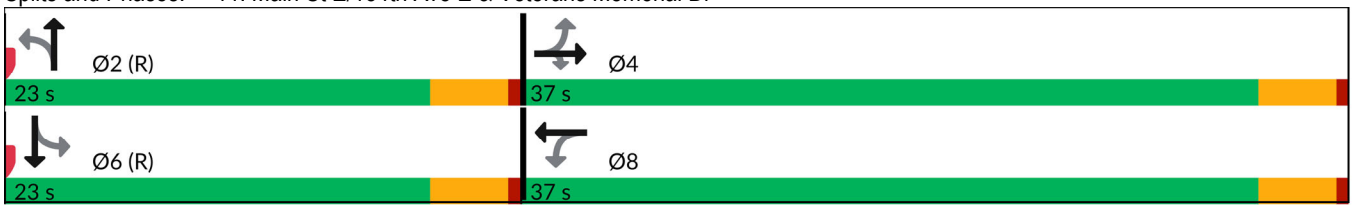
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	8.0	112.0		20.0	38.0	82.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	4.0	108.0		16.0	34.0	78.0				
Max Q Clear Time (g_c+I1), s		16.3	2.7	39.8		16.1	25.4	2.0				
Green Ext Time (p_c), s		0.0	0.0	16.1		0.0	2.0	11.8				

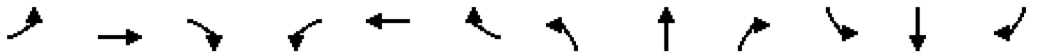
Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (vph)	30	565	55	85	455	25	30	40	135	105	215	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		150	100		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		786			1067			1220			789	
Travel Time (s)		21.4			29.1			33.3			21.5	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%	61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 11: Main St E/184th Ave E & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Future Volume (veh/h)	30	565	55	85	455	25	30	40	135	105	215	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	32	595	58	89	479	26	32	42	142	111	226	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	323	819	694	256	770	42	514	163	552	557	734	68
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	901	1885	1598	786	1772	96	1142	378	1277	1209	1699	158
Grp Volume(v), veh/h	32	595	58	89	0	505	32	0	184	111	0	247
Grp Sat Flow(s),veh/h/ln	901	1885	1598	786	0	1868	1142	0	1655	1209	0	1857
Q Serve(g_s), s	1.7	15.7	1.3	6.3	0.0	12.6	1.1	0.0	4.3	3.9	0.0	5.2
Cycle Q Clear(g_c), s	14.3	15.7	1.3	22.0	0.0	12.6	6.4	0.0	4.3	8.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.77	1.00		0.09
Lane Grp Cap(c), veh/h	323	819	694	256	0	811	514	0	715	557	0	803
V/C Ratio(X)	0.10	0.73	0.08	0.35	0.00	0.62	0.06	0.00	0.26	0.20	0.00	0.31
Avail Cap(c_a), veh/h	427	1037	879	347	0	1027	514	0	715	557	0	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.64	0.00	0.64	0.96	0.00	0.96	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	14.0	10.0	23.1	0.0	13.2	13.2	0.0	10.9	13.5	0.0	11.2
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.5	0.0	0.5	0.2	0.0	0.8	0.8	0.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.1	0.4	1.2	0.0	4.8	0.3	0.0	1.6	1.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.8	15.2	10.0	23.6	0.0	13.7	13.5	0.0	11.7	14.3	0.0	12.1
LnGrp LOS	B	B	A	C		B	B		B	B		B
Approach Vol, veh/h		685			594			216			358	
Approach Delay, s/veh		14.9			15.2			12.0			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	29.9	30.1	29.9	30.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	19.0	33.0	19.0	33.0
Max Q Clear Time (g_c+I1), s	8.4	17.7	10.1	24.0
Green Ext Time (p_c), s	0.7	3.0	1.0	2.1

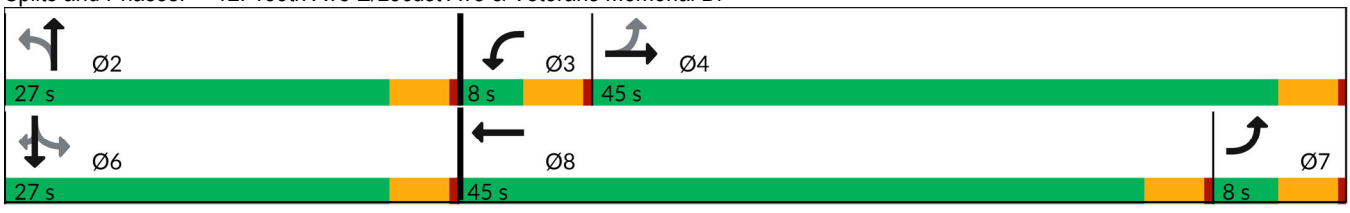
Intersection Summary	
HCM 7th Control Delay, s/veh	14.2
HCM 7th LOS	B

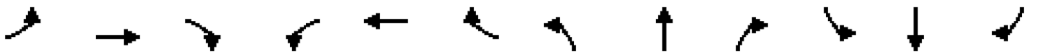
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (vph)	115	665	15	40	465	140	15	20	50	205	20	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			2%			-3%	
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1067			412			245			4942	
Travel Time (s)		29.1			11.2			6.7			134.8	
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	8.0	45.0		8.0	45.0		27.0	27.0		27.0	27.0	27.0
Total Split (%)	10.0%	56.3%		10.0%	56.3%		33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	4.0	41.0		4.0	41.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			1		4	4		7	7	7

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 60.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: 188th Ave E/Locust Ave & Veterans Memorial Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Future Volume (veh/h)	115	665	15	40	465	140	15	20	50	205	20	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1862	1862	1862	1817	1817	1817	1973	1973	1973
Adj Flow Rate, veh/h	121	700	16	42	489	147	16	21	53	216	21	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	4	4	4	3	3	3
Cap, veh/h	255	795	18	58	556	167	65	85	122	273	22	587
Arrive On Green	0.06	0.43	0.43	0.03	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	1836	42	1773	1374	413	0	243	348	478	63	1672
Grp Volume(v), veh/h	121	0	716	42	0	636	90	0	0	237	0	137
Grp Sat Flow(s),veh/h/ln	1795	0	1878	1773	0	1787	591	0	0	541	0	1672
Q Serve(g_s), s	0.0	0.0	22.9	1.5	0.0	21.5	0.0	0.0	0.0	0.0	0.0	3.8
Cycle Q Clear(g_c), s	0.0	0.0	22.9	1.5	0.0	21.5	23.0	0.0	0.0	23.0	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.23	0.18		0.59	0.91		1.00
Lane Grp Cap(c), veh/h	255	0	813	58	0	723	272	0	0	295	0	587
V/C Ratio(X)	0.47	0.00	0.88	0.73	0.00	0.88	0.33	0.00	0.00	0.80	0.00	0.23
Avail Cap(c_a), veh/h	255	0	1175	108	0	1119	272	0	0	295	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	17.0	31.4	0.0	18.0	16.2	0.0	0.0	23.3	0.0	15.0
Incr Delay (d2), s/veh	1.4	0.0	5.7	15.8	0.0	5.4	0.7	0.0	0.0	14.8	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	10.2	0.9	0.0	9.1	0.9	0.0	0.0	4.9	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.8	0.0	22.7	47.2	0.0	23.4	16.9	0.0	0.0	38.2	0.0	15.2
LnGrp LOS	C		C	D		C	B			D		B
Approach Vol, veh/h		837			678			90			374	
Approach Delay, s/veh		23.8			24.9			16.9			29.8	
Approach LOS		C			C			B			C	

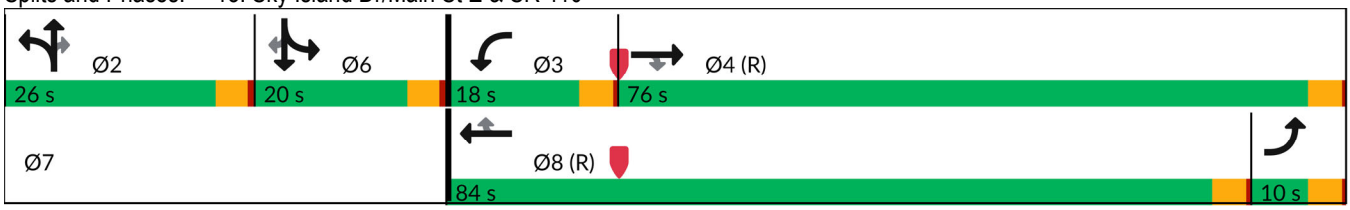
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	27.0	6.1	32.4	27.0	8.0	30.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	23.0	4.0	41.0	23.0	4.0	41.0
Max Q Clear Time (g_c+I1), s	25.0	3.5	24.9	25.0	2.0	23.5
Green Ext Time (p_c), s	0.0	0.0	3.3	0.0	0.1	3.0

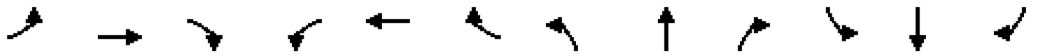
Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (vph)	35	1855	170	180	1455	115	160	130	250	255	150	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			0%			-2%	
Storage Length (ft)	100		200	100		200	100		100	100		100
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1091			3227			439			1220	
Travel Time (s)		16.5			48.9			12.0			33.3	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	76.0	76.0	18.0	84.0	84.0	26.0	26.0	26.0	20.0	20.0	20.0
Total Split (%)	7.1%	54.3%	54.3%	12.9%	60.0%	60.0%	18.6%	18.6%	18.6%	14.3%	14.3%	14.3%
Maximum Green (s)	6.0	72.0	72.0	14.0	80.0	80.0	22.0	22.0	22.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 139 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	

Splits and Phases: 13: Sky Island Dr/Main St E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Future Volume (veh/h)	35	1855	170	180	1455	115	160	130	250	255	150	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1924	1924	1924	1864	1864	1864	1885	1885	1885	1964	1964	1964
Adj Flow Rate, veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	240	2202	982	178	2024	903	309	167		343	186	
Arrive On Green	0.26	1.00	1.00	0.10	0.57	0.57	0.09	0.09	0.00	0.09	0.09	0.00
Sat Flow, veh/h	1833	3656	1631	1776	3542	1580	3483	1885	1598	3628	1964	1664
Grp Volume(v), veh/h	35	1874	172	182	1470	116	162	131	0	258	152	0
Grp Sat Flow(s),veh/h/ln	1833	1828	1631	1776	1771	1580	1742	1885	1598	1814	1964	1664
Q Serve(g_s), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	14.0	42.6	4.8	6.2	9.5	0.0	9.7	10.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	2202	982	178	2024	903	309	167		343	186	
V/C Ratio(X)	0.15	0.85	0.18	1.02	0.73	0.13	0.52	0.78		0.75	0.82	
Avail Cap(c_a), veh/h	240	2202	982	178	2024	903	547	296		415	224	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.54	0.54	0.54	1.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	45.7	0.0	0.0	63.0	22.0	13.9	61.0	62.5	0.0	61.8	62.2	0.0
Incr Delay (d2), s/veh	0.2	3.1	0.3	56.2	1.3	0.2	1.4	7.8	0.0	5.9	17.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.1	9.0	16.8	1.7	2.8	5.0	0.0	4.8	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.9	3.1	0.3	119.2	23.2	14.0	62.3	70.2	0.0	67.7	79.3	0.0
LnGrp LOS	D	A	A	F	C	B	E	E		E	E	
Approach Vol, veh/h		2081			1768			293			410	
Approach Delay, s/veh		3.6			32.5			65.9			72.0	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	16.4	18.0	88.3	17.3	22.3	84.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	22.0	14.0	72.0	16.0	6.0	80.0
Max Q Clear Time (g_c+I1), s	11.5	16.0	2.0	12.6	4.1	44.6
Green Ext Time (p_c), s	0.9	0.0	18.1	0.6	0.0	10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Notes

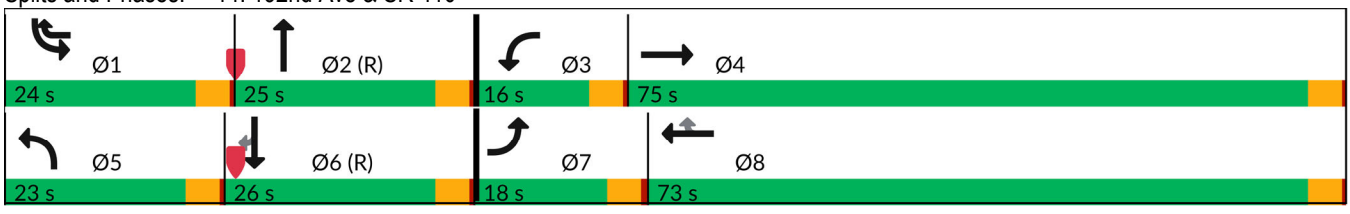
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

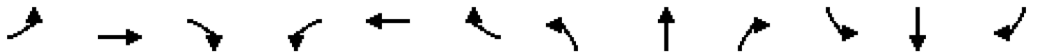
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	2020	185	95	1510	405	145	115	45	360	135	80
Future Volume (vph)	125	2020	185	95	1510	405	145	115	45	360	135	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	300		250	150		300	50		0	100		150
Storage Lanes	1		0	1		1	1		0	2		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		3227			1056			370			601	
Travel Time (s)		48.9			16.0			8.4			13.7	
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	8.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	18.0	75.0		16.0	73.0	24.0	23.0	25.0		24.0	26.0	26.0
Total Split (%)	12.9%	53.6%		11.4%	52.1%	17.1%	16.4%	17.9%		17.1%	18.6%	18.6%
Maximum Green (s)	14.0	71.0		12.0	69.0	20.0	19.0	21.0		20.0	22.0	22.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0			5.0	5.0
Flash Don't Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		1			1			1			1	1

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 14: 192nd Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2020	185	95	1510	405	145	115	45	360	135	80
Future Volume (veh/h)	125	2020	185	95	1510	405	145	115	45	360	135	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	128	2061	189	97	1541	413	148	117	46	367	138	82
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	151	2318	211	118	1677	924	173	269	106	422	442	369
Arrive On Green	0.09	0.49	0.49	0.13	0.94	0.94	0.10	0.21	0.21	0.12	0.23	0.23
Sat Flow, veh/h	1773	4741	431	1790	3571	1558	1795	1282	504	3483	1885	1575
Grp Volume(v), veh/h	128	1468	782	97	1541	413	148	0	163	367	138	82
Grp Sat Flow(s),veh/h/ln	1773	1694	1784	1790	1785	1558	1795	0	1786	1742	1885	1575
Q Serve(g_s), s	10.0	54.7	55.9	7.4	26.9	3.7	11.4	0.0	11.1	14.5	8.5	5.9
Cycle Q Clear(g_c), s	10.0	54.7	55.9	7.4	26.9	3.7	11.4	0.0	11.1	14.5	8.5	5.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	151	1657	872	118	1677	924	173	0	375	422	442	369
V/C Ratio(X)	0.85	0.89	0.90	0.82	0.92	0.45	0.86	0.00	0.44	0.87	0.31	0.22
Avail Cap(c_a), veh/h	177	1718	905	153	1760	961	244	0	375	498	442	369
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.14	0.39	0.39	0.39	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	32.3	32.6	60.0	3.1	1.4	62.3	0.0	48.1	60.4	44.3	43.3
Incr Delay (d2), s/veh	4.9	0.9	1.9	10.4	3.5	0.1	18.4	0.0	3.6	13.6	1.8	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	21.3	23.2	3.4	2.4	0.6	6.1	0.0	5.4	7.2	4.2	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.0	33.1	34.5	70.4	6.6	1.6	80.7	0.0	51.8	74.0	46.1	44.6
LnGrp LOS	E	C	C	E	A	A	F		D	E	D	D
Approach Vol, veh/h		2378			2051			311			587	
Approach Delay, s/veh		35.5			8.6			65.5			63.4	
Approach LOS		D			A			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	33.4	13.2	72.5	17.5	36.8	15.9	69.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	20.0	21.0	12.0	71.0	19.0	22.0	14.0	69.0
Max Q Clear Time (g_c+I1), s	16.5	13.1	9.4	57.9	13.4	10.5	12.0	28.9
Green Ext Time (p_c), s	0.5	0.5	0.0	10.6	0.2	0.7	0.1	18.3

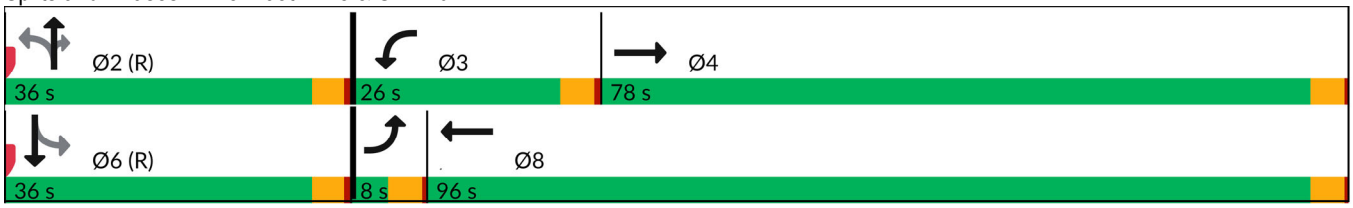
Intersection Summary	
HCM 7th Control Delay, s/veh	29.9
HCM 7th LOS	C

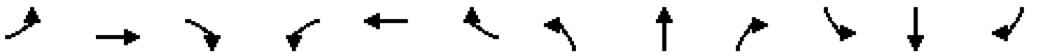
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2405	75	240	2045	35	70	5	290	15	5	25
Future Volume (vph)	10	2405	75	240	2045	35	70	5	290	15	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			0%			0%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1230			413			224	
Travel Time (s)		16.0			18.6			9.4			5.1	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	20.0	20.0	
Total Split (s)	8.0	78.0		26.0	96.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	5.7%	55.7%		18.6%	68.6%		25.7%	25.7%	25.7%	25.7%	25.7%	
Maximum Green (s)	4.0	74.0		22.0	92.0		32.0	32.0	32.0	32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		3			1		1	1	1	1	1	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 15: 195th Ave & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2405	75	240	2045	35	70	5	290	15	5	25
Future Volume (veh/h)	10	2405	75	240	2045	35	70	5	290	15	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1879	1879	1879	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	10	2479	77	247	2108	36	72	5	299	15	5	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	16	2652	82	270	2390	41	346	22	382	245	62	324
Arrive On Green	0.01	0.52	0.52	0.15	0.67	0.67	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1773	5061	156	1790	3591	61	1238	94	1596	1066	260	1351
Grp Volume(v), veh/h	10	1654	902	247	1045	1099	77	0	299	15	0	31
Grp Sat Flow(s),veh/h/ln	1773	1694	1829	1790	1785	1867	1332	0	1596	1066	0	1610
Q Serve(g_s), s	0.8	63.6	64.8	19.0	66.0	67.1	6.1	0.0	24.6	1.6	0.0	2.1
Cycle Q Clear(g_c), s	0.8	63.6	64.8	19.0	66.0	67.1	8.2	0.0	24.6	9.8	0.0	2.1
Prop In Lane	1.00		0.09	1.00		0.03	0.94		1.00	1.00		0.84
Lane Grp Cap(c), veh/h	16	1775	959	270	1188	1242	369	0	382	245	0	386
V/C Ratio(X)	0.61	0.93	0.94	0.92	0.88	0.88	0.21	0.00	0.78	0.06	0.00	0.08
Avail Cap(c_a), veh/h	51	1791	967	281	1188	1242	369	0	382	245	0	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.15	0.15	0.15	0.59	0.59	0.59	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	31.0	31.3	58.6	18.9	19.1	44.3	0.0	49.8	47.6	0.0	41.3
Incr Delay (d2), s/veh	5.5	1.7	3.5	21.9	4.8	4.9	1.3	0.0	14.7	0.5	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	24.6	27.6	10.1	25.4	27.0	2.3	0.0	11.1	0.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.6	32.7	34.8	80.5	23.7	24.0	45.6	0.0	64.5	48.1	0.0	41.7
LnGrp LOS	E	C	C	F	C	C	D		E	D		D
Approach Vol, veh/h		2566			2391			376			46	
Approach Delay, s/veh		33.6			29.7			60.7			43.8	
Approach LOS		C			C			E			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.5	25.1	77.4		37.5	5.3	97.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		32.0	22.0	74.0		32.0	4.0	92.0				
Max Q Clear Time (g_c+I1), s		26.6	21.0	66.8		11.8	2.8	69.1				
Green Ext Time (p_c), s		0.7	0.1	6.6		0.1	0.0	17.1				

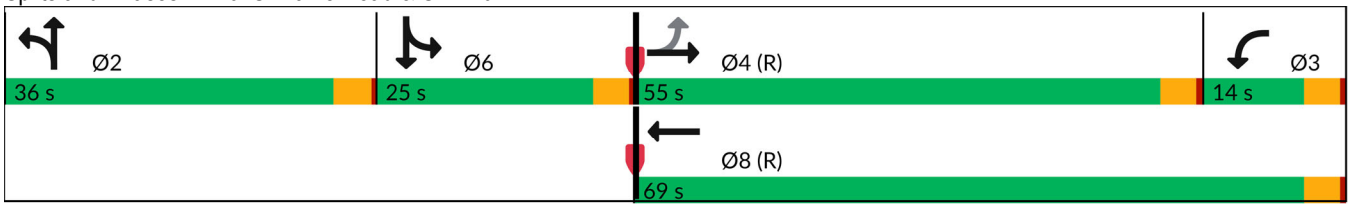
Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Future Volume (vph)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			3%			0%	
Storage Length (ft)	300		0	350		300	500		750	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1230			1801			998			1675	
Travel Time (s)		18.6			27.3			27.2			45.7	
Turn Type	Perm	NA	Free	Prot	NA		Split	NA		Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4		Free									
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	55.0	55.0		14.0	69.0		36.0	36.0		25.0	25.0	
Total Split (%)	42.3%	42.3%		10.8%	53.1%		27.7%	27.7%		19.2%	19.2%	
Maximum Green (s)	51.0	51.0		10.0	65.0		32.0	32.0		21.0	21.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 65 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 16: S Prairie Road & SR 410



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Future Volume (veh/h)	55	1300	1370	130	1095	120	1185	180	60	250	230	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1964	1964	1964	1832	1832	1832	1856	1856	1856
Adj Flow Rate, veh/h	57	1340	0	134	1129	124	1222	186	0	258	237	52
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	162	1388		144	2445	268	1211	451		285	237	52
Arrive On Green	0.39	0.39	0.00	0.08	0.50	0.50	0.25	0.25	0.00	0.16	0.16	0.16
Sat Flow, veh/h	441	3537	1578	1870	4891	537	4921	1832	0	1767	1470	322
Grp Volume(v), veh/h	57	1340	0	134	825	428	1222	186	0	258	0	289
Grp Sat Flow(s),veh/h/ln	441	1769	1578	1870	1787	1854	1640	1832	0	1767	0	1792
Q Serve(g_s), s	14.6	48.2	0.0	9.3	19.5	19.5	32.0	11.1	0.0	18.6	0.0	21.0
Cycle Q Clear(g_c), s	34.1	48.2	0.0	9.3	19.5	19.5	32.0	11.1	0.0	18.6	0.0	21.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.00	1.00		0.18
Lane Grp Cap(c), veh/h	162	1388		144	1787	927	1211	451		285	0	290
V/C Ratio(X)	0.35	0.97		0.93	0.46	0.46	1.01	0.41		0.90	0.00	1.00
Avail Cap(c_a), veh/h	162	1388		144	1787	927	1211	451		285	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.00	0.86	0.86	0.86	0.77	0.77	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	38.6	0.0	59.7	21.1	21.1	49.0	41.1	0.0	53.5	0.0	54.5
Incr Delay (d2), s/veh	1.5	6.4	0.0	49.9	0.7	1.4	24.9	0.5	0.0	29.8	0.0	52.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	21.1	0.0	6.3	7.9	8.4	15.9	5.1	0.0	10.7	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.4	45.1	0.0	109.5	21.9	22.6	73.9	41.6	0.0	83.3	0.0	106.8
LnGrp LOS	D	D		F	C	C	F	D		F		F
Approach Vol, veh/h		1397			1387			1408			547	
Approach Delay, s/veh		45.1			30.5			69.6			95.7	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	2	3	4		6		8					
Phs Duration (G+Y+Rc), s	36.0	14.0	55.0		25.0		69.0					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0		4.0					
Max Green Setting (Gmax), s	32.0	10.0	51.0		21.0		65.0					
Max Q Clear Time (g_c+I1), s	34.0	11.3	50.2		23.0		21.5					
Green Ext Time (p_c), s	0.0	0.0	0.6		0.0		6.4					

Intersection Summary	
HCM 7th Control Delay, s/veh	54.0
HCM 7th LOS	D

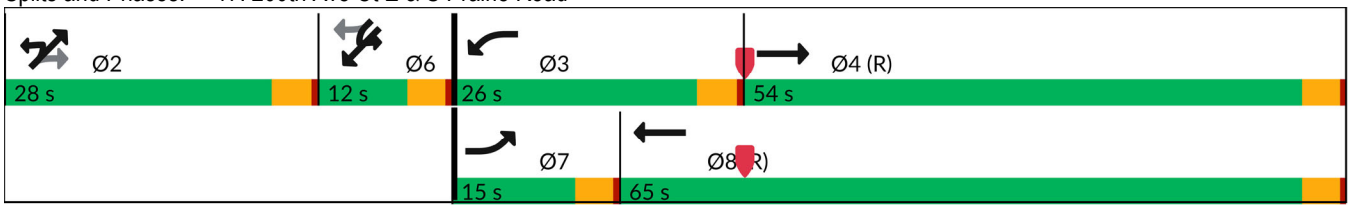
Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (vph)	75	815	925	355	525	45	645	70	335	50	75	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	225		225	350		250	100		0
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			Yes			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		998			1097			486			264	
Travel Time (s)		27.2			29.9			13.3			7.2	
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			Free						2			6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	15.0	54.0		26.0	65.0		28.0	28.0	28.0	12.0	12.0	12.0
Total Split (%)	12.5%	45.0%		21.7%	54.2%		23.3%	23.3%	23.3%	10.0%	10.0%	10.0%
Maximum Green (s)	11.0	50.0		22.0	61.0		24.0	24.0	24.0	8.0	8.0	8.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 17: 200th Ave Ct E & S Prairie Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Future Volume (veh/h)	75	815	925	355	525	45	645	70	335	50	75	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	77	832	0	362	536	46	709	0	66	51	77	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	99	785		329	1819	156	718	0	320	49	74	105
Arrive On Green	0.05	0.42	0.00	0.18	0.55	0.55	0.20	0.00	0.20	0.07	0.07	0.07
Sat Flow, veh/h	1795	1885	1598	1795	3338	286	3591	0	1598	736	1112	1573
Grp Volume(v), veh/h	77	832	0	362	287	295	709	0	66	128	0	56
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	1833	1795	0	1598	1848	0	1573
Q Serve(g_s), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Cycle Q Clear(g_c), s	5.1	50.0	0.0	22.0	10.4	10.5	23.6	0.0	4.1	8.0	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	99	785		329	976	999	718	0	320	123	0	105
V/C Ratio(X)	0.78	1.06		1.10	0.29	0.30	0.99	0.00	0.21	1.04	0.00	0.53
Avail Cap(c_a), veh/h	165	785		329	976	999	718	0	320	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.28	0.28	0.00	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	35.0	0.0	49.0	14.8	14.8	47.8	0.0	40.1	56.0	0.0	54.2
Incr Delay (d2), s/veh	3.8	35.3	0.0	70.0	0.5	0.5	30.3	0.0	0.3	91.8	0.0	5.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	30.3	0.0	16.3	4.4	4.5	13.6	0.0	1.7	6.9	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.8	70.3	0.0	119.0	15.3	15.3	78.1	0.0	40.4	147.8	0.0	59.4
LnGrp LOS	E	F		F	B	B	E		D	F		E
Approach Vol, veh/h		909			944			775			184	
Approach Delay, s/veh		69.4			55.1			74.9			120.9	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	28.0	26.0	54.0		12.0	10.6	69.4					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	24.0	22.0	50.0		8.0	11.0	61.0					
Max Q Clear Time (g_c+I1), s	25.6	24.0	52.0		10.0	7.1	12.5					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.1	2.6					

Intersection Summary	
HCM 7th Control Delay, s/veh	69.5
HCM 7th LOS	E

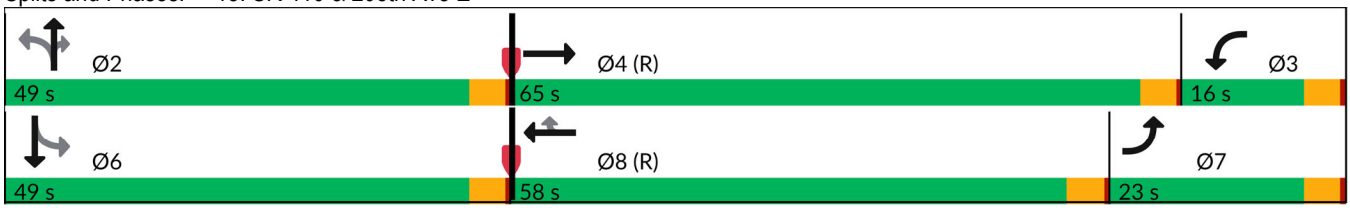
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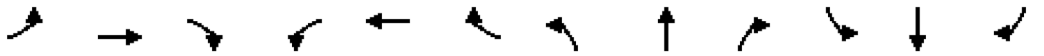
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	1335	245	75	1065	60	250	25	100	60	20	45
Future Volume (vph)	150	1335	245	75	1065	60	250	25	100	60	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		600	0		0	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			30			25	
Link Distance (ft)		1005			1116			428			525	
Travel Time (s)		15.2			16.9			9.7			14.3	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	65.0		16.0	58.0	58.0	49.0	49.0	49.0	49.0	49.0	
Total Split (%)	17.7%	50.0%		12.3%	44.6%	44.6%	37.7%	37.7%	37.7%	37.7%	37.7%	
Maximum Green (s)	19.0	61.0		12.0	54.0	54.0	45.0	45.0	45.0	45.0	45.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min	Min	Min	Min	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		2			2	2	5	5	5	5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 75 (58%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 18: SR 410 & 208th Ave E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1335	245	75	1065	60	250	25	100	60	20	45
Future Volume (veh/h)	150	1335	245	75	1065	60	250	25	100	60	20	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	152	1348	247	76	1076	61	253	25	101	61	20	45
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	262	2050	376	166	1488	662	359	30	551	96	36	51
Arrive On Green	0.15	0.47	0.47	0.18	0.83	0.83	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1795	4370	800	1795	3582	1594	885	87	1591	158	105	147
Grp Volume(v), veh/h	152	1058	537	76	1076	61	278	0	101	126	0	0
Grp Sat Flow(s),veh/h/ln	1795	1716	1739	1795	1791	1594	972	0	1591	410	0	0
Q Serve(g_s), s	10.3	30.8	30.8	4.9	16.6	0.9	0.0	0.0	5.8	8.6	0.0	0.0
Cycle Q Clear(g_c), s	10.3	30.8	30.8	4.9	16.6	0.9	34.8	0.0	5.8	43.4	0.0	0.0
Prop In Lane	1.00		0.46	1.00		1.00	0.91		1.00	0.48		0.36
Lane Grp Cap(c), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
V/C Ratio(X)	0.58	0.66	0.66	0.46	0.72	0.09	0.71	0.00	0.18	0.69	0.00	0.00
Avail Cap(c_a), veh/h	262	1610	816	166	1488	662	389	0	551	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.26	0.26	0.26	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.8	26.5	26.5	50.1	7.8	6.5	39.2	0.0	29.7	50.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.6	1.1	1.7	2.7	0.2	6.1	0.0	0.2	10.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	12.1	12.3	2.1	3.5	0.4	8.8	0.0	2.2	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.6	27.0	27.6	51.8	10.5	6.7	45.2	0.0	29.8	60.8	0.0	0.0
LnGrp LOS	D	C	C	D	B	A	D		C	E		
Approach Vol, veh/h		1747			1213			379			126	
Approach Delay, s/veh		29.4			12.9			41.1			60.8	
Approach LOS		C			B			D			E	

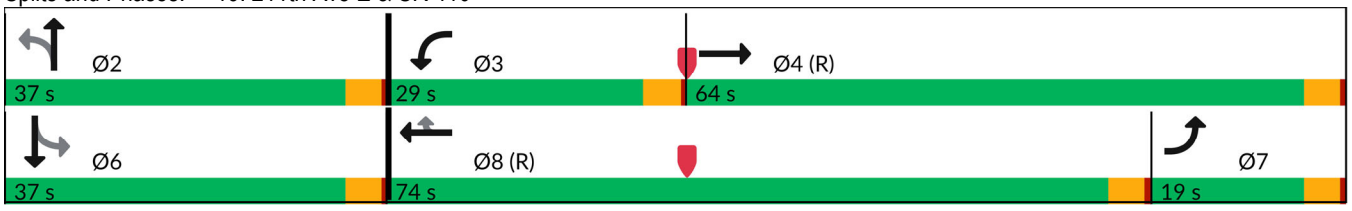
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	49.0	16.0	65.0	49.0	23.0	58.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	45.0	12.0	61.0	45.0	19.0	54.0
Max Q Clear Time (g_c+I1), s	36.8	6.9	32.8	45.4	12.3	18.6
Green Ext Time (p_c), s	1.0	0.1	8.7	0.0	0.2	6.1

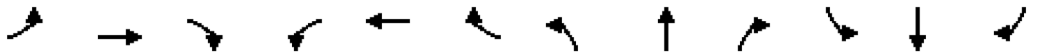
Intersection Summary	
HCM 7th Control Delay, s/veh	26.1
HCM 7th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1330	115	170	965	100	145	10	80	70	15	80
Future Volume (vph)	85	1330	115	170	965	100	145	10	80	70	15	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1116			1084			668			351	
Travel Time (s)		16.9			16.4			18.2			9.6	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Detector Phase	7	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	19.0	64.0		29.0	74.0	74.0	37.0	37.0		37.0	37.0	
Total Split (%)	14.6%	49.2%		22.3%	56.9%	56.9%	28.5%	28.5%		28.5%	28.5%	
Maximum Green (s)	15.0	60.0		25.0	70.0	70.0	33.0	33.0		33.0	33.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	None	
Walk Time (s)		5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 97 (75%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 19: 211th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1330	115	170	965	100	145	10	80	70	15	80
Future Volume (veh/h)	85	1330	115	170	965	100	145	10	80	70	15	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	89	1400	121	179	1016	105	153	11	84	74	16	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	325	2919	252	205	1929	860	232	35	271	236	49	259
Arrive On Green	0.36	1.00	1.00	0.23	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1795	4824	417	1795	3582	1598	1305	188	1438	1311	262	1376
Grp Volume(v), veh/h	89	996	525	179	1016	105	153	0	95	74	0	100
Grp Sat Flow(s),veh/h/ln	1795	1716	1810	1795	1791	1598	1305	0	1626	1311	0	1638
Q Serve(g_s), s	4.6	0.0	0.0	12.5	0.0	0.0	14.9	0.0	6.5	6.7	0.0	6.9
Cycle Q Clear(g_c), s	4.6	0.0	0.0	12.5	0.0	0.0	21.8	0.0	6.5	13.3	0.0	6.9
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.88	1.00		0.84
Lane Grp Cap(c), veh/h	325	2076	1095	205	1929	860	232	0	306	236	0	308
V/C Ratio(X)	0.27	0.48	0.48	0.87	0.53	0.12	0.66	0.00	0.31	0.31	0.00	0.32
Avail Cap(c_a), veh/h	325	2076	1095	345	1929	860	318	0	413	322	0	416
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	49.2	0.0	0.0	55.0	0.0	45.5	51.2	0.0	45.6
Incr Delay (d2), s/veh	0.4	0.7	1.3	8.7	0.7	0.2	3.2	0.0	0.6	0.7	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.2	0.4	5.3	0.2	0.0	5.2	0.0	2.7	2.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.8	0.7	1.3	57.9	0.7	0.2	58.2	0.0	46.1	51.9	0.0	46.2
LnGrp LOS	D	A	A	E	A	A	E		D	D		D
Approach Vol, veh/h		1610			1300			248			174	
Approach Delay, s/veh		2.8			8.6			53.5			48.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.5	18.9	82.7		28.5	27.5	74.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	25.0	60.0		33.0	15.0	70.0				
Max Q Clear Time (g_c+I1), s		23.8	14.5	2.0		15.3	6.6	2.0				
Green Ext Time (p_c), s		0.7	0.4	8.7		0.6	0.1	6.0				

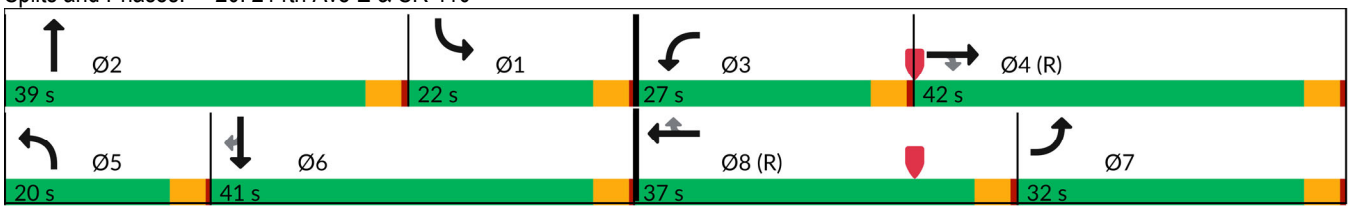
Intersection Summary	
HCM 7th Control Delay, s/veh	11.2
HCM 7th LOS	B

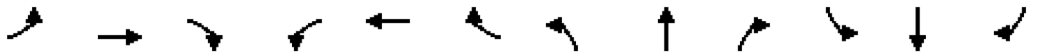
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	32.0	42.0	42.0	27.0	37.0	37.0	20.0	39.0		22.0	41.0	41.0
Total Split (%)	24.6%	32.3%	32.3%	20.8%	28.5%	28.5%	15.4%	30.0%		16.9%	31.5%	31.5%
Maximum Green (s)	28.0	38.0	38.0	23.0	33.0	33.0	16.0	35.0		18.0	37.0	37.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		1	1		0	0	0	0		0	0	0

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 20: 214th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	323	932	375	271	750	94	182	188	130	151	479	255
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	514	1343	598	296	909	405	243	207	143	252	514	435
Arrive On Green	0.29	0.37	0.37	0.17	0.25	0.25	0.07	0.20	0.20	0.14	0.27	0.27
Sat Flow, veh/h	1795	3582	1595	1795	3582	1594	3483	1038	718	1833	1924	1629
Grp Volume(v), veh/h	323	932	375	271	750	94	182	0	318	151	479	255
Grp Sat Flow(s),veh/h/ln	1795	1791	1595	1795	1791	1594	1742	0	1756	1833	1924	1629
Q Serve(g_s), s	20.4	28.6	25.0	19.3	25.7	6.1	6.7	0.0	23.0	10.1	31.6	9.3
Cycle Q Clear(g_c), s	20.4	28.6	25.0	19.3	25.7	6.1	6.7	0.0	23.0	10.1	31.6	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	514	1343	598	296	909	405	243	0	350	252	514	435
V/C Ratio(X)	0.63	0.69	0.63	0.91	0.82	0.23	0.75	0.00	0.91	0.60	0.93	0.59
Avail Cap(c_a), veh/h	514	1343	598	318	909	405	429	0	473	254	548	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	0.78	0.78	0.78	0.86	0.00	0.86	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.4	34.3	33.2	53.4	45.8	38.5	59.4	0.0	50.9	52.7	46.5	11.4
Incr Delay (d2), s/veh	2.1	2.6	4.2	23.9	6.7	1.0	4.0	0.0	15.5	3.3	19.9	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	12.4	10.0	10.5	11.9	2.5	3.1	0.0	11.5	4.8	17.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.5	36.9	37.4	77.3	52.5	39.5	63.3	0.0	66.3	56.0	66.4	12.9
LnGrp LOS	D	D	D	E	D	D	E		E	E	E	B
Approach Vol, veh/h		1630			1115			500			885	
Approach Delay, s/veh		38.1			57.4			65.2			49.2	
Approach LOS		D			E			E			D	

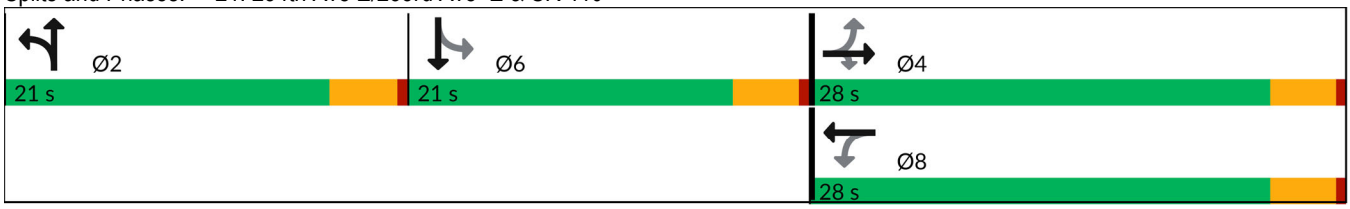
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	29.9	25.5	52.7	13.1	38.7	41.2	37.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	18.0	35.0	23.0	38.0	16.0	37.0	28.0	33.0
Max Q Clear Time (g_c+I1), s	12.1	25.0	21.3	30.6	8.7	33.6	22.4	27.7
Green Ext Time (p_c), s	0.2	0.9	0.2	3.6	0.4	1.1	0.6	1.9

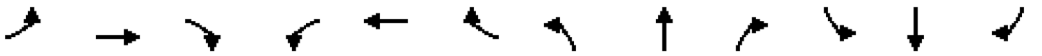
Intersection Summary	
HCM 7th Control Delay, s/veh	49.0
HCM 7th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (vph)	65	720	215	65	690	35	130	70	10	50	160	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	150		0	100		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		6362			2994			1099			1172	
Travel Time (s)		96.4			45.4			21.4			26.6	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8						6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	28.0	28.0	28.0	28.0	28.0		21.0	21.0		21.0	21.0	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		17.0	17.0		17.0	17.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 52.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 21: 234th Ave E/233rd Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Future Volume (veh/h)	65	720	215	65	690	35	130	70	10	50	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1826	1826	1826	1885	1885	1885
Adj Flow Rate, veh/h	68	750	224	68	719	36	135	73	10	52	167	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	1	1	1
Cap, veh/h	329	1366	607	298	1335	67	233	211	29	355	235	117
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.13	0.13	0.13	0.20	0.20	0.20
Sat Flow, veh/h	709	3554	1579	581	3471	174	1739	1572	215	1795	1188	591
Grp Volume(v), veh/h	68	750	224	68	371	384	135	0	83	52	0	250
Grp Sat Flow(s),veh/h/ln	709	1777	1579	581	1791	1854	1739	0	1787	1795	0	1779
Q Serve(g_s), s	3.5	7.0	4.3	4.4	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Cycle Q Clear(g_c), s	10.3	7.0	4.3	11.3	6.8	6.8	3.1	0.0	1.8	1.0	0.0	5.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.12	1.00		0.33
Lane Grp Cap(c), veh/h	329	1366	607	298	689	713	233	0	239	355	0	352
V/C Ratio(X)	0.21	0.55	0.37	0.23	0.54	0.54	0.58	0.00	0.35	0.15	0.00	0.71
Avail Cap(c_a), veh/h	458	2016	895	404	1016	1051	699	0	718	721	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	10.2	9.3	14.6	10.1	10.1	17.2	0.0	16.6	14.0	0.0	15.8
Incr Delay (d2), s/veh	0.3	0.3	0.4	0.4	0.7	0.6	2.3	0.0	0.9	0.2	0.0	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.8	1.0	0.5	1.8	1.9	1.2	0.0	0.7	0.4	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.4	10.5	9.7	15.0	10.8	10.7	19.5	0.0	17.5	14.2	0.0	18.5
LnGrp LOS	B	B	A	B	B	B	B		B	B		B
Approach Vol, veh/h		1042			823			218			302	
Approach Delay, s/veh		10.6			11.1			18.7			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.7		20.3		12.4		20.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0		24.0		17.0		24.0				
Max Q Clear Time (g_c+I1), s		5.1		12.3		7.6		13.3				
Green Ext Time (p_c), s		0.6		4.0		0.8		2.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.4									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	5.8

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	105	110	135	580	245	105
Future Vol, veh/h	105	110	135	580	245	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	108	113	139	598	253	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1183	307	361	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	210	736	1203	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	736	1203	-	-	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s/v	29.08	1.58	0
HCM LOS	D		

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SBLn1	SBLn2
Capacity (veh/h)	-	-	1203	-	186	736
HCM Lane V/C Ratio	-	-	0.116	-	0.582	0.154
HCM Control Delay (s/veh)	-	-	8.4	-	48.3	10.8
HCM Lane LOS	-	-	A	-	E	B
HCM 95th %tile Q(veh)	-	-	0.4	-	3.2	0.5

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	545	290	70	65	80
Future Vol, veh/h	120	545	290	70	65	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	125	568	302	73	68	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	375	0	-	0	1156	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	818	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1189	-	-	-	218	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	436	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	185	706
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	436	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.51	0	21.79
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	325	-	-	-	185	706
HCM Lane V/C Ratio	0.105	-	-	-	0.366	0.118
HCM Control Delay (s/veh)	8.4	0	-	-	35.3	10.8
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	1.6	0.4

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	500	290	30	15	120
Future Vol, veh/h	120	500	290	30	15	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	121	505	293	30	15	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	323	0	-	0	1056	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1237	-	-	-	250	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1237	-	-	-	216	732
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.59	0	12.23
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	348	-	-	-	216	732
HCM Lane V/C Ratio	0.098	-	-	-	0.07	0.166
HCM Control Delay (s/veh)	8.2	0	-	-	23	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Future Vol, veh/h	5	0	5	0	0	5	10	90	5	15	140	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	1	1	1
Mvmt Flow	5	0	5	0	0	5	11	95	5	16	147	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	303	308	155	297	313	97	163	0	0	100	0	0
Stage 1	187	187	-	118	118	-	-	-	-	-	-	-
Stage 2	116	121	-	179	195	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	652	608	893	657	604	962	1409	-	-	1499	-	-
Stage 1	817	747	-	888	800	-	-	-	-	-	-	-
Stage 2	891	798	-	825	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	636	596	893	640	592	962	1409	-	-	1499	-	-
Mov Cap-2 Maneuver	636	596	-	640	592	-	-	-	-	-	-	-
Stage 1	808	739	-	881	793	-	-	-	-	-	-	-
Stage 2	879	791	-	811	733	-	-	-	-	-	-	-

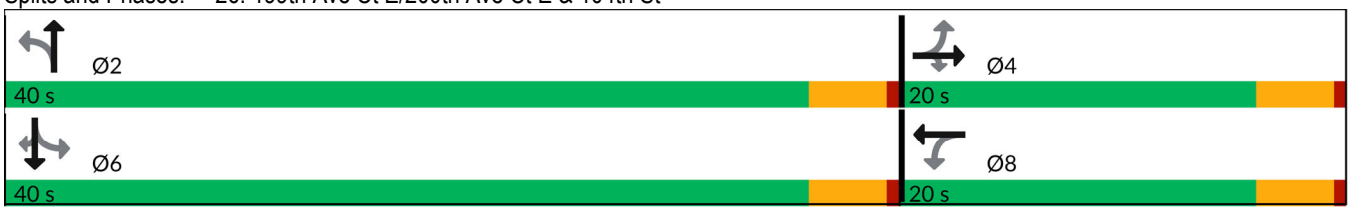
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.92	8.76	0.72	0.66
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	170	-	-	743	962	156	-	-
HCM Lane V/C Ratio	0.007	-	-	0.014	0.005	0.011	-	-
HCM Control Delay (s/veh)	7.6	0	-	9.9	8.8	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (vph)	215	1	20	5	1	5	20	785	5	5	990	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		100
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1430			519			1065			1383	
Travel Time (s)		32.5			11.8			29.0			37.7	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0		40.0	40.0		40.0	40.0	40.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	66.7%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		36.0	36.0		36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 59.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 26: 199th Ave Ct E/200th Ave Ct E & 104th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Future Volume (veh/h)	215	1	20	5	1	5	20	785	5	5	990	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	226	1	21	5	1	5	21	826	5	5	1042	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	2	2	2
Cap, veh/h	386	1	416	112	43	54	169	1127	7	314	1126	954
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1010	4	1598	84	166	208	440	1872	11	660	1870	1585
Grp Volume(v), veh/h	227	0	21	11	0	0	21	0	831	5	1042	226
Grp Sat Flow(s),veh/h/ln	1014	0	1598	458	0	0	440	0	1883	660	1870	1585
Q Serve(g_s), s	0.0	0.0	0.6	0.1	0.0	0.0	2.6	0.0	18.3	0.3	29.1	3.8
Cycle Q Clear(g_c), s	13.3	0.0	0.6	13.4	0.0	0.0	31.7	0.0	18.3	18.6	29.1	3.8
Prop In Lane	1.00		1.00	0.45		0.45	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	416	209	0	0	169	0	1134	314	1126	954
V/C Ratio(X)	0.59	0.00	0.05	0.05	0.00	0.00	0.12	0.00	0.73	0.02	0.93	0.24
Avail Cap(c_a), veh/h	409	0	440	232	0	0	176	0	1166	325	1158	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	16.1	17.0	0.0	0.0	24.6	0.0	8.2	14.8	10.4	5.4
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	2.3	0.0	12.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.2	0.1	0.0	0.0	0.3	0.0	6.3	0.0	12.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.8	0.0	16.2	17.1	0.0	0.0	24.9	0.0	10.6	14.9	22.6	5.5
LnGrp LOS	C		B	B			C		B	B	C	A
Approach Vol, veh/h		248			11			852			1273	
Approach Delay, s/veh		22.2			17.1			10.9			19.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	39.0	19.2	39.0	19.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	36.0	16.0	36.0	16.0
Max Q Clear Time (g_c+I1), s	33.7	15.3	31.1	15.4
Green Ext Time (p_c), s	1.4	0.1	3.5	0.0

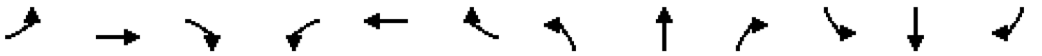
Intersection Summary	
HCM 7th Control Delay, s/veh	16.7
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (vph)	260	115	75	15	60	40	35	240	15	110	450	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		100
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		5428			4422			1245			2683	
Travel Time (s)		105.7			86.1			24.3			52.3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0		36.0	36.0	36.0
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	60.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		32.0	32.0		32.0	32.0	32.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 46.7	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 27: 214th Ave E & 120th St E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Future Volume (veh/h)	260	115	75	15	60	40	35	240	15	110	450	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	274	121	79	16	63	42	37	253	16	116	474	368
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	563	347	226	483	343	229	142	631	37	228	668	726
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1289	1056	690	1192	1045	697	72	1388	81	244	1469	1598
Grp Volume(v), veh/h	274	0	200	16	0	105	306	0	0	590	0	368
Grp Sat Flow(s),veh/h/ln	1289	0	1746	1192	0	1742	1540	0	0	1713	0	1598
Q Serve(g_s), s	7.1	0.0	3.2	0.4	0.0	1.6	0.4	0.0	0.0	0.0	0.0	6.0
Cycle Q Clear(g_c), s	8.7	0.0	3.2	3.6	0.0	1.6	10.7	0.0	0.0	10.2	0.0	6.0
Prop In Lane	1.00		0.40	1.00		0.40	0.12		0.05	0.20		1.00
Lane Grp Cap(c), veh/h	563	0	573	483	0	572	810	0	0	896	0	726
V/C Ratio(X)	0.49	0.00	0.35	0.03	0.00	0.18	0.38	0.00	0.00	0.66	0.00	0.51
Avail Cap(c_a), veh/h	840	0	948	739	0	946	1442	0	0	1584	0	1388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	9.4	10.7	0.0	8.8	6.6	0.0	0.0	8.1	0.0	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.0	0.0	0.2	0.3	0.0	0.0	0.8	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.9	0.1	0.0	0.4	1.0	0.0	0.0	2.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.7	10.8	0.0	9.0	6.9	0.0	0.0	9.0	0.0	7.7
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		474			121			306			958	
Approach Delay, s/veh		11.4			9.2			6.9			8.5	
Approach LOS		B			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.7		16.1		20.7		16.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		32.0		20.0		32.0		20.0				
Max Q Clear Time (g_c+I1), s		12.7		10.7		12.2		5.6				
Green Ext Time (p_c), s		1.3		1.4		4.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh		9.0										
HCM 7th LOS		A										

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	295	165	70	215	155	75
Future Vol, veh/h	295	165	70	215	155	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	311	174	74	226	163	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	484	0	771	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1084	-	370	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1084	-	341	654
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.1	26.36
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	-	-	442	-
HCM Lane V/C Ratio	0.599	-	-	0.068	-
HCM Control Delay (s/veh)	26.4	-	-	8.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	605	450	40	45	190
Future Vol, veh/h	185	605	450	40	45	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	195	637	474	42	47	200

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	516	0	-	0	1521	495
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	1026	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1055	-	-	-	130	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	346	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1055	-	-	-	93	575
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	346	-

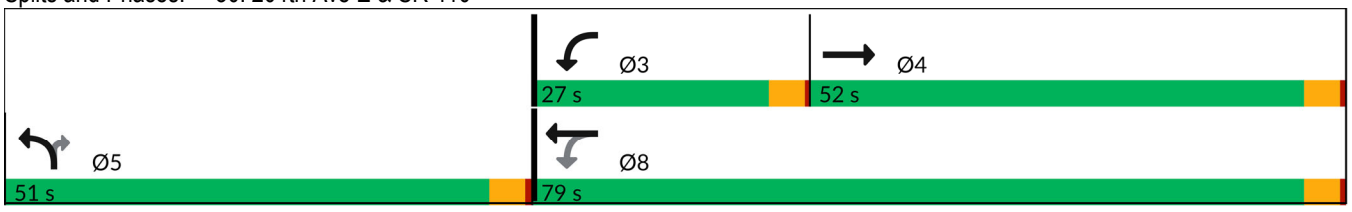
Approach	EB	WB	SB
HCM Control Delay, s/v	2.15	0	61.59
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	422	-	-	-	289
HCM Lane V/C Ratio	0.185	-	-	-	0.856
HCM Control Delay (s/veh)	9.2	0	-	-	61.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1280	390	325	1100	230	460
Future Volume (vph)	1280	390	325	1100	230	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	0%	
Storage Length (ft)		0	350		75	0
Storage Lanes		0	1		2	1
Taper Length (ft)			25		25	
Right Turn on Red		No				No
Link Speed (mph)	45			45	30	
Link Distance (ft)	1801			1005	1430	
Travel Time (s)	27.3			15.2	32.5	
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	5	
Permitted Phases			8			5
Detector Phase	4		3	8	5	5
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	8.0	8.0
Total Split (s)	52.0		27.0	79.0	51.0	51.0
Total Split (%)	40.0%		20.8%	60.8%	39.2%	39.2%
Maximum Green (s)	48.0		23.0	75.0	47.0	47.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		None	Min	None	None
Walk Time (s)			5.0	5.0		
Flash Dont Walk (s)			11.0	11.0		
Pedestrian Calls (#/hr)			0	0		

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 30: 204th Ave E & SR 410



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1280	390	325	1100	230	460
Future Volume (veh/h)	1280	390	325	1100	230	460
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1949	1949	1870	1870
Adj Flow Rate, veh/h	1320	402	335	1134	237	474
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	1394	423	356	2001	1376	631
Arrive On Green	0.71	0.71	0.31	1.00	0.40	0.40
Sat Flow, veh/h	4084	1188	1856	3800	3456	1585
Grp Volume(v), veh/h	1157	565	335	1134	237	474
Grp Sat Flow(s),veh/h/ln	1716	1671	1856	1851	1728	1585
Q Serve(g_s), s	38.7	39.2	17.6	0.0	5.8	33.4
Cycle Q Clear(g_c), s	38.7	39.2	17.6	0.0	5.8	33.4
Prop In Lane		0.71	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1222	595	356	2001	1376	631
V/C Ratio(X)	0.95	0.95	0.94	0.57	0.17	0.75
Avail Cap(c_a), veh/h	1267	617	400	2136	1376	631
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.78	0.78	0.68	0.68
Uniform Delay (d), s/veh	17.6	17.7	29.0	0.0	25.3	33.6
Incr Delay (d2), s/veh	4.2	8.1	24.3	0.2	0.0	3.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	7.2	10.6	0.1	2.4	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	21.8	25.8	53.2	0.2	25.3	37.1
LnGrp LOS	C	C	D	A	C	D
Approach Vol, veh/h	1722			1469	711	
Approach Delay, s/veh	23.1			12.3	33.1	
Approach LOS	C			B	C	

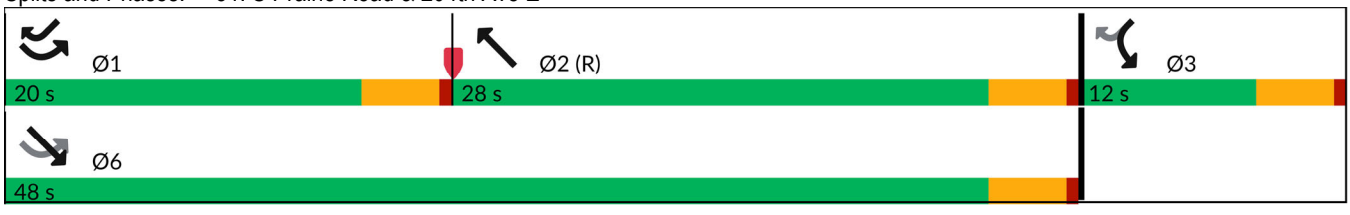
Timer - Assigned Phs	2	3	4		8
Phs Duration (G+Y+Rc), s	55.8	24.0	50.3		74.2
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	47.0	23.0	48.0		75.0
Max Q Clear Time (g_c+I1), s	35.4	19.6	41.2		2.0
Green Ext Time (p_c), s	2.2	0.3	5.1		10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	20.9
HCM 7th LOS	C

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	365	750	485	145	205	340
Future Volume (vph)	365	750	485	145	205	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	130	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		25	25		30	
Link Distance (ft)		1097	4369		1430	
Travel Time (s)		29.9	119.2		32.5	
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6					3
Detector Phase	1	6	2		3	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		8.0	20.0
Total Split (s)	20.0	48.0	28.0		12.0	20.0
Total Split (%)	33.3%	80.0%	46.7%		20.0%	33.3%
Maximum Green (s)	16.0	44.0	24.0		8.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	Min	Min	C-Min		None	Min
Walk Time (s)	5.0	5.0	5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	3	0	1			3

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NWT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 31: S Prairie Road & 204th Ave E



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	365	750	485	145	205	340
Future Volume (veh/h)	365	750	485	145	205	340
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	376	773	500	149	211	351
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	571	1382	752	224	239	416
Arrive On Green	0.13	0.73	0.54	0.54	0.13	0.13
Sat Flow, veh/h	1795	1885	1394	416	1795	1598
Grp Volume(v), veh/h	376	773	0	649	211	351
Grp Sat Flow(s),veh/h/ln	1795	1885	0	1810	1795	1598
Q Serve(g_s), s	4.8	11.1	0.0	15.4	6.9	8.0
Cycle Q Clear(g_c), s	4.8	11.1	0.0	15.4	6.9	8.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	571	1382	0	977	239	416
V/C Ratio(X)	0.66	0.56	0.00	0.66	0.88	0.84
Avail Cap(c_a), veh/h	821	1382	0	977	239	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.27	0.27	0.00	0.09	0.24	0.24
Uniform Delay (d), s/veh	8.3	3.6	0.0	9.9	25.5	21.0
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	9.3	4.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	5.2	3.4	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.6	3.8	0.0	10.2	34.8	25.0
LnGrp LOS	A	A		B	C	C
Approach Vol, veh/h		1149	649		562	
Approach Delay, s/veh		5.3	10.2		28.7	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.6	36.4				48.0	12.0
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	16.0	24.0				44.0	8.0
Max Q Clear Time (g_c+I1), s	6.8	17.4				13.1	10.0
Green Ext Time (p_c), s	0.9	2.5				6.9	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	25	205	105	60	395
Future Vol, veh/h	100	25	205	105	60	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	105	26	216	111	63	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	271	0	0	326	0
Stage 1	271	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	349	770	-	-	1233	-
Stage 1	777	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	770	-	-	1233	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	20.1	0	1.07
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	237	-
HCM Lane V/C Ratio	-	-	0.357	0.051	-
HCM Control Delay (s/veh)	-	-	20.1	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-

Intersection	
Int Delay, s/veh	3.1

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	80	490	1070	20	15	75
Future Vol, veh/h	80	490	1070	20	15	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	84	516	1126	21	16	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1147	0	-	0	1821	1137
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	684	-
Critical Hdwy	4.11	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.209	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	613	-	-	-	85	244
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	499	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	613	-	-	-	68	244
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	499	-

Approach	NB	SB	SE
HCM Control Delay, s/v	1.66	0	49.47
HCM LOS			E

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	253	-	171	-	-
HCM Lane V/C Ratio	0.137	-	0.554	-	-
HCM Control Delay (s/veh)	11.8	0	49.5	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.5	-	2.9	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	180	35	140	435
Future Vol, veh/h	20	40	180	35	140	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	42	188	36	146	453

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	951	206	0	0	224	0
Stage 1	206	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	290	837	-	-	1351	-
Stage 1	831	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	837	-	-	1351	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	403	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.9	0	1.94
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	438	-
HCM Lane V/C Ratio	-	-	0.134	0.108	-
HCM Control Delay (s/veh)	-	-	13.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	205	45	100	135
Future Vol, veh/h	10	20	205	45	100	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	4	4	2	2	1	1
Mvmt Flow	11	21	216	47	105	142
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay, s/veh	7.9	8.9	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	43%
Vol Thru, %	82%	0%	57%
Vol Right, %	18%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	30	235
LT Vol	0	10	100
Through Vol	205	0	135
RT Vol	45	20	0
Lane Flow Rate	263	32	247
Geometry Grp	1	1	1
Degree of Util (X)	0.297	0.041	0.292
Departure Headway (Hd)	4.067	4.723	4.255
Convergence, Y/N	Yes	Yes	Yes
Cap	871	763	834
Service Time	2.155	2.723	2.336
HCM Lane V/C Ratio	0.302	0.042	0.296
HCM Control Delay, s/veh	8.9	7.9	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.1	1.2

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	15	105	30	35	335
Future Vol, veh/h	45	15	105	30	35	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	16	111	32	37	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	126	0	0	142	0
Stage 1	126	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	494	924	-	-	1441	-
Stage 1	899	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	479	924	-	-	1441	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.48	0	0.72
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	170	-
HCM Lane V/C Ratio	-	-	0.116	0.026	-
HCM Control Delay (s/veh)	-	-	12.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	6.8

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	60	175	155	785	55	510
Future Vol, veh/h	60	175	155	785	55	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	62	180	160	809	57	526

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1448	320	582	0	-	0
Stage 1	320	-	-	-	-	-
Stage 2	1129	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	145	723	997	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	723	997	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	310	-	-	-	-	-

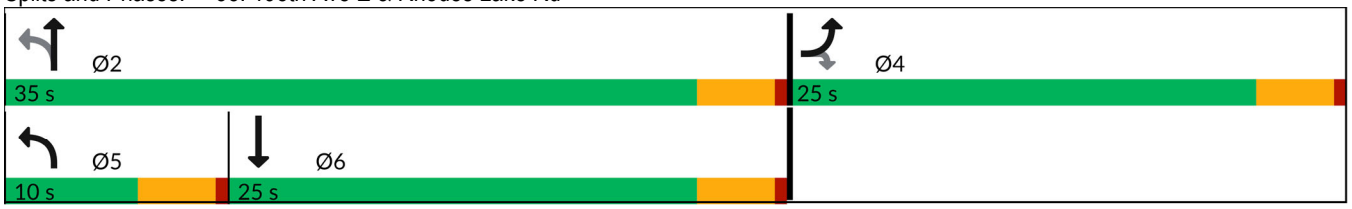
Approach	SB	NE	SW
HCM Control Delay, s/v	44.09	1.53	0
HCM LOS	E		

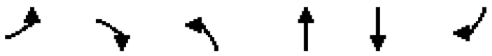
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR
Capacity (veh/h)	997	-	320	-	-
HCM Lane V/C Ratio	0.16	-	0.757	-	-
HCM Control Delay (s/veh)	9.3	-	44.1	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	5.8	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	450	255	725	890	70
Future Volume (vph)	115	450	255	725	890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175	0	325			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	30			30	30	
Link Distance (ft)	1957			1413	624	
Travel Time (s)	44.5			32.1	14.2	
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	25.0	25.0	10.0	35.0	25.0	
Total Split (%)	41.7%	41.7%	16.7%	58.3%	41.7%	
Maximum Green (s)	21.0	21.0	6.0	31.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 58.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 38: 198th Ave E & Rhodes Lake Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	450	255	725	890	70
Future Volume (veh/h)	115	450	255	725	890	70
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	121	474	268	763	937	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	597	532	373	977	1145	90
Arrive On Green	0.33	0.33	0.11	0.52	0.34	0.34
Sat Flow, veh/h	1795	1598	1781	1870	3457	266
Grp Volume(v), veh/h	121	474	268	763	499	512
Grp Sat Flow(s),veh/h/ln	1795	1598	1781	1870	1791	1837
Q Serve(g_s), s	2.7	15.5	5.0	18.1	14.0	14.0
Cycle Q Clear(g_c), s	2.7	15.5	5.0	18.1	14.0	14.0
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	597	532	373	977	610	626
V/C Ratio(X)	0.20	0.89	0.72	0.78	0.82	0.82
Avail Cap(c_a), veh/h	684	609	373	1052	683	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	17.4	12.1	10.6	16.6	16.6
Incr Delay (d2), s/veh	0.2	14.1	6.6	3.6	7.1	6.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.1	2.2	6.7	6.2	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.3	31.6	18.7	14.2	23.7	23.5
LnGrp LOS	B	C	B	B	C	C
Approach Vol, veh/h	595			1031	1011	
Approach Delay, s/veh	27.8			15.4	23.6	
Approach LOS	C			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.8		22.3	10.0	22.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0		21.0	6.0	21.0
Max Q Clear Time (g_c+I1), s		20.1		17.5	7.0	16.0
Green Ext Time (p_c), s		4.1		0.8	0.0	2.7

Intersection Summary	
HCM 7th Control Delay, s/veh	21.3
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	130	2535	2045	80	0	125
Future Vol, veh/h	130	2535	2045	80	0	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	300	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	134	2613	2108	82	0	129

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2191	0	-	0	-	1054
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.21	-	-	-	-	3.31
Pot Cap-1 Maneuver	241	-	-	-	0	224
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	241	-	-	-	-	224
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SW
HCM Control Delay, s/v	1.81	0	40.83
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	241	-	-	-	224
HCM Lane V/C Ratio	0.555	-	-	-	0.576
HCM Control Delay (s/veh)	37	-	-	-	40.8
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	3	-	-	-	3.2

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	135	35	10	410	40	10
Future Vol, veh/h	135	35	10	410	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	142	37	11	432	42	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	179	0	613	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	453	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1397	-	457	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1397	-	453	887
Mov Cap-2 Maneuver	-	-	-	-	453	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	636	-

Approach	NB	SB	SW
HCM Control Delay, s/v	0	0.18	13.01
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	43	-	502
HCM Lane V/C Ratio	-	-	0.008	-	0.105
HCM Control Delay (s/veh)	-	-	7.6	0	13
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	39.2

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	675	155	155	465	90	145
Future Vol, veh/h	675	155	155	465	90	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	696	160	160	479	93	149

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	856	0	1575	776
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	789	-	122	399
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	789	-	~ 88	399
Mov Cap-2 Maneuver	-	-	-	-	~ 88	-
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	NE
HCM Control Delay, s/v	0	2.68	274.24
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	170	-	-	450	-
HCM Lane V/C Ratio	1.429	-	-	0.203	-
HCM Control Delay (s/veh)	274.2	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	15.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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Appendix I: Traffic Analysis Allan Yorke Park

October 2023

BONNEY Lake

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printing purposes.

Traffic Analysis

Allan Yorke Park

City of Bonney Lake, Washington

Prepared For:
City of Bonney Lake, Washington

Prepared By:
SCJ Alliance
8730 Tallon Lane NE, Suite 200
Lacey, WA 98516
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October 2023

SCJ ALLIANCE
CONSULTING SERVICES

Allan Yorke Park Traffic Analysis

Project Information

Project:	Allan Yorke Park
Prepared for:	City of Bonney Lake Jason Sullivan, Planning & Building Supervisor 9002 Main Street E, Bonney Lake, WA 98391

Reviewing Agency

Jurisdiction:	City of Bonney Lake, Washington

Project Representative

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Project Reference:	SCJ #23-000008
	Path: N:\Projects\0610 City of Bonney Lake\23-000008 Angeline Rd-Veterans Memorial Dr Study\03-Allan Yorke Park\04-Dels\Report\2023-1020 Allan Yorke Park Traffic Analysis.docx

Signature

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by Ryan Shea, PTP and Anne Sylvester, PTE

Approved by [Click and type Name, Title]

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1 Introduction

The City of Bonney Lake is currently engaged in planning for the future of Allan Yorke Park on Lake Tapps in the north central portion of the city. Currently the park is directly served via the intersection of W Tapps Highway and Bonney Lake Boulevard. Existing and/or planned amenities at the park include fishing docks, boat launch, swimming dock and protected swimming area, multi-sport fields, spray park, restrooms, outdoor concert area, skate park, tennis courts, and a system of trails. The general project vicinity is shown in **Figure 1**

Figure 1. Project Vicinity



1.1 Background

The current alignment of W Tapps Highway bi-sects the park, separating the waterfront from other amenities including the restrooms. Additionally, boat launch activities create significant congestion at the intersection and in the vicinity during summer months or other peak activity periods. As shown in Figure 2, the city has considered three concepts for addressing these and other access and circulation problems in the area. Priorities for improvement included managing congestion (especially of the boat launch and high value beach area), improving access, upgrading facilities such as the boat launch,

concessions and storage, improved operations and maintenance efficiencies and consistency with a 20-year vision for the park which includes a public gathering space for community events. The three park development alternatives are illustrated in **Figure 2** and included:

- *Minimum development* – Maintain existing W Tapps Highway alignment and improve crossing between the waterfront and the remainder of the park. The existing roadway shoulder along Bonney Lake Boulevard would be converted to on-street parking. The boat launch would not be improved and access would remain limited, likely to non-motorized watercraft.
- *Medium development* – Relocate W Tapps Highway alignment slightly further east. Expand waterfront access, formalize boat trailer circulation and parking, add new facilities and improvements. The purpose of this alternative is primarily to relieve crowding that exists with the current facility.
- *Maximum development* – Routes W Tapps Highway away from the waterfront unifying the park's gathering spaces, facilities, and lakefront area, and creates a separate and dedicated boat launch access.

On April 5, 2023, the Bonney Lake Planning Commission reviewed materials related to these three options with a focus on addressing current operational issues and improving the connectivity and safety of the park. The Planning Commission endorsed the Maximum Development option for the following reasons:

- Relocates the boat launch off the public street and addresses issues related to there not being enough room for medium to large boats to turn around and back into the water without encroaching into the W Tapps Highway travel lanes.
- Provides a direct connection between the queuing area and the new boat trailer parking area.
- Addresses issues associated with the small and overcrowded current beach front by creating a contiguous park so people can access multiple destinations without a street crossing
- Improves pedestrian safety, particularly for children, moving between the beach and the playground/restrooms.
- Reduces regional traffic cutting through the park.
- Increases control over parking for both cars and boat trailers.

In its recommendation to City Council, the Planning Commission noted that while the Min and Mod Options were cheaper, they did not adequately address the operational safety and traffic issues that are frequently experienced during the summer.

On My 2, 2023, the three park options were reviewed by the Bonney Lake City Council who also recommended moving forward with the Maximum Development option.

After the City Council endorsed the Allan Yorke Park Maximum Development option, the city hosted a virtual open house between May 24th and June 4th. They city also hosted a community-wide event known as Tunes at Tapps Tabling held every Wednesday from July 12, 2023 through August 23, 2023. The development options considered at Allan Yorke Park were presented and public input was solicited related to specific elements of the park that could be improved. The comments were wide-ranging and generally supportive. Some concerns were expressed about parking, the longer travel route on W Tapps Highway and the roundabout.

Figure 2. Park Circulation and Access Concepts



1.2 Purpose of this Report

The purpose of this study is to assess the preferred transportation circulation and access improvements to Allan Yorke Park including pros and cons of the alternative as well as a preliminary layout, evaluation and cost estimate for the roundabout and roadway revisions.

1.3 Report Content and Organization

This report is organized into five chapters, the first of which is this Introduction. Chapter 2 presents a discussion of existing conditions including characterization of the existing street system, current three-day roadway traffic counts and peak hour turning movements, and a summary of recent crash history and safety at the intersection.

Chapter 3 presents a discussion of future traffic volume projections.

Chapter 4 describes the development and evaluation of intersection improvement alternatives including a discussion of traffic operational impacts of a No Build and Build Alternative, traffic safety, potential environmental issues, and costs. This chapter also provides a brief summary of public engagement activities associated with the evaluation of alternatives and selection of a preferred course of action.

Chapter 5 outlines study recommendations.

2 Existing Conditions

2.1 Roadway System

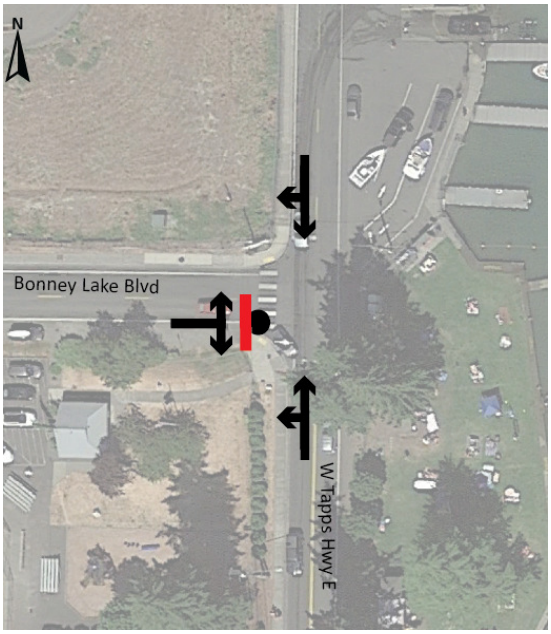
2.1.1 W Tapps Highway

West Tapps Highway is identified in the 2015 *Bonney Lake Community Mobility Element* as a two-lane north/south Minor Arterial and is recommended for redesignation as a "primary multi-modal road" that extends from S Tapps Drive E on the north and Church Lake Road E on the south. In the vicinity of Bonney Lake Boulevard, this road has a single travel lane in each direction with minimal shoulders. There are sidewalks on the west side of the street on both sides of Bonney Lake Boulevard and unpaved shoulders of varying quality on the east (waterfront) side. Away from the intersection, there are sidewalks along the east side of this street. No bicycle lanes are available, but the designation of primary multi-modal road establishes a community priority for developing pedestrian, bicycle, and trail facilities. The posted speed limit is 20 miles per hour in the vicinity of the park, rising to 25 mph beyond the park.

2.1.2 Bonney Lake Boulevard

Bonney Lake Boulevard is a two-lane east/west Collector roadway in the City of Bonney Lake extending from just west of the intersection with 181st Avenue on the west to W Tapps Highway on the east. In the vicinity of the park there are sidewalks on the north side of the street and widened, unpaved shoulders along the south side. There are no bicycle lanes. The posted speed limit is 20 mph in the vicinity of the park, rising to 25 mph beyond the park.

Figure 3. W Tapps Highway at Bonney Lake Intersection



2.1.3 W Tapps Road at Bonney Lake Boulevard Intersection

The intersection of W Tapps Road with Bonney Lake Boulevard currently operates under stop control for all three approaches with single travel lanes from which all movements can be made. There is a sidewalk on the west side of the intersection with crosswalks on the west and south legs. **Figure 3** presents a layout of the existing intersection.

2.2 Traffic Counts

Traffic Count Consultants provided PM peak hourly roadway counts on W Tapps Highway north of Bonney Lake Boulevard and on Bonney Lake Boulevard west of W Tapps Highway, and both AM and PM peak period turning movement counts at the intersection of W Tapps Highway and Bonney Lake Boulevard.

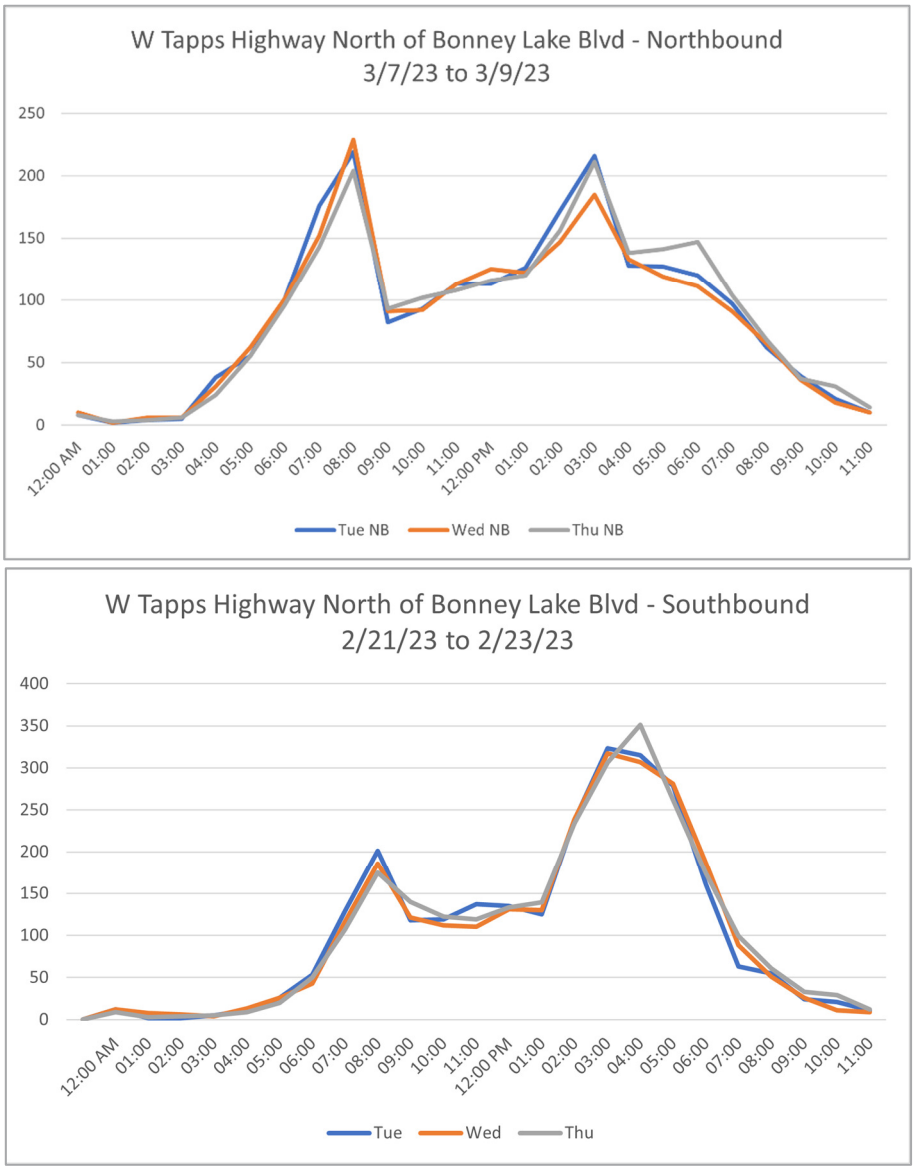
2.2.1 Roadway Counts

Roadway counts were taken in two locations in the study area including W Tapps Highway north of the intersection with Bonney Lake Boulevard and Bonney Lake Boulevard west of W Tapps Highway. Detailed information is included in **Appendix A**.

2.2.1.1 W Tapps Highway

Roadway counts were taken on W Tapps Highway north of Bonney Lake Boulevard for three-day periods in February and March, 2023. Data was collected at 15-minute intervals for the three-day period and summarized by hour. This data in both northbound and southbound directions is presented in **Figure 4**.

Figure 4. W Tapps Highway North of Bonney Lake Boulevard Hourly Traffic Volumes



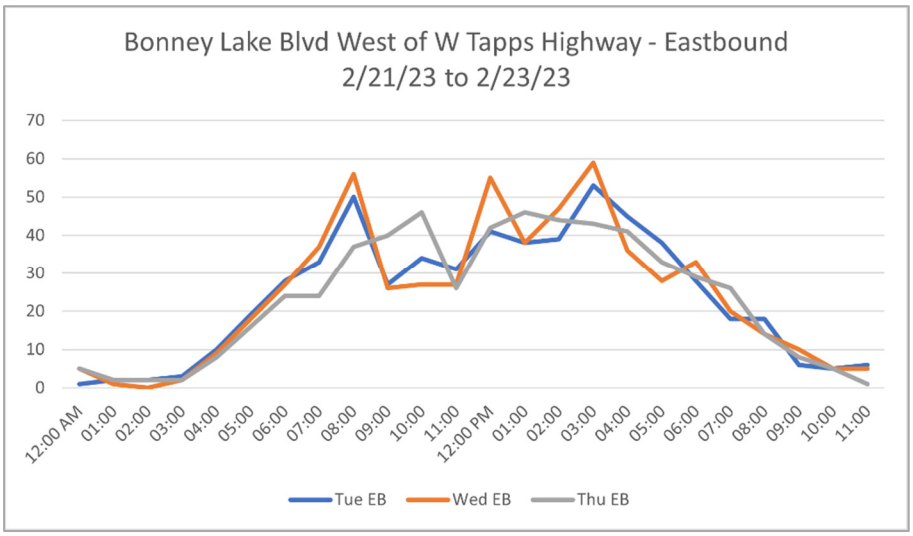
As noted in Figure 4, northbound traffic exhibited two peak periods, one during the morning rush hour and the other during the evening. In the southbound direction, traffic tends to peak during the afternoon and early evening.

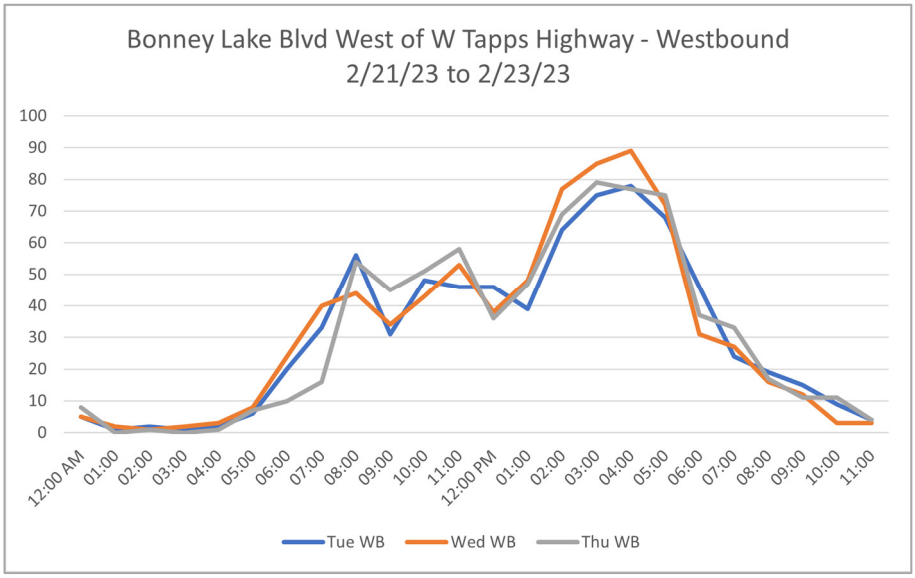
Total daily traffic volumes averaged over the three days are just under 4,700 vehicles on W Tapps Highway. This volume is split 45%/55% between northbound and southbound vehicles with an average of 2,100 northbound and 2,600 southbound. Daily vehicle counts will be used as the basis for analyzing traffic signal warrants, and the feasibility of traffic signal installation.

2.2.1.2 Bonney Lake Boulevard

Roadway counts were taken on Bonney Lake Boulevard west of W Tapps Highway for a three-day period from midnight on Tuesday February 21, 2023 through midnight on Thursday February 23, 2023 and is presented in **Figure 5**.

Figure 5. Bonney Lake Boulevard West of W Tapps Highway Hourly Traffic Volumes





As noted in Figure 5, there was no definitive peak in travel during the hours between 7:00 AM and 5:00 PM along Bonney Lake Boulevard heading in the eastbound direction. During those hours over the course of the three day period, average hourly traffic remained relatively consistent with some peaks and valleys depending on the day. In the westbound direction there is a definitive peak, generally between 2:00 PM and 5:00 PM.

Total daily traffic volumes averaged over the three days is approximately 1,300 vehicles. This volume is split 43%/57% with an average of 575 in the eastbound direction as compared to an average of 750 in the westbound direction.

2.2.2 Vehicle Classification Counts

Vehicle classification counts were taken over three-day periods in February or Marcy of 2023. Data was collected in 15-minute increments that were summed to hourly volumes from 12:00 AM (midnight) to 11:59 PM on each of the three days. Hourly volume data was then averaged and summarized in **Table 1**. Vehicle classification data was collected for each of the various vehicle types indicated in the table and also included bicycles.

As illustrated in Table 1, both W Tapps Highway and Bonney Lake Boulevard had a low level of truck activity, less than two percent over the course of a typical weekday. On W Tapps Highway north of Bonney Lake Boulevard E nearly two percent of daily traffic includes trucks. On Bonney Lake Boulevard, approximately one percent of total daily traffic consisted of medium and/or heavy duty trucks. The largest category of trucks included doubles with more than six axles, followed by doubles with less than five axles. An average of nine bicycles per day were counted on W Tapps Highway, while only one bicycle was counted on Bonney Lake Boulevard.

Table 1. 2023 Daily Vehicle Classification Counts

	Vehicle Classifications				
Road and Travel Direction	Bikes	Cars, Buses+Light Duty Trucks	Medium Duty Trucks	Heavy Duty Trucks	Total Motor Vehicles
W Tapps Highway, North of Bonney Lake Blvd E					
Northbound	4	2,067	5	29	2,101
Southbound	5	2,512	7	40	2,559
Total	*9*	*4,580*	*12*	*69*	*4,660*
Percent		*98.2%*	*0.3%*	*1.5%*	*100%*
Bonney Lake Blvd E, West of W Tapps Highway E					
Eastbound	1	568	1	4	573
Westbound	0	740	4	4	748
Total	*1*	*1,308*	*5*	*8*	*1,321*
Percent		*99.0%*	*0.4%*	*0.6%*	*100%*

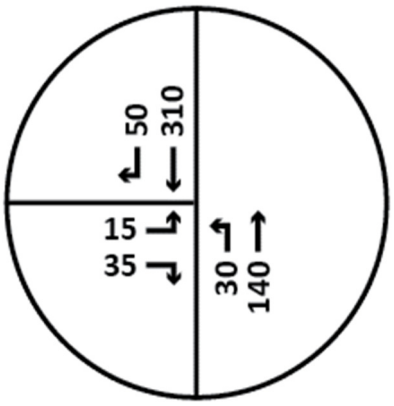
2.2.3 Turning Movement Counts

Turning movement counts were collected during both the winter/spring travel period and during the summertime when activity at the intersection of W Tapps Highway at Bonney Lake Boulevard is at its highest.

2.2.3.1 Winter/Spring Counts

Peak period turning movement counts were obtained for the intersection of W Tapps Highway/Bonney Lake Boulevard to serve as the basis for existing and future operational analysis and the comparison of improvement alternatives. The PM peak hour count was conducted on February 23, 2023 between 4:00 and 6:00 PM, with the highest single hour occurring between 4:00 and 5:00 PM. This PM peak hour has been used for intersection operational analysis. The 2023 PM peak hour volumes are shown in **Figure 6**. Detailed turning movement count data is also included in **Appendix A.**

Figure 6. 2023 Winter/Spring PM Peak Hour Volumes

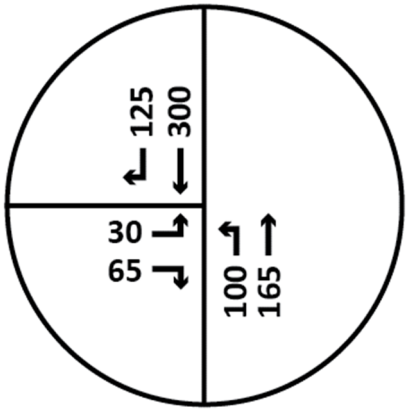


The turning movement count also included a record of pedestrian and bicyclist activity at the intersection during the peak periods. The data record indicates that there were eight pedestrians and no bicyclists observed at the intersection during the PM peak period.

2.2.3.2 Summertime Counts

Peak period turning movement counts were also obtained for the summertime to reflect the expected busier conditions adjacent to the lake and park during the warmer months of the year. The summertime PM peak hour count was conducted on August 2, 2023 between 4:00 and 6:00 PM. The highest single hour occurred between 5:00 and 6:00 PM and has been used for intersection operational analysis. The 2023 summertime PM peak hour volumes are shown in **Figure 7**. Detailed turning movement count data is also included in **Appendix A.**

Figure 7. 2023 Summer PM Peak Hour Volumes



The turning movement count also included a record of pedestrian and bicyclist activity at the intersection during the PM peak period. The data record indicates that there were over 300 pedestrians and 12 bicyclists observed at the intersection. The highest individual pedestrian movement (222 persons) was crossing W Tapps Highway on the south side of the intersection between the waterfront and the remainder of Allan Yorke Park including parking. There is currently a crosswalk at this location.

2.3 Crash Data

Study intersection safety was assessed through crash data and to identify deficiencies. The data was reviewed to identify potential patterns for motor vehicle, pedestrian, and bicyclist crashes. The Washington Department of Transportation (WSDOT) provides crash data for study area roadways. The data was collected over the five-year span between January 1, 2018 and December 31, 2022 and is presented in **Table 2**. More detailed crash data is included in **Appendix B**.

During this five-year period there were only two crashes reported at the study intersection, both of which involved property damage only. Of these two crashes, one involved a rear end collision and one involved "other" types of crashes such as hitting a fixed object. There were no bicycle or pedestrian crashes reported at the intersection over the five year analysis period.

Table 2. W Tapps Highway/Bonney Lake Boulevard Crash Data by Type and Severity (2018-2022)

Description	Fatal/Serious (crashes)	Fatal/All Injury (crashes)	Property Damage Only	Total (crashes)
Rear-end	0	0	1	1
Other (fixed object)	0	0	1	1
Total	**0**	**0**	**2**	**2**

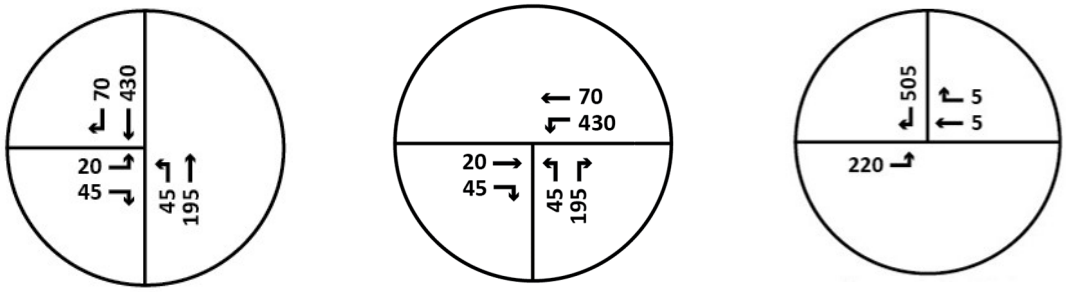
3 Future Traffic Volumes

Traffic volume projections were prepared for the horizon year of 2049 consistent with the update to the City's *Community Mobility Plan*. 2049 represents 100 years since the city was incorporated. Projections were based on a review of traffic growth rates obtained from the current Puget Sound Regional Council (PSRC) travel demand model. A 1.5 percent annualized growth rate was assumed.

3.1 Winter/Spring Projections

The projected 2049 AM and PM peak hour traffic volumes for the existing W Tapps Highway/Bonney Lake Boulevard intersection are shown in **Figure 8**. Worksheets showing the calculation of future year traffic projections are included in **Appendix C**.

Figure 8. 2049 Winter/Spring PM Peak Hour Volumes



Existing Intersection – No Build

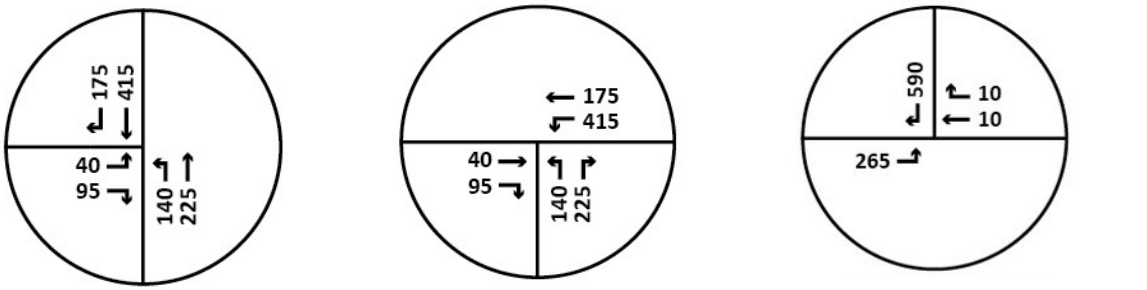
Proposed New Intersection - Build

Reconfigured Existing Intersection/Boat Launch - Build

3.2 Summertime Projections

The projected 2049 AM and PM peak hour traffic volumes for the existing W Tapps Highway/Bonney Lake Boulevard intersection are shown in **Figure 9**. Worksheets showing the calculation of future year traffic projections are included in Appendix C.

Figure 9. 2049 Summer PM Peak Hour Volumes



Existing Intersection – No Build

Proposed New Intersection - Build

Reconfigured Existing Intersection/Boat Launch - Build

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4 Evaluation of Roadway Improvements

As noted in Chapter 1, the City of Bonney Lake is planning to improve internal access and circulation within Allan Yorke Park to better unify park facilities, and to improve the safety of both park users and the traveling public. Three alternatives were considered and the City Council recommended the Maximum Development scenario. This alternative would relocate a portion of W Tapps Highway to the western side of the park, effectively reducing the need for pedestrians and bicyclists to cross the busy street to travel between multiple destinations within the park.

The purpose of this chapter is to evaluate the traffic operations, multimodal safety, right of way/park, and cost-related consequences of the proposed action and to compare these with the effects of maintaining the existing condition. The preferred alternative is illustrated in **Figure 10**.

Analysis addressed in this chapter includes:

- Description of the proposed roadway and intersection modifications
- Traffic operations analysis
- Safety analysis
- Potential right of way and/or park impacts
- Project costs

4.1 Improvement Concept

Figure 11 and **Figure 12** provide a preliminary design level concept for the proposed improvements including:

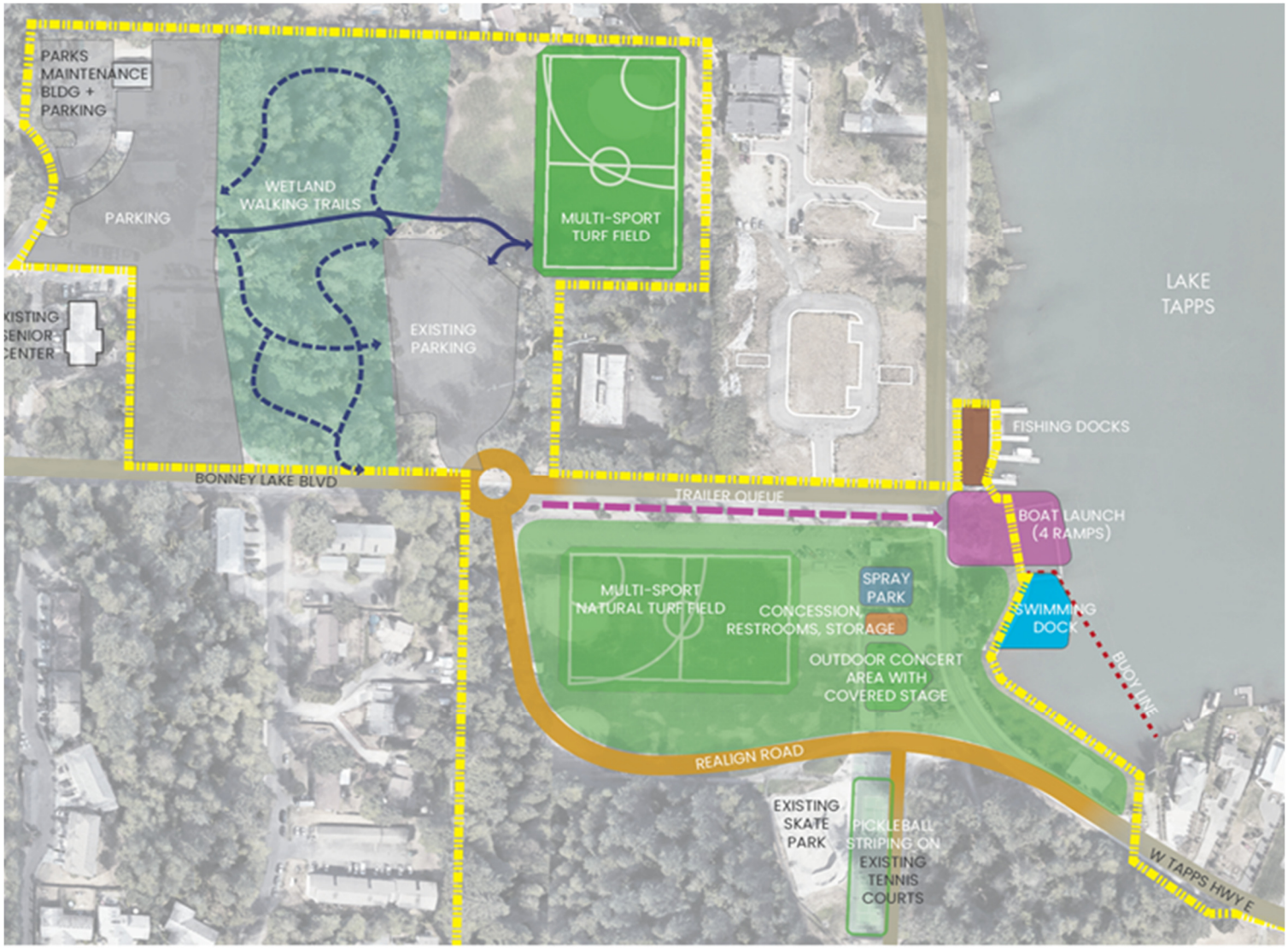
- Relocation and reconfiguration of the W Tapps Highway and Bonney Lake Boulevard intersection
- Development of a realigned segment of W Tapps Highway between the new Bonney Lake Boulevard intersection and a point near the southern edge of the existing Allan Yorke Park. The new roadway would include a single travel lane in each direction and a landscaped median.
- Revision of the existing Lake Tapps boat launch, on-site and public street parking, and other site modifications to improve accessibility and safety

The roundabout concept will provide a single approach lane in all four directions with Bonney Lake Boulevard on the east/west legs, W Tapps Highway on the south leg and access to parking and other park-related activities on the north leg.

A 12-foot multiuse trail would be provided along the north side of Bonney Lake Boulevard to the west of the new intersection with a pedestrian crossing of the north leg. The trail will continue within the northeast corner of the new intersection crossing Bonney Lake Boulevard on the east leg. The trail will continue farther along the east and north sides of the new W Tapps Highway alignment through the park to the new parking access intersection. This intersection would be located near where the new roadway would rejoin the existing W Tapps Highway alignment to the south of the park. There would be crosswalks on all four legs of this proposed intersection connecting to new sidewalks on both sides of W Tapps Highway. These sidewalks would continue east to the point where they join existing sidewalks.

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Figure 10. Preferred Park Circulation and Access Concept



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Figure 11. W Tapps Highway at Bonney Lake Boulevard – Proposed Roundabout



Figure 12. W Tapps Highway Relocation



4.2 Intersection Traffic Operations Analysis

Motor vehicle operations were evaluated by conducting traffic analysis and identifying deficiencies for AM and PM peak hours in the 2023 base year and 2049 design analysis year. Analysis includes both traffic data collected during the winter/spring months and during the summer. According to the requirements identified in the City's 2015 *Comprehensive Plan, Community Mobility Element*, traffic performance at intersections must meet mobility targets that are comprised of both delay-based intersection levels of service and volume-to-capacity ratio for key movements.

4.2.1 Performance Targets

4.2.1.1 Levels of Service

The acknowledged source for determining operating performance for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB).

Intersection analysis was performed using the Synchro/SimTraffic software package (version 11). This software implements the methods of the 6th Edition HCM. The analysis for the scenario with roundabout control was performed using the SIDRA software package (version 9.0). Operations analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a street or highway during a specific time interval. As described in **Table 3**, LOS ranges from A (very little delay) to F (long delays and congestion).

The City of Bonney Lake has adopted a minimum LOS D standard for this intersection. Any transportation facility that functions below the adopted standard would be considered as failing. For intersections under minor street stop sign control, the intersection LOS of the most difficult movement (typically the minor street left turn) represents the intersection level of service.

Table 3. Level of Service Criteria based on Average Vehicle Delay

Level of Service	Signalized and Roundabout Intersection Average Control Delay (seconds/vehicle)	Stop-Controlled or Roundabout Intersection Average Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Highway Capacity Manual, 6th Edition, 2016.

4.2.1.2 Volume-to-Capacity Ratios

The Bonney Lake *Community Mobility Plan* identifies the need for an additional performance standard beyond delay-based LOS. This additional standard requires that all signalized intersections have a volume-to-capacity ratio for each of the individual legs of the intersection that does not exceed 1.0. The

V/C is determined by the actual number of vehicles on the roadway as compared to the capacity of the roadway. **Table 4** correlates v/c ratios to qualitative levels of service.

Table 4. Level of Service Criteria for Arterials based on Volume-to-Capacity Ratios

Level of Service	V/C Ratio	Description
A	0.00 to 0.60	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.
B	0.61 to 0.70	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.
C	0.71 to 0.80	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.
D	0.81 to 0.90	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	0.91 to 1.00	Operations with significant intersection approach delays and low average speeds.
F	Greater Than 1.00	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.

4.2.2 Intersection Operational Analysis

For intersections under minor street stop-control, the LOS of the most difficult movement (typically the minor street left-turn) represents the intersection Level of Service for purposes of assessing potential impacts. For traffic signals and roundabouts, the intersection average delay is used to assess potential impacts.

Traffic operations analysis was conducted for both winter and summertime PM peak hours for existing 2023 traffic volumes, 2049 traffic volumes with no improvement and 2049 traffic volumes for the relocated roundabout improvement alternative. The operational analysis results are provided in **Table 5.**

As noted in the table, existing 2023 PM peak hour traffic is currently operating at LOS B during both seasons with 10.9 seconds of average delay in the wintertime and 12.1 seconds of average delay in the summertime. The 95th percentile queue is located in the southbound direction of W Tapps Highway and would exceed 120 feet during the summertime peak. The vehicle queuing analysis was conducted using the SimTraffic simulation tool included in the Synchro software package. The analysis shows the average of five simulations, providing the 95th percentile queue, which is the peak typical queue experienced, excluding the highest five percent of occurrences. The 95th percentile queue is a useful parameter for determining the appropriate length of turn pockets but is not typical of what the average driver would experience.

By the 2049 PM peak hour, operations with the existing channelization and traffic control would drop to LOS C with an average delay of 15.2 seconds in the wintertime and 22.5 seconds in the summertime. The projected V/C ratios would be 0.65 during the wintertime and 0.80 during the summertime, both of which meet the city's standards. The southbound traffic queue on W Tapps Highway would be 200 feet long during the summertime 2049 PM peak hour.

Table 5. Comparison of 2049 PM Peak Hour Level of Service

	Winter/Spring PM Peak Hour			Summertime PM Peak Hour		
	Traffic Performance		95th Percentile Queues (in feet)	Traffic Performance		95th Percentile Queues (in feet)
Concepts Evaluated	LOS (Delay)	V/C	Longest Queue (approach)	LOS (Delay)	V/C	Longest Queue (approach)
2023 Existing Conditions	B (10.9)[3]	0.47[3]	100' (SB)[1]	B (12.1)[3]	0.53[3]	120' (SB)[1]
2049 No Improvement	C (15.2)[3]	0.65[3]	135' (SB)[1]	C (22.5)[3]	0.80[3]	200' (SB)[1]
2049 Roundabout at New Location	A (7.7)	0.39	60 ' (WB)[2]	A (7.8)	0.48	85' (WB)[2]
2049 Stop Control at Old Location	B (13.1)	0.61	115' (WB)[3]	C (16.7)	0.71	135' (SB)[3]

Note: Queuing distances are rounded to the nearest five feet.
1 Queue is on W Tapps Highway for the southbound thru/right movement.
2 Queue is on westbound Bonney Lake Boulevard
3 LOS or V/C is for the worst movement which is southbound on W Tapps Highway

As shown in Table 5, development of a roundabout at a relocated intersection provides the best overall PM peak hour performance with LOS A during both time periods and less than 100 feet of peak queuing. The roundabout option would only require a single lane approach in each direction. As illustrated in Figure 12, the existing intersection of W Tapps Highway with Bonney Lake Boulevard would be modified to eliminate the southern leg. The predominate traffic movements at this intersection would include a southbound right turn and an eastbound left turn. An east leg would be included at this intersection for outbound vehicles with boat trailers only. Peak period traffic for this movement is expected to be minimal and largely confined to the warmer months of the year.

Detailed results of the operational analyses are attached as **Appendix D**.

4.3 Safety Analysis

The Federal Highway Administration's Crash Modification Factors Clearinghouse maintains and publishes information about the effectiveness of various transportation improvements (or crash countermeasures[1]) in reducing crash incidence and/or severity. Crash Modification Factors (CMFs) provide research-based data that indicate the proportion of crashes that would be expected to change after implementation of a crash countermeasure such as a roundabout. CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being

[1] Crash countermeasures are actions taken to reduce the danger or threat of a particular type of crash. The effectiveness of various countermeasures are identified through various Crash Modification Factors (CMFs) that indicate the proportion of crashes that would be expected to change after implementation of a countermeasure. FHWA provides an extensive database of CMFs in its online Crash Modification Factors Clearinghouse.

CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected. For example, if a stop-controlled intersection experienced 5.2 crashes per year over the analysis period and traffic signal installation was considered. The CMF for installing a traffic signal was .56 for all crashes, the expected total crashes after signal installation would be 5.2 X 0.56 = 2.9 total crashes per year or a reduction of 44 percent.

experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected.

The following sections present information about the safety-related pros and cons for the proposed intersection and roadway improvements in the vicinity of Allan Yorke Park. Detailed crash data and crash analysis results are included in Appendix B.

4.3.1 Vehicular Safety Benefits with a Roundabout

Based on CMF research for an urban intersection (CMF #210), an 88 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from stop control to a single lane roundabout. While no fatal or serious injury crashes occurred at the intersection of W Tapps Highway with Bonney Lake Boulevard during the five year analysis period, implementation of a roundabout would significantly reduce the probability of such crashes. A roundabout would likely also reduce the incidence of rear end and/or fixed object crashes resulting in property damage that were actually measured at the intersection.

Roundabouts are considered by FHWA to be a Proven Safety Countermeasure because of their many safety benefits. Roundabouts reduce the number of conflict points between vehicles from nine conflict points at traditional three-leg intersections to six conflict points at roundabouts. The roundabout geometry also eliminates right angle and left turn crashes which are associated with higher severity crashes. The low speeds associated with roundabouts also allow drivers more time to react to potential conflicts and crash severity can be reduced compared to traditionally controlled intersections which helps to improve the safety performance of roundabouts.

In addition to vehicle-vehicle safety, roundabouts can improve safety for pedestrians as well. The pedestrian only needs to cross one direction of traffic at a time and addition countermeasures such as flashing beacons or added illumination could further enhance pedestrian safety.

4.3.2 Pedestrian Safety Benefits with a Relocated Intersection and Roadway

One of the key drivers behind the development of the Maximum Concept for modifying Allan Yorke Park was the focus on improving safety for non-motorized travelers, particularly pedestrians. **Table 6** summarizes the key benefits and potential negatives associated with the proposed intersection and roadway improvements largely from the perspective of bicyclists and pedestrians.

As indicated in the table some of the key benefits of the proposed relocation of W Tapps Highway and the increased reunification of the park would feature:

- Substantially improved safety for pedestrians moving between the waterfront and other destinations in the park
- More of the park would be contiguous with the water which is a highly valued community resource
- Improved safety for all travel modes at the new roundabout intersection of Bonney Lake Boulevard and W Tapps Highway. The change of intersection configuration from stop sign-controlled to roundabout can result in over an 80 percent reduction in crashes.
- Speed reduction for motor vehicles through the park which would increase safety for bicyclists and pedestrians

Table 6. Evaluation of Pedestrian/Bicycle Project-Related Impacts

	Positives	***Negatives***
Vehicular Traffic Effects	• Current regional travel route will be less attractive to through traffic, could reduce volumes that would reduce pedestrian exposure. • May slow traffic due to more circuitous route with increased friction points such as curvilinear alignment, street trees and median, that convey the message "you are in a park". This may enhance pedestrian and bicycle safety. • Fewer injury crashes resulting from fewer conflict points for single lane roundabouts.	• May result in some diversion of regional traffic into other corridors. Difficult to quantify. • Added travel time to north/south flows may be perceived as adverse by some members of the public. • Would lengthen the north/south connection which could result in some increase in Vehicle Miles Traveled.
Pedestrian Movement & Safety	• Significantly reduces the need to cross a public street to reach the water. • Reduced crash severity at roundabout (due to lower speeds) which can benefit pedestrians and bicyclists. • Adequate sight distance can be provided. • Raised intersection at south end of park to access destinations south of the new W Tapps Highway alignment will reduce vehicle speeds and enhance crossing safety. • Pedestrians and bicyclists can still use old Tapps Highway alignment through the park and won't need to divert to the new alignment. Non-motorized travel times for through vehicles would not increase.	• May require a longer walk to reach amenities including disabled access. • Raised intersection may be more difficult to accommodate large vehicles including trailered boats.
Benefits to Park Functionality	• The park will become more physically unified, reducing the need for pedestrians to cross a public street when traveling between beach and restrooms, etc. • More of the park would be contiguous to water which is a highly valued community attribute.	• Potential reduction in available parking or parking proximity.
Boat Launch Access	• Adds space for the boat launch via a new driveway east of the roundabout that is separated from the public street, reduces impacts on non-park travelers. • Operation of boat launch will have more queuing capacity and likely easier maneuverability. • Safer pedestrian crossing between the boat launch and Bonney Lake Blvd with a modified 3-legged intersection at W Tapps Highway. Full crosswalks would be provided on all approaches.	• None identified.

4.3.3 Safety Benefits with Reconfiguration of the Boat Launch

Significant safety and operational benefits are also expected at the Lake Tapps boat launch with the reconfiguration of W Tapps Highway and Bonney Lake Boulevard. As indicated in Table 6, relocation of the boat launch further south along the waterfront and construction of several lanes for car/trailer queueing approaching the launch that are physically separated from Bonney Lake Boulevard will improve overall operations and safety. Boating traffic will no longer directly interfere with the movement of through traffic along Bonney Lake Boulevard and W Tapps Highway reducing conflicts with vehicular traffic. Additionally, pedestrian safety at the existing intersection of W Tapps Highway with Bonney Lake Boulevard will also be improved as conflicting vehicle movements would be reduced.

4.4 Intersection Sight Distance

Based on the expected 20 mph posted travel speed on the new extension of W Tapps Highway through the park, the intersection with parking access in the southern portion of the park should have an entering sight distance requirement of 225 feet. 280 feet would be required for 25 mph speeds. Final design for the W Tapps Highway relocation and the new intersection should accommodate the 25 mph sight distance requirement at a minimum.

4.5 Cost Estimate

A planning level cost estimate has been prepared for the component elements of the proposed improvements. The cost estimate for the roundabout at the new intersection of W Tapps Highway and Bonney Lake Boulevard is $1,851,200. The cost of the new extension of W Tapps Highway is $1,799,400. The cost of the revisions to Bonney Lake Boulevard including modifications to the existing intersection with W Tapps Highway is $844,500. The total estimated cost of the entire set of improvements is $4,495,100. All costs include a contingency of 30 percent to account for issues that are unknown at this time. Details of the planning level cost estimate are included in **Appendix E**.

5 Summary of Findings

This chapter presents a summary of the public engagement activities that have been undertaken in conjunction with this project leading to the specific recommendations that are presented below.

5.1 Public Engagement Activities

Public engagement for project has focused on a presentation and work session with the Bonney Lake Planning Commission, the City Council, a virtual public meeting, and a Tunes at Tapps Tabling event that occurred between May and August of 2023. Public input has largely been supportive of the Maximum Development option. Another meeting with the Planning Commission is scheduled for November 29, 2023. Input from this meeting and responses to be completed at a later date.

5.2 Key Findings

Some of the key benefits of the proposed relocation of W Tapps Highway and development of a new roundabout at the intersection with Bonney Lake Boulevard would include the following:

- The proposed single lane roundabout would provide PM peak hour LOS A service through 2049 in comparison to LOS C with the existing stop-controlled configuration.
- A crash reduction of over 80 percent predicted based on FHWA Crash Modification Factors research. Fewer injury crashes result from fewer conflict points at the roundabout and reduced speeds around the intersection.
- The reunification of the park can substantially benefit pedestrian and bicycle safety by reducing or eliminating the need to cross a public street when traveling between the water and most other destinations within the park.
- The proposed raised pedestrian platform on the new alignment of W Tapps Highway at the south end of the park should also reduce vehicle speeds and help to improve pedestrian safety.

Some key disadvantages would include:

- Potential for diversion of regional traffic away from W Tapps Highway due to slower travel speeds over a longer distance through the park. This diversion is not expected to be significant.
- May require a longer walk to reach amenities within the park from on-site parking. There may also be a small reduction in parking on the site to minimize land consumption for vehicles.
- The raised pedestrian platform at the southern park access intersection may be awkward for large vehicles to use.

A planning level cost estimate has been prepared for the component elements of the proposed improvements. The total cost estimate for all component elements of the project is $4,495,100. This includes a new roundabout intersection on Bonney Lake Boulevard at a relocated W Tapps Highway, an extension of W Tapps Highway through Allan Yorke Park, and a reconfiguration of the existing Bonney Lake Boulevard/W Tapps Highway intersection. All costs include a contingency of 30 percent to account for issues that are unknown at this time and would be further explored during the design process.

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Appendix A

Traffic Counts

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

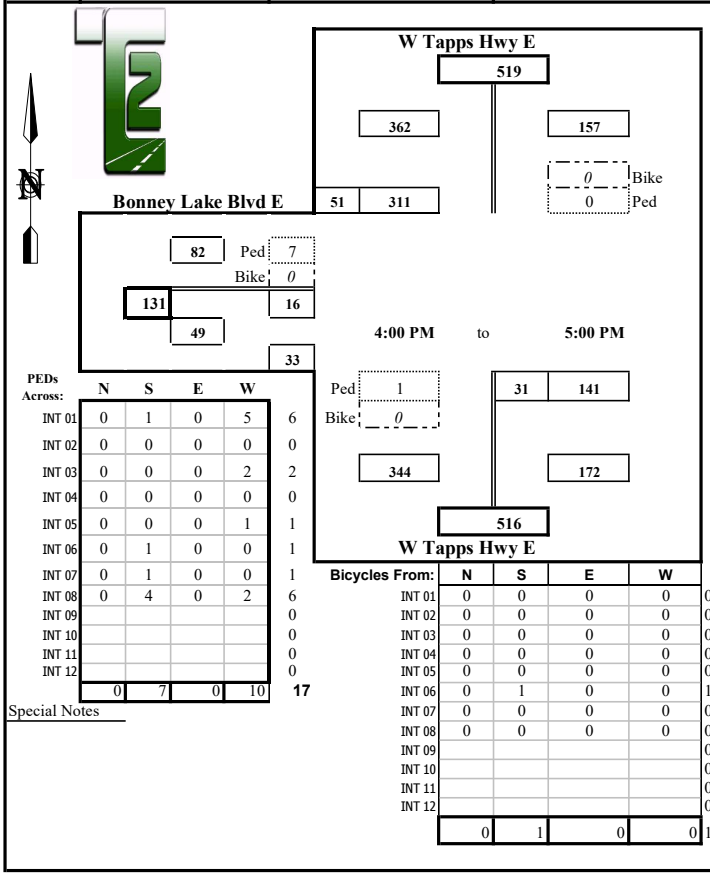
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: W Tapps Hwy E & Bonney Lake Blvd E **Date of Count:** Thu 02/23/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) W Tapps Hwy E				From South on (NB) W Tapps Hwy E				From East on (WB) 0				From West on (EB) Bonney Lake Blvd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	93	11	1	6	39	0	0	0	0	0	0	5	0	10	164
4:30 P	3	0	78	14	0	10	36	0	0	0	0	0	0	1	0	7	146
4:45 P	1	0	74	15	0	9	36	0	0	0	0	0	0	6	0	7	147
5:00 P	1	0	66	11	0	6	30	0	0	0	0	0	0	4	0	9	126
5:15 P	0	0	51	15	0	8	43	0	0	0	0	0	0	3	0	4	124
5:30 P	0	0	58	14	0	8	27	0	0	0	0	0	1	2	0	5	114
5:45 P	0	0	64	12	0	3	27	0	0	0	0	0	0	5	0	6	117
6:00 P	0	0	60	10	0	4	36	0	0	0	0	0	0	5	0	8	123
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	0	544	102	1	54	274	0	0	0	0	0	1	31	0	56	1061
	Peak Hour: 4:00 PM to 5:00 PM																
Total	7	0	311	51	1	31	141	0	0	0	0	0	0	16	0	33	583
Approach	362				172				0				49				583
%HV	1.9%				0.6%				n/a				n/a				1.4%
PHF	0.87				0.93				n/a				0.82				0.89



656 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.82	n/a
Check		WB	n/a	n/a
In:	583	NB	0.93	0.6%
Out:	583	SB	0.87	1.9%
		T Int.	0.89	1.4%

Conditions:

PEDs Across:	N	S	E	W	
INT 01	0	1	0	5	6
INT 02	0	0	0	0	0
INT 03	0	0	0	2	2
INT 04	0	0	0	0	0
INT 05	0	0	0	1	1
INT 06	0	1	0	0	1
INT 07	0	1	0	0	1
INT 08	0	4	0	2	6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	7	0	10	17

Special Notes

Bicycles From:	N	S	E	W	
INT 01	0	0	0	0	0
INT 02	0	0	0	0	0
INT 03	0	0	0	0	0
INT 04	0	0	0	0	0
INT 05	0	0	0	0	0
INT 06	0	1	0	0	1
INT 07	0	0	0	0	0
INT 08	0	0	0	0	0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	0	1

SCJ23015TM_03P

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

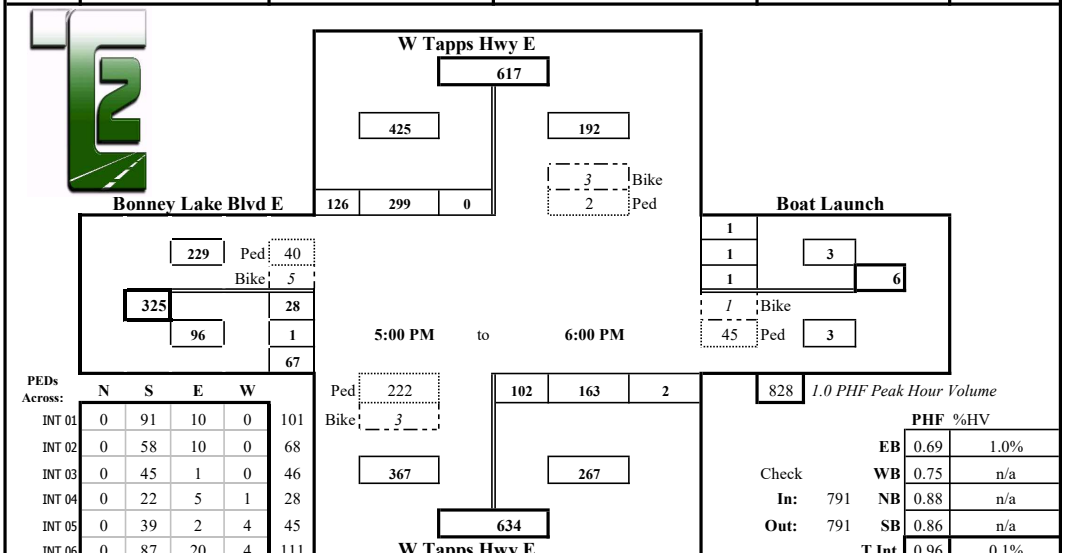
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: W Tapps Hwy E & Boat Launch/Bonney Lake Boulevard E **Date of Count:** Wed 08/02/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) W Tapps Hwy E				From South on (NB) W Tapps Hwy E				From East on (WB) Boat Launch				From West on (EB) Bonney Lake Blvd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	1	69	13	0	21	40	0	0	0	0	0	0	7	0	22	173
4:30 P	1	0	51	16	0	24	38	1	0	1	0	0	0	7	0	10	148
4:45 P	1	0	82	15	0	14	47	0	0	0	0	0	0	10	0	18	186
5:00 P	0	0	75	17	1	17	45	1	0	1	1	1	0	11	1	8	178
5:15 P	0	0	78	32	0	24	38	0	0	0	1	0	0	5	1	16	195
5:30 P	0	0	75	21	0	24	45	0	0	1	0	0	1	5	0	16	187
5:45 P	0	0	74	49	0	17	41	2	0	0	0	1	0	8	0	10	202
6:00 P	0	0	72	24	0	37	39	0	0	0	0	0	0	10	0	25	207
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	1	576	187	1	178	333	4	0	3	2	2	1	63	2	125	1476
	Peak Hour: 5:00 PM to 6:00 PM																
Total	0	0	299	126	0	102	163	2	0	1	1	1	1	28	1	67	791
Approach	425				267				3				96				791
%HV	n/a				n/a				n/a				1.0%				0.1%
PHF	0.86				0.88				0.75				0.69				0.96



PEDs Across:	N	S	E	W	
INT 01	0	91	10	0	101
INT 02	0	58	10	0	68
INT 03	0	45	1	0	46
INT 04	0	22	5	1	28
INT 05	0	39	2	4	45
INT 06	0	87	20	4	111
INT 07	0	41	7	17	65
INT 08	2	55	16	15	88
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	438	71	41	**552**

Bicycles From:	N	S	E	W	
INT 01	0	0	1	0	1
INT 02	1	1	0	0	2
INT 03	0	0	0	1	1
INT 04	2	0	1	0	3
INT 05	0	0	0	0	0
INT 06	1	1	1	0	3
INT 07	2	2	0	5	9
INT 08	0	0	0	0	0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	4	3	6	19

	PHF	%HV
EB	0.69	1.0%
WB	0.75	n/a
NB	0.88	n/a
SB	0.86	n/a
T Int.	0.96	0.1%

Check In: 791 Out: 791

Conditions:

Special Notes

SCJ23015TM_03P

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1				TRAFFIC COUNT CONSULTANTS, INC.										Page 1			
2				Team@tc2inc.com													
3	BONNEY LAKE, WASHINGTON			(253) 770-													
4	W TAPPS HWY E N/O													Site Code: 20			
5	BONNEY LAKE BLVD E																
6	LOC# 01 A SCJ23015TM													Date Start: 07-Mar-23			
7														Date End: 09-Mar-23			
8																	
9																	
10		7-Mar-23		Tue	Tue	Wed	Wed	Thu	Thu	Fri		Sat		Sun		Week Average	
11		SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12	12:00 AM			12	8	12	10	9	8							11	9
13	01:00			2	2	8	2	3	3							4	2
14	02:00			2	4	6	6	4	4							4	5
15	03:00			5	5	4	6	5	6							5	6
16	04:00			11	38	13	31	9	24							11	31
17	05:00			26	55	26	62	20	55							24	57
18	06:00			53	101	43	101	50	96							49	99
19	07:00			129	176	116	152	107	143							117	157
20	08:00			201	219	186	229	175	204							187	217
21	09:00			118	82	121	91	140	93							126	89
22	10:00			119	93	112	92	122	102							118	96
23	11:00			137	113	110	113	119	108							122	111
24	12:00 PM			135	113	131	125	133	116							133	118
25	01:00			125	126	130	122	139	120							131	123
26	02:00			238	172	239	147	234	156							237	158
27	03:00			323	216	317	185	306	211							315	204
28	04:00			315	128	307	133	351	138							324	133
29	05:00			279	127	281	119	262	141							274	129
30	06:00			161	120	187	111	174	147							174	126
31	07:00			63	97	88	91	99	104							83	97
32	08:00			55	62	51	65	61	68							56	65
33	09:00			24	39	26	36	33	37							28	37
34	10:00			21	21	11	18	29	31							20	23
35	11:00			11	10	9	10	12	14							11	11
36	Lane	0	0	2565	2127	2534	2057	2596	2129	0	0	0	0	0	0	2565	2104
37	Day	0		4692		4591		4725		0		0		0		4669	

TRAFFIC COUNT CONSULTANTS, INC.
Team@tc2inc.com
(253) 770-

BONNEY LAKE, WASHINGTON
BONNEY LAKE BLVD E W/O
W TAPPS HWY E
LOC# 02 A SCJ23015TM

Site Code: 19

Date Start: 21-Feb-23
Date End: 23-Feb-23

21-Feb-23			Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
NB	SB		WB	EB	WB	EB	WB	EB	NB	SB	NB	SB	NB	SB	WB	EB
12:00 AM			5	1	5	5	8	5							6	4
01:00			1	2	2	1	0	2							1	2
02:00			2	2	1	0	1	2							1	1
03:00			1	3	2	2	0	2							1	2
04:00			2	10	3	9	1	8							2	9
05:00			6	19	8	18	7	16							7	18
06:00			20	28	24	27	10	24							18	26
07:00			33	33	40	37	16	24							30	31
08:00			56	50	44	56	54	37							51	48
09:00			31	27	34	26	45	40							37	31
10:00			48	34	43	27	51	46							47	36
11:00			46	31	53	27	58	26							52	28
12:00 PM			46	41	38	55	36	42							40	46
01:00			39	38	48	38	47	46							45	41
02:00			64	39	77	47	69	44							70	43
03:00			75	53	85	59	79	43							80	52
04:00			78	45	89	36	77	41							81	41
05:00			68	38	72	28	75	33							72	33
06:00			46	28	31	33	37	29							38	30
07:00			24	18	27	20	33	26							28	21
08:00			19	18	16	14	17	14							17	15
09:00			15	6	12	10	11	8							13	8
10:00			9	5	3	5	11	5							8	5
11:00			4	6	3	5	4	1							4	4
Lane	0	0	738	575	760	585	747	564	0	0	0	0	0	0	748	575
Day	0		1313		1345		1311		0		0		0		1323	

0	0	738	575	760	585	747	564	0	0	0	0	0	0	748	575

Appendix B

Crash Data

OFFICER REPORTED CRASHES THAT OCCURRED ON ALL ROADS IN THE CITY OF BONNEY LAKE

01/01/2018 - *available 2022*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed

	JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILE POST	A / B	SR ONLY HISTORY/ SUSPENSE	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP
3	**Bonney Lake Blvd/W Tapps Hwy**																								
	City Street	Pierce	Bonney Lake	W TAPPS HWY E	7200		160	F	S	BONNEY LAKE BLVD E			No	ED13918	12/04/2022	03:00	No Apparent Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb		Not at Intersection and Not Related
	City Street	Pierce	Bonney Lake	W TAPPS HWY E	7200		275	F	S	BONNEY LAKE BLVD E			No	EB49733	07/18/2021	12:05	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related
																	No Apparent Injury	2							
																	Possible Injury	0							
																	Possible Injury	0							
																	Suspected Minor Injury	0							
																	Suspected Serious Injury	0							
																	Died in Hospital	0							
																	Unknown	0							
																	Total	2							

WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	Collision Type	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)
Clear	Dry	Dark-Street Lights On	Object	Boulder (stationary)	Going Straight Ahead		South	North			Distractions Outside Vehicle	Past the Outside Shoulder of Primary Trafficway
Clear or Partly Cloudy	Dry	Daylight	Rear-end	From same direction - both going straig	Going Straight Ahead	Stopped for Traffic	South	North	Vehicle Stopped	Vehicle Stopped	Follow Too Closely	Lane of Primary Trafficway
		Rear-end	1									
		Object	1									
		One left one Straight	0									
		hits ped	0									
		head on	0									
		other	0									
		One right one Straight	0									
		sideswipe	0									
		hits bike	0									
		Entering at angle	0									
		Total	2									

Appendix C

Traffic Volume Projections

SCJ ALLIANCE
CONSULTING SERVICES

Allan Yorke Park Realignment

PM Peak Hour Volumes

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2049 Growth	Projected 2049 Volumes
1 **W Tapps Hwy E** **Church Lake Rd E** TMC Date: 02/23/2023 4:00 - 5:00 PHF: 0.89		L	**16**	6	**22**
	EB	T	**0**	0	**0**
		R	**33**	13	**46**
		L	**0**	0	**0**
	WB	T	**0**	0	**0**
		R	**0**	0	**0**
		L	**31**	12	**43**
	NB	T	**141**	55	**196**
		R	**0**	0	**0**
		L	**0**	0	**0**
	SB	T	**311**	121	**432**
		R	**51**	20	**71**
			583		**810**
1A **W Tapps Hwy E** **Church Lake Rd E** TMC Date: 02/23/2023 4:00 - 5:00 PHF: 0.89		L	**0**	0	**0**
	EB	T	**16**	6	**22**
		R	**33**	13	**46**
		L	**311**	121	**432**
	WB	T	**51**	20	**71**
		R	**0**	0	**0**
		L	**31**	12	**43**
	NB	T	**0**	0	**0**
		R	**141**	55	**196**
		L	**0**	0	**0**
	SB	T	**0**	0	**0**
		R	**0**	0	**0**
			583		**810**

Appendix D

Traffic Operations Worksheets

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	35	30	140	310	50
Future Vol, veh/h	15	35	30	140	310	50
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	17	39	34	157	348	56
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.3	8.9	10.9
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	18%	30%	0%
Vol Thru, %	82%	0%	86%
Vol Right, %	0%	70%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	50	360
LT Vol	30	15	0
Through Vol	140	0	310
RT Vol	0	35	50
Lane Flow Rate	191	56	404
Geometry Grp	1	1	1
Degree of Util (X)	0.238	0.075	0.472
Departure Headway (Hd)	4.489	4.83	4.204
Convergence, Y/N	Yes	Yes	Yes
Cap	802	741	862
Service Time	2.508	2.863	2.204
HCM Lane V/C Ratio	0.238	0.076	0.469
HCM Control Delay	8.9	8.3	10.9
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.9	0.2	2.6

Intersection: 3: W Tapps Hwy & Bonney Lake Blvd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	55	77	130
Average Queue (ft)	26	39	68
95th Queue (ft)	49	61	99
Link Distance (ft)	1864	1206	2872
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	65	100	165	300	125
Future Vol, veh/h	30	65	100	165	300	125
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	31	68	104	172	313	130
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	10.4	12.1
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	38%	32%	0%
Vol Thru, %	62%	0%	71%
Vol Right, %	0%	68%	29%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	265	95	425
LT Vol	100	30	0
Through Vol	165	0	300
RT Vol	0	65	125
Lane Flow Rate	276	99	443
Geometry Grp	1	1	1
Degree of Util (X)	0.361	0.141	0.529
Departure Headway (Hd)	4.703	5.113	4.305
Convergence, Y/N	Yes	Yes	Yes
Cap	762	698	837
Service Time	2.743	3.173	2.34
HCM Lane V/C Ratio	0.362	0.142	0.529
HCM Control Delay	10.4	9	12.1
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.6	0.5	3.2

Intersection: 3: W Tapps Hwy & Bonney Lake Blvd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	55	84	144
Average Queue (ft)	35	51	78
95th Queue (ft)	52	75	119
Link Distance (ft)	1864	1206	2872
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	45	45	195	430	70
Future Vol, veh/h	20	45	45	195	430	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	22	49	49	212	467	76
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	10.2	15.2
HCM LOS	A	B	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	19%	31%	0%
Vol Thru, %	81%	0%	86%
Vol Right, %	0%	69%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	240	65	500
LT Vol	45	20	0
Through Vol	195	0	430
RT Vol	0	45	70
Lane Flow Rate	261	71	543
Geometry Grp	1	1	1
Degree of Util (X)	0.34	0.104	0.653
Departure Headway (Hd)	4.694	5.285	4.324
Convergence, Y/N	Yes	Yes	Yes
Cap	764	675	837
Service Time	2.733	3.346	2.353
HCM Lane V/C Ratio	0.342	0.105	0.649
HCM Control Delay	10.2	9	15.2
HCM Lane LOS	B	A	C
HCM 95th-tile Q	1.5	0.3	5

Intersection: 3: W Tapps Hwy & Bonney Lake Blvd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	55	83	169
Average Queue (ft)	30	46	87
95th Queue (ft)	52	69	135
Link Distance (ft)	1864	1206	2872
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	95	140	225	415	175
Future Vol, veh/h	40	95	140	225	415	175
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	42	99	146	234	432	182
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.6	14.2	22.5
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	38%	30%	0%
Vol Thru, %	62%	0%	70%
Vol Right, %	0%	70%	30%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	365	135	590
LT Vol	140	40	0
Through Vol	225	0	415
RT Vol	0	95	175
Lane Flow Rate	380	141	615
Geometry Grp	1	1	1
Degree of Util (X)	0.546	0.228	0.784
Departure Headway (Hd)	5.173	5.836	4.695
Convergence, Y/N	Yes	Yes	Yes
Cap	703	617	774
Service Time	3.173	3.852	2.695
HCM Lane V/C Ratio	0.541	0.229	0.795
HCM Control Delay	14.2	10.6	22.5
HCM Lane LOS	B	B	C
HCM 95th-tile Q	3.3	0.9	7.9

Intersection: 3: W Tapps Hwy & Bonney Lake Blvd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	69	108	240
Average Queue (ft)	40	61	122
95th Queue (ft)	63	88	200
Link Distance (ft)	1864	1206	2872
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

MOVEMENT SUMMARY

Site: 1 [Projected 2049 (Site Folder: General)]

Allan Yorke Park Roadway Realignment
PM Peak Hour

Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: NB W Tapps Hwy														
3	L2	45	1.0	47	1.0	0.182	9.9	LOS A	0.9	23.7	0.14	0.49	0.14	37.2
8	T1	5	1.0	5	1.0	0.182	3.9	LOS A	0.9	23.7	0.14	0.49	0.14	37.1
18	R2	195	1.0	205	1.0	0.182	4.0	LOS A	0.9	23.7	0.14	0.49	0.14	36.0
Approach		245	1.0	258	1.0	0.182	5.1	LOS A	0.9	23.7	0.14	0.49	0.14	36.2
East: WB Bonney Lake Blvd														
1u	U	5	2.0	5	2.0	0.388	12.5	LOS B	2.3	59.5	0.22	0.60	0.22	35.7
1	L2	430	2.0	453	2.0	0.388	10.1	LOS B	2.3	59.5	0.22	0.60	0.22	34.9
6	T1	70	2.0	74	2.0	0.388	4.1	LOS A	2.3	59.5	0.22	0.60	0.22	34.8
16	R2	5	2.0	5	2.0	0.388	4.2	LOS A	2.3	59.5	0.22	0.60	0.22	33.8
Approach		510	2.0	537	2.0	0.388	9.2	LOS A	2.3	59.5	0.22	0.60	0.22	34.9
North: SB Parking Lot														
7	L2	5	1.0	5	1.0	0.016	12.0	LOS B	0.1	2.0	0.54	0.59	0.54	35.6
4	T1	5	1.0	5	1.0	0.016	6.1	LOS A	0.1	2.0	0.54	0.59	0.54	35.5
14	R2	5	1.0	5	1.0	0.016	6.1	LOS A	0.1	2.0	0.54	0.59	0.54	34.4
Approach		15	1.0	16	1.0	0.016	8.1	LOS A	0.1	2.0	0.54	0.59	0.54	35.1
West: EB Bonney Lake Blvd														
5	L2	5	1.0	5	1.0	0.069	11.6	LOS B	0.3	8.6	0.50	0.58	0.50	36.5
2	T1	20	1.0	21	1.0	0.069	5.6	LOS A	0.3	8.6	0.50	0.58	0.50	36.4
12	R2	45	1.0	47	1.0	0.069	5.7	LOS A	0.3	8.6	0.50	0.58	0.50	35.3
Approach		70	1.0	74	1.0	0.069	6.1	LOS A	0.3	8.6	0.50	0.58	0.50	35.7
All Vehicles		840	1.6	884	1.6	0.388	7.7	LOS A	2.3	59.5	0.23	0.57	0.23	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Projected 2049 - Summer (Site Folder: General)]

Allan Yorke Park Roadway Realignment
PM Peak Hour

Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: NB W Tapps Hwy														
3	L2	140	1.0	146	1.0	0.278	10.0	LOS B	1.6	40.3	0.22	0.53	0.22	36.4
8	T1	5	1.0	5	1.0	0.278	4.1	LOS A	1.6	40.3	0.22	0.53	0.22	36.3
18	R2	225	1.0	234	1.0	0.278	4.1	LOS A	1.6	40.3	0.22	0.53	0.22	35.2
Approach		370	1.0	385	1.0	0.278	6.4	LOS A	1.6	40.3	0.22	0.53	0.22	35.7
East: WB Bonney Lake Blvd														
1u	U	10	1.0	10	1.0	0.484	13.1	LOS B	3.3	83.0	0.42	0.62	0.42	35.7
1	L2	415	1.0	432	1.0	0.484	10.7	LOS B	3.3	83.0	0.42	0.62	0.42	34.9
6	T1	175	1.0	182	1.0	0.484	4.7	LOS A	3.3	83.0	0.42	0.62	0.42	34.8
16	R2	5	1.0	5	1.0	0.484	4.8	LOS A	3.3	83.0	0.42	0.62	0.42	33.8
Approach		605	1.0	630	1.0	0.484	8.9	LOS A	3.3	83.0	0.42	0.62	0.42	34.9
North: SB Parking Lot														
7	L2	5	1.0	5	1.0	0.019	13.3	LOS B	0.1	2.7	0.67	0.63	0.67	35.0
4	T1	5	1.0	5	1.0	0.019	7.3	LOS A	0.1	2.7	0.67	0.63	0.67	34.9
14	R2	5	1.0	5	1.0	0.019	7.4	LOS A	0.1	2.7	0.67	0.63	0.67	33.9
Approach		15	1.0	16	1.0	0.019	9.3	LOS A	0.1	2.7	0.67	0.63	0.67	34.6
West: EB Bonney Lake Blvd														
5	L2	5	1.0	5	1.0	0.089	11.5	LOS B	0.5	11.7	0.52	0.58	0.52	36.5
2	T1	40	1.0	42	1.0	0.089	5.6	LOS A	0.5	11.7	0.52	0.58	0.52	36.4
12	R2	45	1.0	47	1.0	0.089	5.6	LOS A	0.5	11.7	0.52	0.58	0.52	35.2
Approach		90	1.0	94	1.0	0.089	5.9	LOS A	0.5	11.7	0.52	0.58	0.52	35.8
All Vehicles		1080	1.0	1125	1.0	0.484	7.8	LOS A	3.3	83.0	0.36	0.58	0.36	35.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	220	0	1	1	0	505
Future Vol, veh/h	220	0	1	1	0	505
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	239	0	1	1	0	549
Number of Lanes	1	0	1	0	0	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	11.2	8.2	13.1
HCM LOS	B	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	50%	0%
Vol Right, %	0%	50%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	220	2	505
LT Vol	220	0	0
Through Vol	0	1	0
RT Vol	0	1	505
Lane Flow Rate	239	2	549
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.003	0.609
Departure Headway (Hd)	5.251	5.105	3.996
Convergence, Y/N	Yes	Yes	Yes
Cap	679	693	906
Service Time	3.324	3.195	2.018
HCM Lane V/C Ratio	0.352	0.003	0.606
HCM Control Delay	11.2	8.2	13.1
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.6	0	4.3

Intersection: 3: Bonney Lake Blvd/Boat Launch Exit & W Tapps Hwy

Movement	EB	WB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	79	31	143
Average Queue (ft)	47	3	75
95th Queue (ft)	71	17	115
Link Distance (ft)	1866	1294	2868
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	265	0	10	10	0	590
Future Vol, veh/h	265	0	10	10	0	590
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	276	0	10	10	0	615
Number of Lanes	1	0	1	0	0	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	12.6	8.7	16.7
HCM LOS	B	A	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	50%	0%
Vol Right, %	0%	50%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	265	20	590
LT Vol	265	0	0
Through Vol	0	10	0
RT Vol	0	10	590
Lane Flow Rate	276	21	615
Geometry Grp	1	1	1
Degree of Util (X)	0.426	0.032	0.707
Departure Headway (Hd)	5.55	5.479	4.143
Convergence, Y/N	Yes	Yes	Yes
Cap	651	656	867
Service Time	3.551	3.489	2.198
HCM Lane V/C Ratio	0.424	0.032	0.709
HCM Control Delay	12.6	8.7	16.7
HCM Lane LOS	B	A	C
HCM 95th-tile Q	2.1	0.1	6.1

Intersection: 3: Bonney Lake Blvd/Boat Launch Exit & W Tapps Hwy

Movement	EB	WB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	92	32	160
Average Queue (ft)	52	15	87
95th Queue (ft)	75	40	133
Link Distance (ft)	1866	794	2869
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Appendix E

Cost Estimate Worksheets

Project Name: Allan York Park

Client Name: SCJ Alliance

SCJ Project No.: 23-00008(03)

Estimate Level: Concept

Date: 10/20/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roundabout	Schedule B Tapps Hwy	Schedule C Bonney Lake Blvd	TOTAL
		PREPARATION							
1	0001	MOBILIZATION	L.S.	$ 350,000.00	1.0	0.40	0.40	0.20	$ 350,000
2	0035	CLEARING AND GRUBBING	L.S.	$ 15,000.00	1.0	0.58	0.38	0.04	$ 15,000
3	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 35,000.00	1.0	0.40	0.40	0.20	$ 35,000
					Subtotal:	**$162,700**	**$159,700**	**$77,600**	**$ 400,000**
		GRADING							
4	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 25.00	4100.0	1300.0	2200.0	600.0	$ 102,500
5	0470	EMBANKMENT COMPACTION	C.Y.	$ 7.00	1025.0	325.0	550.0	150.0	$ 7,175
					Subtotal:	**$34,775**	**$58,850**	**$16,050**	**$ 109,675**
		STORM SEWER							
6	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	22.0	10.0	6.0	6.0	$ 66,000
7	3105	CATCH BASIN TYPE 2 48 IN. DIAM.	EACH	$ 5,500.00	10.0	3.0	6.0	1.0	$ 55,000
8	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 75.00	2900.0	1200.0	1000.0	700.0	$ 217,500
9	NS-276	STORM FILTER SYSTEM	L.S.	$ 90,000.00	1.0	0.40	0.40	0.20	$ 90,000
					Subtotal:	**$172,500**	**$162,000**	**$94,000**	**$ 428,500**
		STRUCTURE							
10	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	C.Y.	$ 15.00	975.0	510.0	315.0	150.0	$ 14,625
					Subtotal:	**$7,650**	**$4,725**	**$2,250**	**$ 14,625**
		SURFACING							
11	5100	CRUSHED SURFACING BASE COURSE	TON	$ 40.00	3930.0	1310.0	2050.0	570.0	$ 157,200
					Subtotal:	**$52,400**	**$82,000**	**$22,800**	**$ 157,200**
		CEMENT CONCRETE PAVEMENT							
12	NS-600	STAMPED/PIGMENTED CEMENT CONC. PAVING (SPLITTER ISLAND)	S.Y.	$ 250.00	331.0	287.0	44.0	-	$ 82,750
13	NS-601	STAMPED/PIGMENTED CEMENT CONC. PAVING (TRUCK APRON)	S.Y.	$ 350.00	207.0	207.0	-	-	$ 72,450
14	NS-602	STAMPED CEMENT CONC. PAVING	S.Y.	$ 275.00	377.0	-	377.0	-	$ 103,675
					Subtotal:	**$144,200**	**$114,675**	**$0**	**$ 258,875**
		HOT MIX ASPHALT							
15	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 135.00	2970.0	980.0	1550.0	440.0	$ 400,950
					Subtotal:	**$132,300**	**$209,250**	**$59,400**	**$ 400,950**
		EROSION CONTROL AND ROADSIDE PLANTING							
16	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 75,000.00	1.0	0.33	0.33	0.33	$ 75,000
17	NS-734	LANDSCAPING	L.S.	$ 125,000.00	1.0	0.40	0.40	0.20	$ 125,000
					Subtotal:	**$75,000**	**$75,000**	**$50,000**	**$ 200,000**
		TRAFFIC							
18	6698	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EACH	$ 1,500.00	2.0	2.0	-	-	$ 3,000
19	6699	ROUNDABOUT CEMENT CONCRETE CURB AND GUTTER	L.F.	$ 55.00	1500.0	1500.0	-	-	$ 82,500
20	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	L.F.	$ 30.00	7020.0	470.0	5000.0	1550.0	$ 210,600
21	6708	ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB	L.F.	$ 125.00	210.0	210.0	-	-	$ 26,250
22	6709	ROUNDABOUT TRUCK APRON CEM. CONC. CURB AND GUTTER	L.F.	$ 75.00	260.0	260.0	-	-	$ 19,500
23	6807	PLASTIC LINE	L.F.	$ 3.00	5100.0	1400.0	2850.0	850.0	$ 15,300
24	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	150.0	150.0	-	-	$ 1,500
25	6857	PLASTIC CROSSWALK LINE	S.F.	$ 12.00	816.0	240.0	336.0	240.0	$ 9,792
26	9242	PLASTIC SPEED BUMP SYMBOL	EACH	$ 500.00	3.0	-	3.0	-	$ 1,500
27	6890	PERMANENT SIGNING	L.S.	$ 65,000.00	1.0	0.55	0.30	0.15	$ 65,000
28	6904	ILLUMINATION SYSTEM	L.S.	$ 300,000.00	1.0	0.25	0.50	0.25	$ 300,000
29	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 300,000.00	1.0	0.60	0.10	0.30	$ 300,000
30	6847	PLASTIC WIDE DOTTED ENTRY LINE	L.F.	$ 10.00	135.0	135.0	-	-	$ 1,350
					Subtotal:	**$446,030**	**$363,582**	**$226,680**	**$ 1,036,292**
		OTHER ITEMS							
31	7008	SHORING OR EXTRA EXCAVATION CLASS B	S.F.	$ 1.00	8715.0	4565.0	2835.0	1315.0	$ 8,715
32	7038	ROADWAY SURVEYING	L.S.	$ 100,000.00	1.0	0.40	0.40	0.20	$ 100,000
33	7042	ADA FEATURES SURVEYING	L.S.	$ 20,000.00	1.0	0.50	-	0.50	$ 20,000
34	7380	ADJUST MONUMENT CASE AND COVER	EACH	$ 1,000.00	3.0	-	2.0	1.0	$ 3,000
35	7055	CEMENT CONC. SIDEWALK	S.Y.	$ 75.00	2951.0	968.0	1383.0	600.0	$ 221,325
36	7058	CEMENT CONC. CURB RAMP TYPE PERPENDICULAR B	EACH	$ 3,000.00	4.0	4.0	-	-	$ 12,000
37	7058	CEMENT CONC. CURB RAMP TYPE PARALLEL A	EACH	$ 2,500.00	6.0	1.0	-	5.0	$ 15,000
38	7058	CEMENT CONC. CURB RAMP TYPE SINGLE DIRECTION A	EACH	$ 3,000.00	3.0	2.0	-	1.0	$ 9,000
39	7054	DETECTABLE WARNING SURFACE	S.F.	$ 50.00	192.0	96.0	96.0	-	$ 9,600
40	7164	GRAVITY BLOCK WALL	S.F.	$ 50.00	800.0	800.0	-	-	$ 40,000
41	3080	ADJUST MANHOLE	EACH	$ 2,000.00	5.0	2.0	-	3.0	$ 10,000
42	6243	ADJUST VALVE BOX	EACH	$ 500.00	6.0	-	2.0	4.0	$ 3,000
					Subtotal:	**$196,465**	**$154,360**	**$100,815**	**$ 451,640**
					Subtotal Construction:	**$1,424,020**	**$1,384,142**	**$649,595**	**$ 3,457,757**
					Contingency @ 30%	**$427,206**	**$415,243**	**$194,879**	**$ 1,037,327**
					TOTAL CONSTRUCTION:	**$1,851,226**	**$1,799,385**	**$844,474**	**$ 4,495,084**

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Appendix J: Intersection Control Evaluation
Angeline Road at Veterans Memorial Drive

March 2024

BONNEY Lake

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printing purposes.

Intersection Control Evaluation

Angeline Road at Veterans Memorial Drive

City of Bonney Lake, Washington

Prepared For:
City of Bonney Lake, Washington

Prepared By:
SCJ Alliance
8730 Tallon Lane NE, Suite 200
Lacey, WA 98516
360.352.1465

March 2024

SCJ ALLIANCE
CONSULTING SERVICES

Intersection Control Evaluation

Project Information

Project:	Angeline Road at Veterans Memorial Drive
Prepared for:	City of Bonney Lake Jason Sullivan, Planning & Building Supervisor 9002 Main Street E, Bonney Lake, WA 98391

Reviewing Agency

Jurisdiction:	City of Bonney Lake, Washington

Project Representative

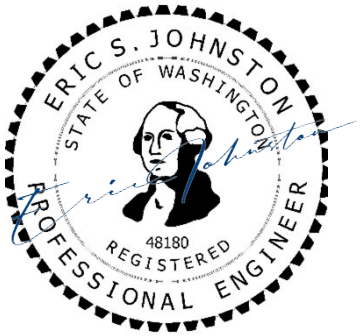
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Project Reference:	SCJ #23-000008
	Path: N:\Projects\0610 City of Bonney Lake\23-000008 Angeline Rd-Veterans Memorial Dr Study\01-Angeline Rd ICE\04-Dels\Final Angeline@Veterans ICE.docx

Signature

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by Ryan Shea, PTP and Anne Sylvester, PTE

Approved by Eric Johnston, PE, Principal



03/19/2024

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1 Introduction

The intersection of Angeline Road and Veterans Memorial Drive/Sumner-Buckley Highway E in the City of Bonney Lake has been identified for improvements in the City's current transportation plan. This intersection currently operates under stop control for Angeline Road. The transportation plan identifies traffic signal control, as well as an eastbound right turn lane and a westbound left turn lane at this location. The baseline and contextual needs for this project focus on:

- Improving existing and expected future LOS F traffic operations for side street traffic on Angeline Road to LOS D and/or v/c of 0.90 or better. Angeline Road is one of a limited number of north/south roads in the southern part of the city and the provision of good traffic operations is essential to circulation within the city.
- Veterans Memorial Drive/Sumner-Buckley Highway E provides a significant east/west connection across the city, and improvements to the intersection with Angeline Road will improve safety and the efficiency of traffic movement in that corridor.

The project location is shown in **Figure 1**.

1.1 Purpose of this Report

The purpose of this study is to assess a range of improvement alternatives in greater detail including the originally proposed traffic signal and a roundabout.

1.2 Report Content and Organization

This report is organized into six chapters, the first of which is this Introduction. Chapter 2 presents a discussion of existing conditions including characterization of the existing street system, current three-day roadway traffic counts and peak hour turning movements, and a summary of recent crash history and safety at the intersection.

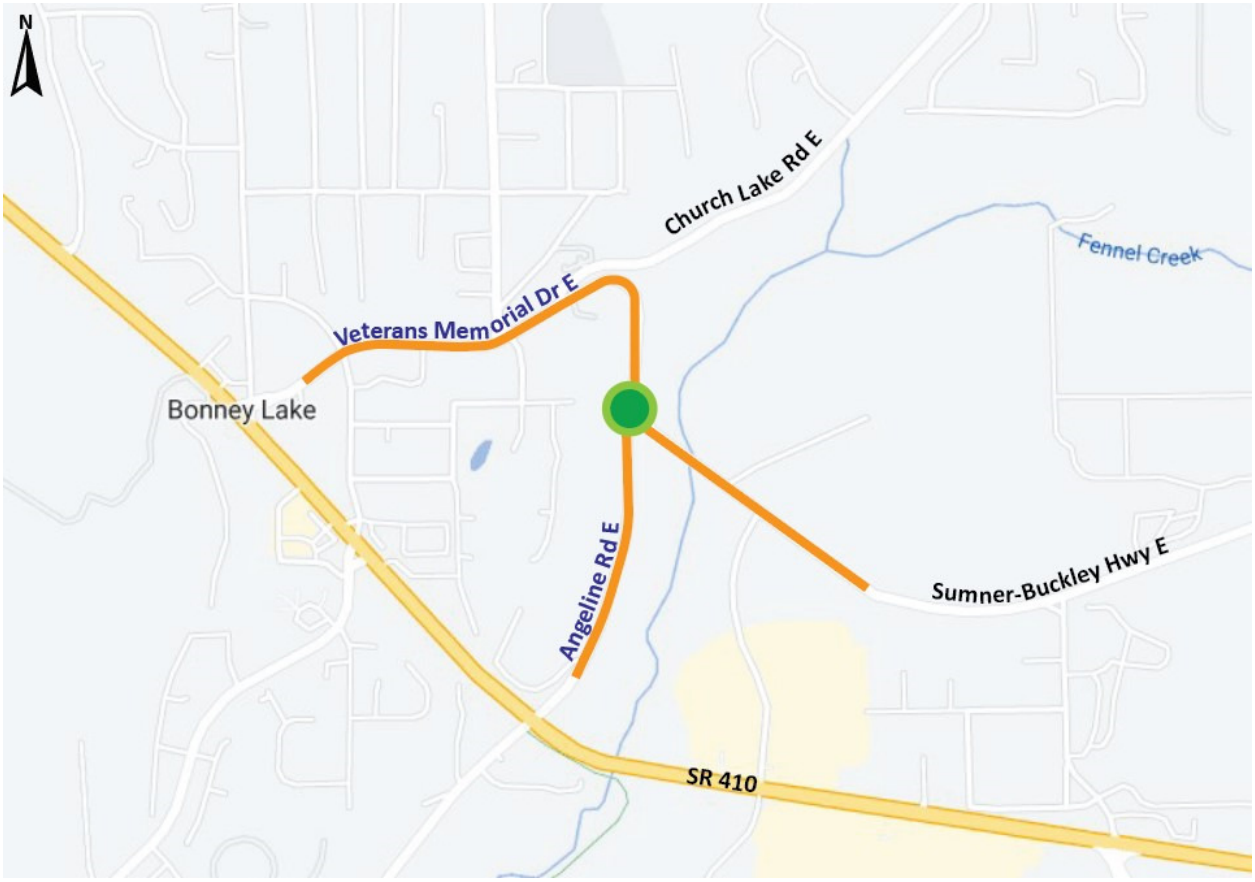
Chapter 3 presents a discussion of future traffic volume projections.

Chapter 4 describes the development and evaluation of No Build and two Build intersection improvement alternatives including right of way and environmental feasibility, cost estimates, context and sustainability elements including multimodal capabilities, maintenance and operational considerations, and geometrics and physical constraints.

Chapter 5 includes a discussion of traffic operational and safety impacts of the No Build and two Build Alternatives.

Chapter 6 outlines study recommendations. This chapter also provides a brief summary of public engagement activities associated with the evaluation of alternatives and selection of a preferred course of action.

Figure 1. Project Vicinity



2 Existing Conditions

2.1 Roadway System

2.1.1 Angeline Road

Angeline Road is a two-lane Minor Collector roadway in the City of Bonney Lake extending from Veterans Memorial Drive/Sumner-Buckley Highway E on the north to Rhodes Lake Road E on the south. There are no bicycle lanes or sidewalks on this road although further south it does provide access to the City's Fennel Creek Trail system. The posted speed limit is 25 miles per hour. Angeline Road is weight restricted to vehicles under 16,000 GVW.

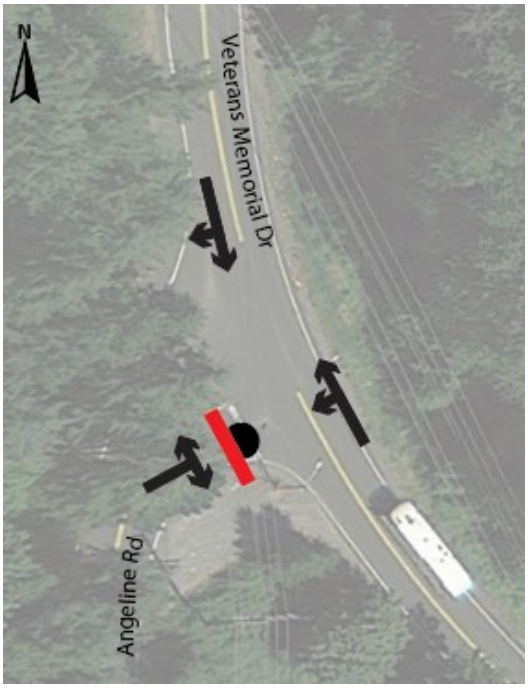
2.1.2 Veterans Memorial Drive/Sumner-Buckley Highway E

This roadway is known as Veterans Memorial Drive to the west of Angeline Road and Sumner-Buckley Highway E to the east. For this report, it will be referred to as Veterans Memorial Drive and provides a single travel lane in each direction. The road is designated by the City of Bonney Lake as a Minor Arterial and extends from SR 410 on the west and the city limits and, ultimately, the city of Buckley on the east. There are no sidewalks or bicycle lanes on this road in the vicinity of Angeline Road. The posted speed limit is 35 miles per hour to the east of Angeline Road, dropping to 25 mph approaching the intersection at the Bonney Lake city limits.

2.1.3 Angeline Road at Veterans Memorial Drive Intersection

The intersection of Angeline Road with Veterans Memorial Drive/Sumner-Buckley Highway E currently operates under stop control for the Angeline Road approach with a single travel lane from which both right and left turns can be made. Single lane approaches are also provided on Veterans Memorial Drive from which left turns can be made in the westbound direction and right turns in the eastbound direction. There are no sidewalks or crosswalks at the intersection which is shown in **Figure 2**.

Figure 2. Angeline Road at Veterans Memorial Drive Intersection



2.2 Traffic Counts

Traffic Count Consultants, TC2, a transportation data collection service, provided both hourly roadway counts on Angeline Road and Veterans Memorial Drive, and PM peak period turning movement counts at the intersection of Angeline Road with Veterans Memorial Drive/Sumner-Buckley Highway E.

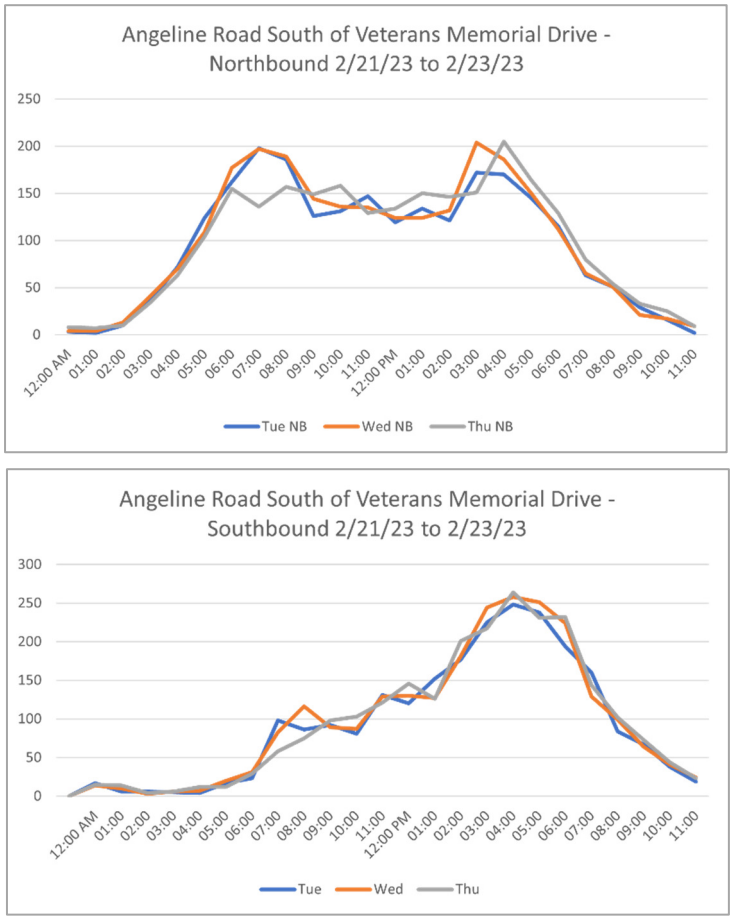
2.2.1 Roadway Counts

Roadway counts were taken on Angeline Road south of Veterans Memorial Drive/Sumner-Buckley Highway E and on Veterans Memorial Drive west of Angeline Road. Detailed information is included in **Appendix A**.

2.2.1.1 Angeline Road

Roadway counts were taken on Angeline Road south of Veterans Memorial Drive/Sumner-Buckley Highway E for a three-day period from midnight on Tuesday February 21, 2023 through midnight on Thursday February 23, 2023. Data was collected at 15-minute intervals for the three-day period and summarized by hour. This data in both northbound and southbound directions is presented in **Figure 3**.

Figure 3. Angeline Road South Veterans Memorial Drive Hourly Traffic Volumes



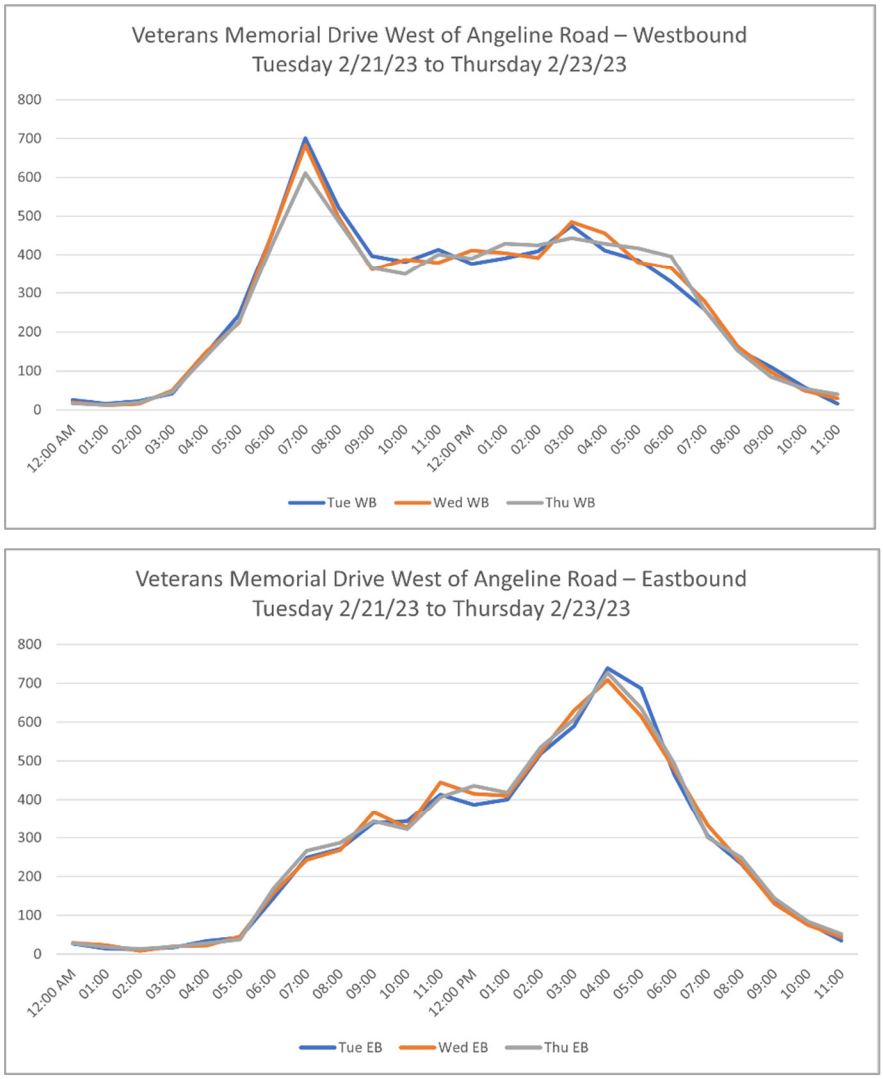
As noted in Figure 3, northbound traffic exhibited two peak periods, one during the morning rush hour and the other during the evening. In the southbound direction, traffic tends to peak during the afternoon and early evening.

Total daily traffic volumes averaged over the three days are just over 4,700 vehicles on Angeline Road. This volume is nearly evenly split between northbound and southbound vehicles with an average of 2,335 northbound and 2,380 southbound. Daily vehicle counts will be used as the basis for analyzing traffic signal warrants, and the feasibility of traffic signal installation.

2.2.1.2 Veterans Memorial Drive

Roadway counts were taken on Veterans Memorial Drive/Sumner-Buckley Highway E west of Angeline Road for a three-day period from midnight on Tuesday February 21, 2023 through midnight on Thursday February 23, 2023 and is presented in **Figure 4**.

Figure 4. Veterans Memorial Drive West of Angeline Road Hourly Traffic Volumes



As both Angeline Road and Veterans Memorial Drive are oriented in a north/south direction discussion of traffic movement on these facilities can be confusing. For purposes of this report, to improve the clarity of discussion, traffic on Veterans Memorial Drive will be referred to as moving with an east/west orientation, while Angeline Road will be referred to as north/south. The reference to an east/west orientation on Veterans Memorial Drive is generally more consistent with its overall orientation across the city.

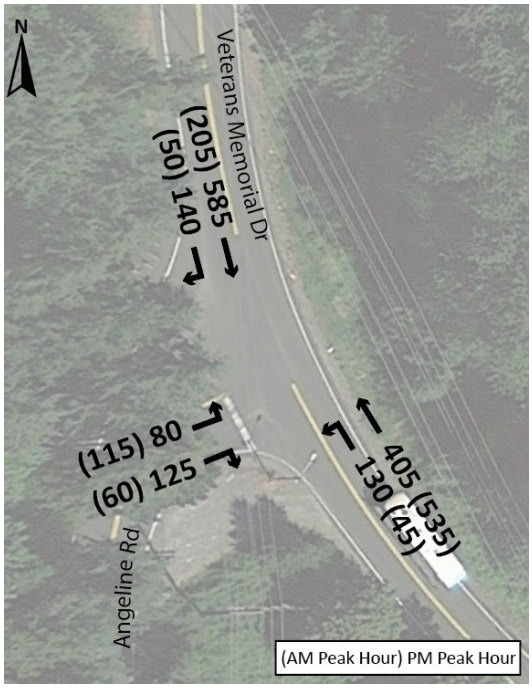
As noted in Figure 4, there were definitive peaks in travel along Veterans Memorial Drive depending on time of day. During the AM peak period, traffic is generally heavier in the westbound direction, while it is heavier in the eastbound direction during the PM peak period.

Total daily traffic volumes averaged over the three days is approximately 13,300 vehicles. This volume is nearly evenly split, with an average of 6,700 in the westbound direction as compared to the average of 6,550 in the eastbound direction.

2.2.2 Turning Movement Counts

Peak hour turning movement counts were obtained for the intersection of Angeline Road and Veterans Memorial Drive to serve as the basis for existing and future operational analysis and the comparison of improvement alternatives. The PM peak hour count was conducted on February 23, 2023 between 4:00 and 6:00 PM, while the AM peak hour count was conducted on April 11, 2023 between 7:00 and 9:00 AM. The highest hour in the AM peak occurred between 7:00 and 8:00 AM, while the PM peak period occurred between 4:00 and 5:00 PM and has been used for intersection operational analysis. The 2023 AM and PM peak hour volumes are shown in **Figure 5**. Detailed turning movement count data is also included in **Appendix A.**

Figure 5. Angeline Road at Veterans Memorial Drive 2023 AM and PM Peak Hour Volumes



The turning movement count also included a record of pedestrian and bicyclist activity at the intersection during the peak periods. The data record indicates that there were no pedestrians or bicyclists observed at the intersection during the AM peak period. During the PM peak period there were no pedestrians and only one bicyclist observed. The bicyclist was observed traveling on Veterans Memorial Drive.

2.3 Intersection Sight Distance

Based on the 35 mph posted travel speed on Veterans Memorial Drive, the intersection of Angeline Road should have an entering sight distance requirement of 335 feet to the west and 390 feet to the east as illustrated in **Figure 6.** The available sight distance exceeds these requirements. Photos of this sight distance are included in **Figure 7**.

Figure 6. Angeline Road at Veterans Memorial Drive Minimum Recommended Sight Distance

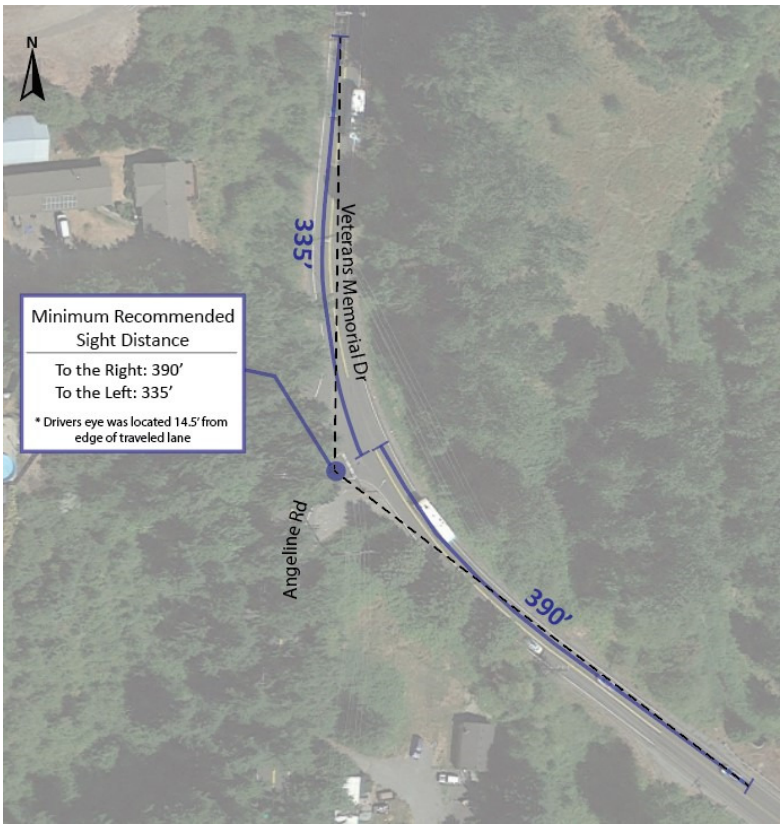


Figure 7. Angeline Road at Veterans Memorial Drive Intersection Sight Distance Photos



Looking West from Angeline Road



Looking East from Angeline Road

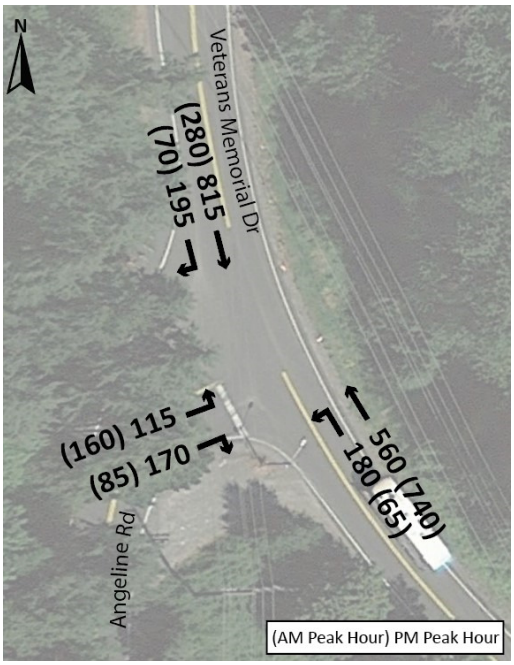
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3 Future Traffic Volumes

Traffic volume projections have been prepared for the planning horizon year of 2049 consistent with the pending update to the City's Community Mobility Plan. 2049 represents 100 years since the city was first incorporated. Projections were based on a review of traffic growth rates obtained from the current Puget Sound Regional Council (PSRC) travel demand model. A 1.5 percent annualized growth rate was assumed.

The projected 2049 AM and PM peak hour traffic volumes for the Angeline Road/Veterans Memorial Drive intersection are shown in **Figure 8**. Worksheets showing the calculation of future year traffic projections are included in **Appendix B**.

Figure 8. Angeline Road at Veterans Memorial Drive 2049 AM and PM Peak Hour Volumes



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4 Intersection Alternatives

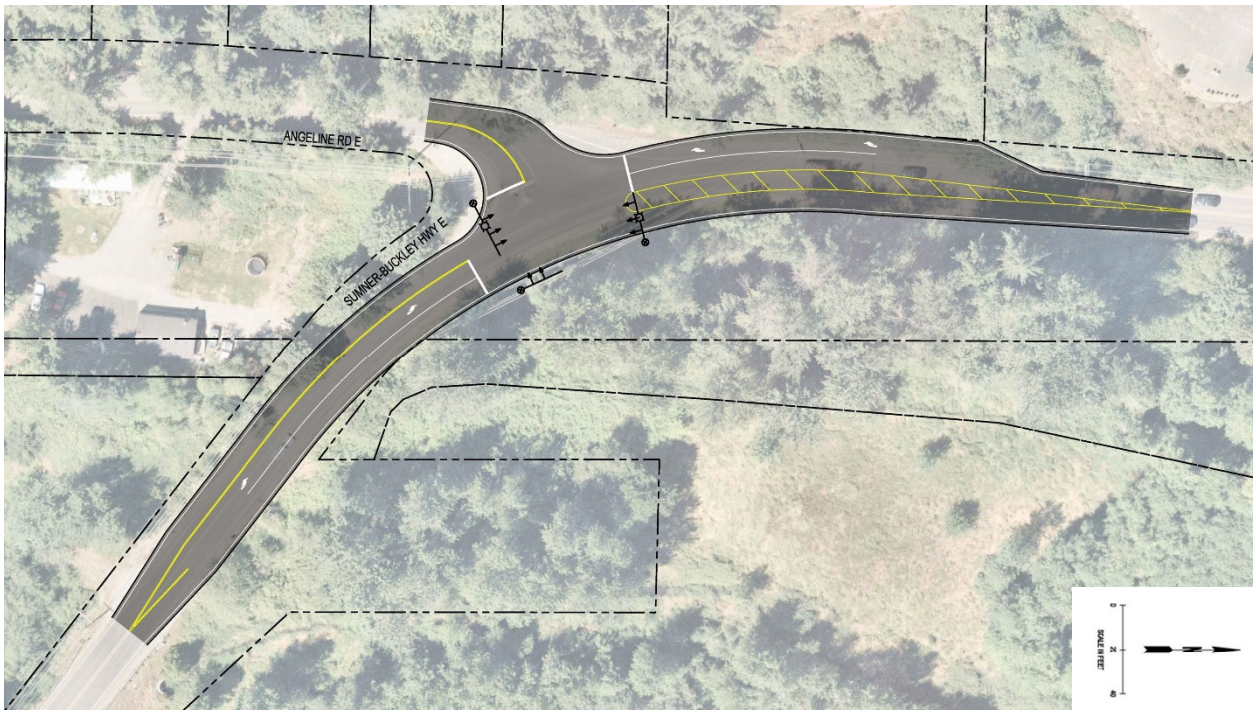
The City's current transportation plan includes a long-range improvement to the intersection of Angeline Road with Veterans Memorial Drive. This improvement would involve installation of a traffic signal, as well as an eastbound right turn lane and a westbound left turn lane at this location. Before advancing this improvement, the city wants to re-evaluate the intersection to confirm the appropriate form of traffic control that should be implemented. Two intersection improvement alternatives have been developed and are described and evaluated in this chapter.

4.1 Identification of Alternatives

Two intersection improvement alternatives have been identified and studied including the addition of traffic signal control with added lane channelization, and single lane roundabout control. Analysis will be conducted at the sketch planning level to determine optimal traffic operations, and to identify footprint and determine how it will impact right of way, environment, and cost.

- *Traffic Signal* –As shown in **Figure 9**, this alternative initially assumes the same channelization as exists today on Angeline Road and adds an eastbound right turn lane and a westbound left turn lane on Veterans Memorial Drive as options to be tested. Should the traffic signal operate poorly additional channelization will be considered such as separate right and left turn lanes on Angeline Road.

Figure 9. Angeline Road at Veterans Memorial Drive - Traffic Signal Alternative



- *Roundabout* – As shown in **Figure 10**, this alternative would involve construction of a three-leg roundabout that provides a single lane approach on all intersection legs.

Figure 10. Angeline Road at Veterans Memorial Drive - Roundabout Alternative



4.2 Feasibility

4.2.1 Right of Way

As assessment of the right of way needs for each improvement option has been conducted. It should be noted that there may be additional right of way needs for either option to accommodate multimodal facilities.

4.2.1.1 Alternative 1 – Traffic Signal

As shown in Figure 9, Alternative 1 largely uses the existing intersection footprint, but is expected to need a minor acquisition of right of way as part of a retaining wall structure to facilitate the eastbound right turn lane on Veterans Memorial Drive.

4.2.1.2 Alternative 2 – Roundabout

As shown in Figure 8, Alternative 2 could be accommodated within the existing available right of way. It should be noted that there is a potential wetland to the east of Angeline Road at the intersection which

may require buffering. The scope and magnitude of such buffering are unknown at this time. A small amount of right of way would be required with the addition of a regional trail through the project area.

4.2.2 Environmental

4.2.2.1 Alternative 1 – Signal

Alternative 1 largely uses the existing intersection footprint and right of way and is not expected to have any adverse environmental impacts that can be foreseen at this time.

4.2.2.2 Alternative 2 – Roundabout

The location of a potential wetland to the east of the intersection may require buffering to avoid or minimize any potential environmental impacts. The need for, scope and magnitude of these buffers will be determined during project design.

4.2.3 Cost Estimate

A planning level cost estimate has been prepared for each intersection alternative to assist in the selection of the recommended improvement.

4.2.3.1 Alternative 1 – Signal

The estimated cost for this alternative would be $1,954,700. With the addition of a proposed multimodal path connecting this intersection with Locust Street to the west and the Fennel Creek Trail to the east, the cost of this alternative would increase to $5,854,700. Details of the planning level cost estimate are included in **Appendix C**. Some right of way acquisition would be required with this alternative.

4.2.3.2 Alternative 2 – Roundabout

The initial estimated cost for this alternative would be $2,026,700 which is very comparable to the traffic signal alternative. Details of the planning level cost estimate are included in **Appendix C**. Further consideration of multimodal improvements in the vicinity of this intersection has resulted in an increase in total project cost to $6,169,300. The multimodal elements are further described in Section 4.3.1. The city has successfully pursued a federal grant fund for this project which would provide the necessary resources for the added improvements. The cost estimate is also included in Appendix C.

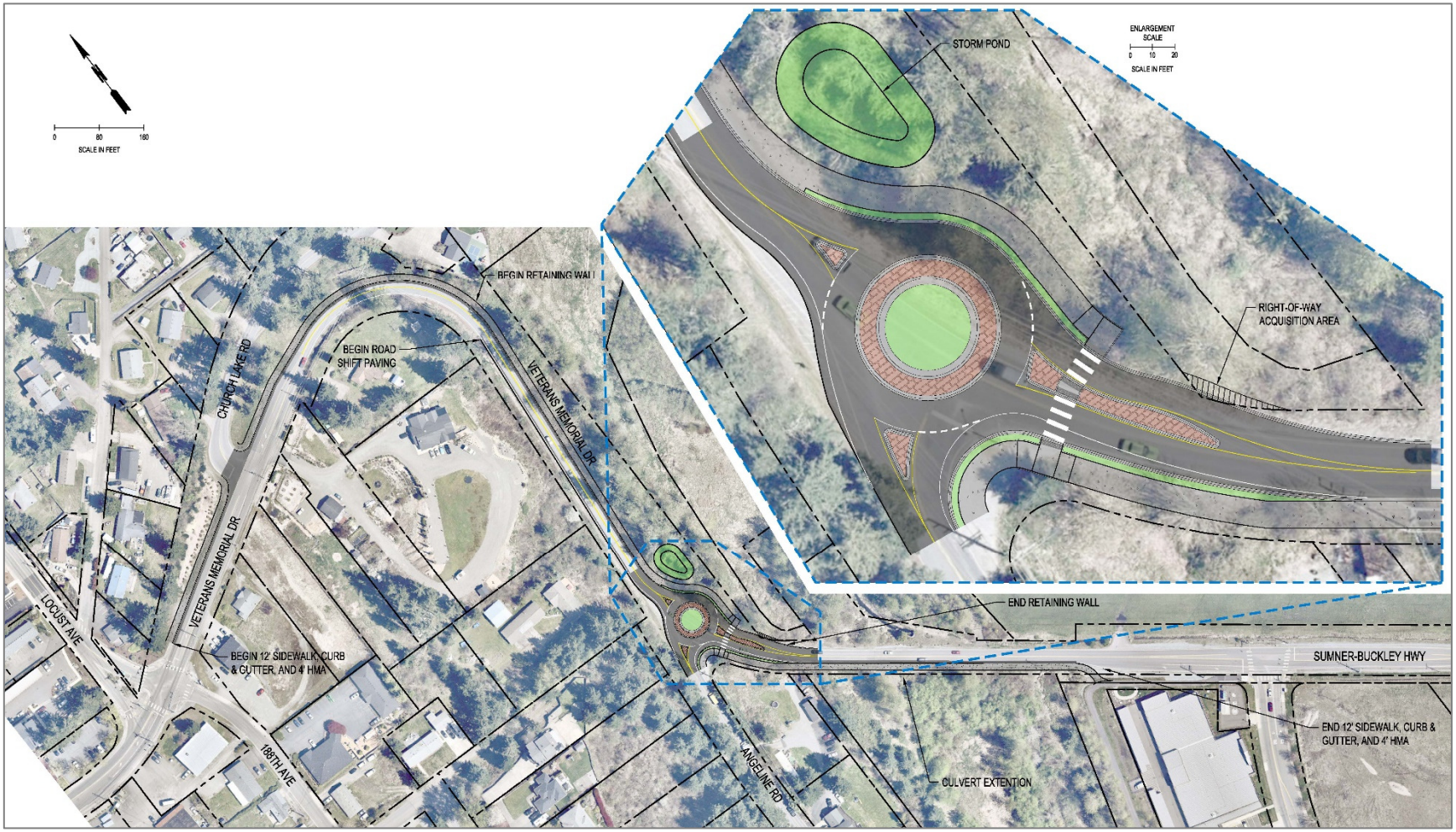
4.3 Context and Sustainability

4.3.1 Multimodal Capabilities

No bicycle or pedestrian facilities currently exist at the intersection or within reasonable distance from the intersection on the approach legs. Roadway shoulders are minimal or non-existent. The roundabout alternative includes not only improved bicycle and pedestrian facilities in the form of a 12-foot shared use path through the intersection but also includes extension of this path west to the intersection with Locust Street and east to the Fennel Creek trail near the intersection with 192nd Avenue. **Figure 11** illustrates both the roundabout improvement at the intersection of Angeline Road with Veterans Memorial Drive and the entire length of the proposed shared use path.

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Figure 11. Angeline Road at Veterans Memorial Drive – Roundabout with Shared Use Path



4.3.2 Maintenance and Sustainability

4.3.2.1 Alternative 1: Signals

Signalized intersections require continual maintenance and engineering for optimal operations. Consideration should be given to the installation of signals, lighting, and cabinets outside of the roadway clear zone but in areas that are reasonably accessible for long-term sustainability and safety.

4.3.2.2 Alternative 2: Roundabouts

Roundabouts are relatively easy to maintain depending on specific design features such as pavement type, traffic island materials, the placement of signing and lighting, pedestrian crossings and bicycle access, drainable locations, and curbs. The use of hardscape splitter islands would require less maintenance than vegetated islands over the long term. Vegetated center islands would also require greater on-going maintenance. Sustainably, the roundabout option eliminates the hardware, maintenance and electrical costs that are associated with a traffic signal.

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5 Traffic Operations and Safety

Using the existing and future 2049 peak hour traffic volumes, traffic operations and safety was evaluated at the study intersection assuming installation of a roundabout or a traffic signal.

5.1 Traffic Operations Analysis

Motor vehicle operations were evaluated by conducting traffic analysis and identifying deficiencies for AM and PM peak hours in the 2023 base year and 2049 design analysis year. According to the requirements identified in the City's 2015 *Comprehensive Plan, Community Mobility Element*, traffic performance at intersections must meet mobility targets that are comprised of both delay-based intersection levels of service and volume-to-capacity ratio for key movements.

5.1.1 Performance Targets

5.1.1.1 Levels of Service

The acknowledged source for determining operating performance for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB).

Intersection analysis was performed using the Synchro/SimTraffic software package (version 11). This software implements the methods of the 6th Edition HCM. The analysis for the scenario with roundabout control was performed using the SIDRA software package (version 9.0). Operations analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a street or highway during a specific time interval. As described in **Table 1**, LOS ranges from A (very little delay) to F (long delays and congestion).

The City of Bonney Lake has adopted a minimum LOS D standard for this intersection. Any transportation facility that functions below the adopted standard would be considered as failing. For intersections under minor street stop sign control, the intersection LOS of the most difficult movement (typically the minor street left turn) represents the intersection level of service.

Table 1. Level of Service Criteria based on Average Vehicle Delay

Level of Service	Signalized and Roundabout Intersection Average Control Delay (seconds/vehicle)	Stop-Controlled or Roundabout Intersection Average Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Highway Capacity Manual, 6th Edition, 2016.

5.1.1.2 Volume-to-Capacity Ratios

The Bonney Lake *Community Mobility Plan* identifies the need for an additional performance standard beyond delay-based LOS. This additional standard requires that all signalized intersections have a volume-to-capacity ratio for each of the individual legs of the intersection that does not exceed 1.0. The V/C is determined by the actual number of vehicles on the roadway as compared to the capacity of the roadway. **Table 2** correlates v/c ratios to qualitative levels of service.

Table 2. Level of Service Criteria for Arterials based on Volume-to-Capacity Ratios

Level of Service	V/C Ratio	Description
A	0.00 to 0.60	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.
B	0.61 to 0.70	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.
C	0.71 to 0.80	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.
D	0.81 to 0.90	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	0.91 to 1.00	Operations with significant intersection approach delays and low average speeds.
F	Greater Than 1.00	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.

5.1.2 Intersection Operational Analysis

For intersections under minor street stop-control, the LOS of the most difficult movement (typically the minor street left-turn) represents the intersection Level of Service for purposes of assessing potential impacts. For traffic signals and roundabouts, the intersection average delay is used to assess potential impacts. The following table shows the Level of Service criteria for stop-controlled and roundabout intersections and for signalized intersections.

The analysis was conducted for the AM and PM peak hours for existing 2023 traffic volumes, 2049 traffic volumes with no improvement and 2049 traffic volumes for each improvement alternative. The operational analysis results are provided in **Table 3.**

As noted in the table, traffic congestion during the PM peak hour is substantially worse than the AM peak hour even though the AM hourly volume data in Figures 3 and 4 appears to be at least comparable to the PM. The difference in traffic performance appears to lie in the directionality of traffic and the critical movements that occur during each time period.

Existing 2023 PM peak hour traffic is currently operating at LOS F with over 80 seconds of average delay and a northbound 95th percentile queue on Angeline Road in excess of 350 feet. The vehicle queuing analysis was conducted using the SimTraffic simulation tool included in the Synchro software package. The analysis shows the average of five simulations, providing the 95th percentile queue, which is the

peak typical queue experienced, excluding the highest five percent of occurrences. The 95th percentile queue is a useful parameter for determining the appropriate length of turn pockets but is not typical of what the average driver would experience.

Table 3. Peak Hour Level of Service

	AM Peak Hour			PM Peak Hour		
	Traffic Performance		95th Percentile Queues (in feet)	Traffic Performance		95th Percentile Queues (in feet)
Concepts Evaluated	**LOS (Delay)**	**V/C**	**Longest Queue (approach)**	**LOS (Delay)**	**V/C**	**Longest Queue (approach)**
2023 Existing Conditions	D (26.4)[3]	0.54[3]	95' (NB)[1]	**F (81.7)**[3]	0.91[3]	365' (NB)[1]
2049 No Improvement	**F (131.9)**[3]	**1.10**[3]	295' (NB)[1]	**F (>200)**[2]	**3.13**[2]	**1,830' (WB)[2]**
2049 Traffic Signal						
#1 - Existing Channelization	A (8.8)	0.77[3]	310' (WB)[2]	**E (66.6)**	**1.35**[3]	**>2,000' (WB)[2]**
#2 – Add WB Left on Sumner-Buckley Hwy E	B (10.3)	0.76[4]	225' (WB)[2]	D (45.4)	1.00[4]	**1,060' (WB)[2]**
#3 - #2 plus EB Right on Veterans Memorial Drive	B (10.0)	0.76[4]	225' (WB)[2]	C (23.8)	0.89[4]	575' (WB)[2]
2049 Roundabout	A (6.0)	0.67	160' (NB)[1]	A (8.1)	0.84	355' (EB)[5]

Note: Queuing distances are rounded to the nearest five feet.
1 Queue is on Angeline Road
2 Queue is on Sumner/Buckley Highway E
3 LOS or V/C is for the worst movement which is on northbound Angeline Road
4 LOS or V/C is for the worst movement which is on westbound Sumner-Buckley Highway E
5 LOS or V/C is for the worst movement which is on eastbound Veterans Memorial Drive

By the 2049 PM peak hour, operations with the existing channelization and traffic control would drop substantially to more than 200 seconds of average delay with a V/C ratio of 3.13. The westbound traffic queue on Sumner-Buckley Highway E would be over 1,800 feet in length or over 1/3 of a mile.

Three options for signalization that included differing lane channelization at the intersection were evaluated to determine what would be the most effective solution. The options included:

- *Option #1* – Install a signal but retain existing lane channelization which functionally includes a single lane on each approach.
- *Option #2* – Install a signal and add a westbound left turn lane on Sumner-Buckley Highway E for traffic heading to southbound Angeline Road.
- *Option #3* – Install a signal and both a westbound left turn lane and an eastbound right turn lane on Veterans Memorial Drive.

As shown in Table 3, Option #1 does not provide an acceptable level of service and would experience excessive queuing on Sumner-Buckley Highway E heading into the intersection. With the addition of a westbound left turn lane in Option #2, overall operations would improve the LOS but the Sumner-Buckley Highway E approach would experience a V/C ratio of 1.00 with over 1,000 feet of expected traffic queuing.

Option #3 provides the best overall PM peak hour performance of the signalized options with LOS C and less than 600 of peak queuing. It will be necessary to consider the physical space required for this improvement in light of existing constraints, as well as cost and potential environmental impacts before a decision can be made to accept this scenario.

The roundabout option would only require a single lane approach in each direction but would offer LOS A operations for both the AM and PM peak hours in 2049 with the longest 95th percentile queue being about 350 feet (on Veterans Memorial Drive heading eastbound into the intersection).

Detailed results of the operational analyses are attached as **Appendix D**.

5.1.3 Signal Warrant Analysis

Table 4 presents a summary of the peak hour, peak 4-hour and peak 8-hour signal warrant analysis for the Angeline Road/Veterans Memorial Drive intersection. As indicated in the table and based on the single lane approaches to this intersection, all warrants would be met. The percentage of peak 4-hour volumes is 79 percent, while the percentage of 8-hour volumes is 69 percent. Graphics illustrating the peak and 4-hour warrant analysis are included in Appendix D.

Table 4. Signal Warrant Analysis

	2023 Volumes			Warrant 1: 8-Hour Vehicular Volume		Warrant 2: 4-Hour Vehicular Volume	Warrant 3: Peak Hour Vehicular Volume
Roadway	**Peak Hour (VPH)**	**4th Hour (VPH)**	**8th Hour (VPH)**	**Condition A Minimum Volume**	**Condition B Minimum Volume**		
Veterans Memorial Drive							
Total Both Approaches	1260	995	869	**500**	**750**	**See Figure 4C-1 – Appendix D**	**See Figure 4C-3 – Appendix D**
Angeline Road							
Southbound	0	0	0				
Northbound	204	161	141	**150**	**75**	**See Figure 4C-1**	**See Figure 4C-3**
Minimum Volume Warrants Satisfied:				**No**	**Yes**	**Yes**	**Yes**

5.2 Safety Analysis

Study intersection safety was assessed through crash data and to identify deficiencies. The data was reviewed to identify potential patterns for motor vehicle, pedestrian, and bicyclist crashes. The Washington Department of Transportation (WSDOT) provides crash data for study area roadways. The data was collected over the five-year span between January 1, 2017 and December 31, 2021 and is presented in **Table 5**.

During this five-year period there were 24 total crashes reported at the study intersection, with eight possible or suspected minor injuries. Of these 24 crashes, eight involved entering at an angle, seven

were rear end collisions and five involved "other" types of crashes such as hitting a fixed object, going off the edge of the embankment adjacent to the intersection where there is no guardrail, or hitting a stopped vehicle while traveling in opposite directions. There were also two crashes each involving sideswiping or turning vehicles. There were no bicycle or pedestrian crashes reported at the intersection over the five year analysis period (2017-2021).

Table 5. Angeline/Veterans Memorial Crash Data by Type and Severity (2017-2021)

Description	Fatal/Serious (crashes)	Fatal/All Injury (crashes)	Property Damage Only	Unknown	Total (crashes)
Entering at Angle	0	2	6	0	8
Rear-end	0	3	4	0	7
Other (fixed object, over embankment, hit stopped vehicle)	0	1	3	1	5
Sideswipe	0	1	1	0	2
Turn	0	1	1	0	2
Total	**0**	**8**	**15**	**1**	**24**

The Federal Highway Administration's Crash Modification Factors Clearinghouse maintains and publishes information about the effectiveness of various transportation improvements (or crash countermeasures[1]) in reducing crash incidence and/or severity. Crash Modification Factors (CMFs) provide research-based data that indicate the proportion of crashes that would be expected to change after implementation of a crash countermeasure such as a signal or a roundabout. CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected.

The following sections present information about the safety-related pros and cons for the intersection improvement alternatives under consideration at the Angeline Road/Veterans Memorial Drive intersection. Detailed crash data and crash analysis results are included in **Appendix E**.

[1] Crash countermeasures are actions taken to reduce the danger or threat of a particular type of crash. The effectiveness of various countermeasures are identified through various Crash Modification Factors (CMFs) that indicate the proportion of crashes that would be expected to change after implementation of a countermeasure. FHWA provides an extensive database of CMFs in its online Crash Modification Factors Clearinghouse.

CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected. For example, if a stop-controlled intersection experienced 5.2 crashes per year over the analysis period and traffic signal installation was considered. The CMF for installing a traffic signal was .56 for all crashes, the expected total crashes after signal installation would be 5.2 X 0.56 = 2.9 total crashes per year or a reduction of 44 percent.

5.2.1 Signal Alternative

Based on CMF research for a three-legged urban intersection (CMF #316), a 14 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from stop control to a signal. This would apply to injury or fatal crashes resulting from all types of collisions, reducing the expected number of these crashes from an observed 1.6 per year to an average of 1.4 crashes per year. It should be noted that this reduction is an average for the intersection and a more detailed review would indicate that an increase should be anticipated in rear end crashes with this CMF. This increase may effectively negate the safety value of signalization.

However, to further enhance the effectiveness of signal installation, additional complementary countermeasures can be implemented in conjunction with signals to reduce crashes. These include retroreflective backplates on signal heads, leading pedestrian intervals (LPI), lighting, and yellow change intervals. The retroreflective backplates, lighting and yellow change intervals should be implemented at this intersection. LPI may not be needed because of the low pedestrian volume and lack of pedestrian crash history at the intersections. This could be reevaluated in the future if needed.

5.2.2 Roundabout Alternative

Based on CMF research for an urban intersection (CMF #210), an 88 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from stop control to a single lane roundabout. This would apply to injury or fatal crashes resulting from all types of collisions reducing the expected number of these crashes from an observed 1.6 per year to an average of about 0.2 per year. When evaluating the safety effect of converting a stop sign to a multi-lane roundabout (using CMR #4297) existing injury crashes are expected to be reduced to an average of 0.6 crashes per year. In both instances, a substantial crash reduction benefit could be realized with implementation of a roundabout.

Roundabouts are considered by FHWA to be a Proven Safety Countermeasure because of their many safety benefits. Roundabouts reduce the number of conflict points between vehicles from nine conflict points at traditional three-leg intersections to six conflict points at roundabouts. The roundabout geometry also eliminates right angle and left turn crashes which are associated with higher severity crashes. The low speeds associated with roundabouts also allow drivers more time to react to potential conflicts and crash severity can be reduced compared to traditionally controlled intersections which helps to improve the safety performance of roundabouts.

In addition to vehicle-vehicle safety, roundabouts can improve safety for pedestrians as well. The pedestrian only needs to cross one direction of traffic at a time and addition countermeasures such as flashing beacons or added illumination could further enhance pedestrian safety.

6 Summary and Recommendations

This chapter presents a summary of the public engagement activities that have been undertaken in conjunction with this project leading to the specific recommendations that are presented below.

6.1 Public Engagement Activities

Public engagement for the project has focused on a presentation and work session with the Bonney Lake Planning Commission at a meeting on December 6, 2023. After much discussion of the two alternatives, the recommendation for installing a single lane roundabout including a shared use pathway to/from and through the intersection was endorsed by the Planning Commission.

6.2 Comparison of Roundabouts and Signals

There are a variety of benefits associated with roundabouts but they may require greater costs and need more right of way than a signalized intersection. **Table 6** lists some of the basic pros and cons of roundabouts in comparison with traffic signals.

Table 6. Comparison of Roundabout and Signalized Intersection Alternatives

	Roundabout	***Signal***
Operations	• Single lane roundabout would provide LOS A service through 2049 in AM and PM peak hour with queues of less than 400 feet. • Cannot provide explicit priority to specific users (e.g., emergency vehicles, transit, pedestrians) unless supplemental traffic control devices are provided.	• Signal with EB left and WB right would provide LOS B in 2049 AM peak hour and LOS C in 2049 PM peak hour. • Signal warrants would be met with 2023 volumes.
Safety	• Crash reduction of 88 percent predicted based on FHWA Crash Modification Factors (CMF) research. • Fewer injury crashes[1] resulting from fewer conflict points for single lane roundabouts • Reduced severity (lower speeds) • Adequate sight distance can be provided.	• Crash reduction of 14 percent predicted based on FHWA CMF research. • Increase in rear end crashes compared to other intersection treatments. • Adequate sight distance can be provided.
Cost	• Initial construction cost estimated at $2,026,700 • Lower operating and maintenance costs resulting from no ongoing traffic signal maintenance • May need to maintain landscaping	• Construction cost estimated at $1,954,700 • Requires continual maintenance and engineering for optimal operations • Would require a small right of way acquisition
Construction	• Traffic control during construction can be more complicated	• Construction traffic management may be less complicated than roundabout.
Environmental Factors	• May require buffering from nearby potential wetland. • Noise, air quality impacts, and fuel consumption may be reduced. • Little stopping during off-peak periods.	• Uses existing intersection footprint and is not expected to have adverse environmental impacts.

1 FHWA, NCHRP Report 672*, Roundabouts: An Informational Guide: Second Edition*, 2010, page 2-12

As noted in Table 6, the single lane roundabout would provide superior traffic operations over the long-term, operating at LOS A compared to LOS B and C with the multi-lane signal option. In terms of overall safety for vehicles and pedestrians, roundabouts operate with fewer conflict points and lower speeds than traffic signals and have been shown to experience fewer crashes. In addition, roundabouts effectively calm traffic using physical roadway design to reduce vehicle speeds rather than relying solely on signage or control devices.

The cost difference between the two alternatives is relative low with the roundabout estimated to be about $72,000 more expensive than the signal. Roundabouts typically have lower operational and maintenance costs overtime as there is no electronic equipment to maintain and upgrade. The roundabout may affect a nearby wetland in order to accommodate the detention pond and may require buffering. This need would be further determined during the design process.

6.3 Recommendations

Based on the foregoing analysis, the roundabout alternative was selected as the preferred alternative for the intersection of Angeline Road with Veterans Memorial Drive. Subsequent to this decision, the City of Bonney Lake incorporated a shared use path through the intersection and connected it to Locust Street on the west and the Fennel Creek trail west of 192nd Avenue on the east. The entire package of intersection and pathway improvements was submitted to Puget Sound Regional Council in what became a successful, competitive grant application for federal funding of right of way acquisition and design. Total cost of the project including the shared use pathway was estimated at $6,169,300.

Appendix A

Traffic Counts

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

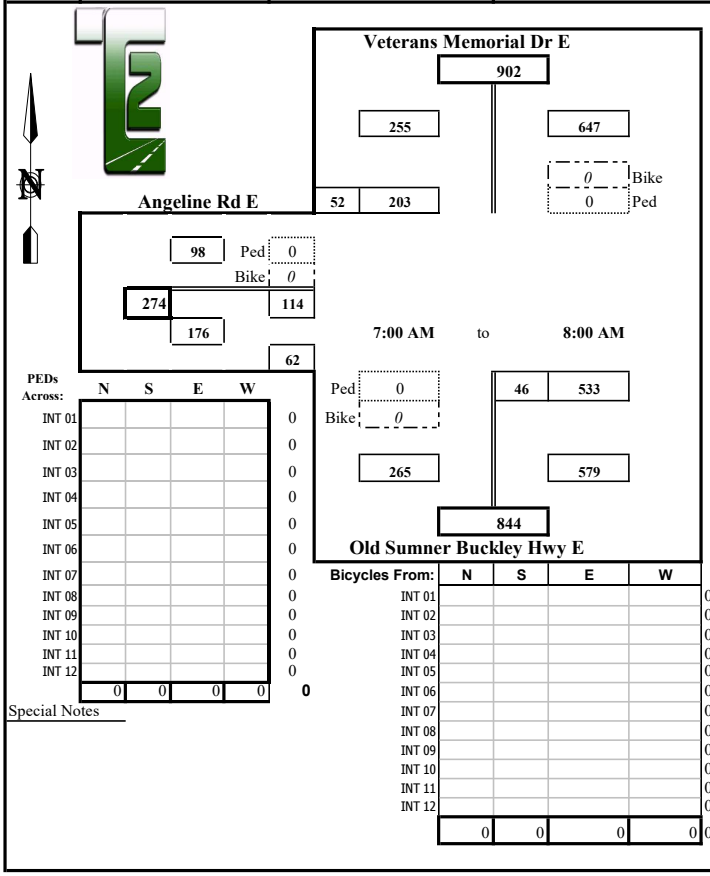
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Veterans Memorial Dr E/Old Sumner Buckly Hwy E & Angeline Rd E **Date of Count:** Tue 04/11/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) Veterans Memorial Dr E				From South on (NB) Old Sumner Buckley Hwy E				From East on (WB) 0				From West on (EB) Angeline Rd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	59	9	0	5	132	0	0	0	0	0	1	40	0	12	257
7:30 A	0	0	48	16	0	12	141	0	0	0	0	0	0	25	0	16	258
7:45 A	0	0	42	11	3	18	166	0	0	0	0	0	1	22	0	18	277
8:00 A	1	0	54	16	1	11	94	0	0	0	0	0	1	27	0	16	218
8:15 A	1	0	65	13	0	13	101	0	0	0	0	0	0	34	0	17	243
8:30 A	1	0	67	13	1	8	84	0	0	0	0	0	1	21	0	9	202
8:45 A	0	0	58	10	1	10	98	0	0	0	0	0	0	30	0	16	222
9:00 A	5	0	102	17	1	9	82	0	0	0	0	0	1	30	0	13	253
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	0	495	105	7	86	898	0	0	0	0	0	5	229	0	117	1930
	Peak Hour: 7:00 AM to 8:00 AM																
Total	1	0	203	52	4	46	533	0	0	0	0	0	3	114	0	62	1010
Approach	255				579				0				176				1010
%HV	0.4%				0.7%				n/a				1.7%				0.8%
PHF	0.91				0.79				n/a				0.85				0.91



1108 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.85	1.7%
Check	WB	n/a	n/a
In: 1010	NB	0.79	0.7%
Out: 1010	SB	0.91	0.4%
	T Int.	0.91	0.8%

Conditions:

Special Notes

SCJ23015TM_41A

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

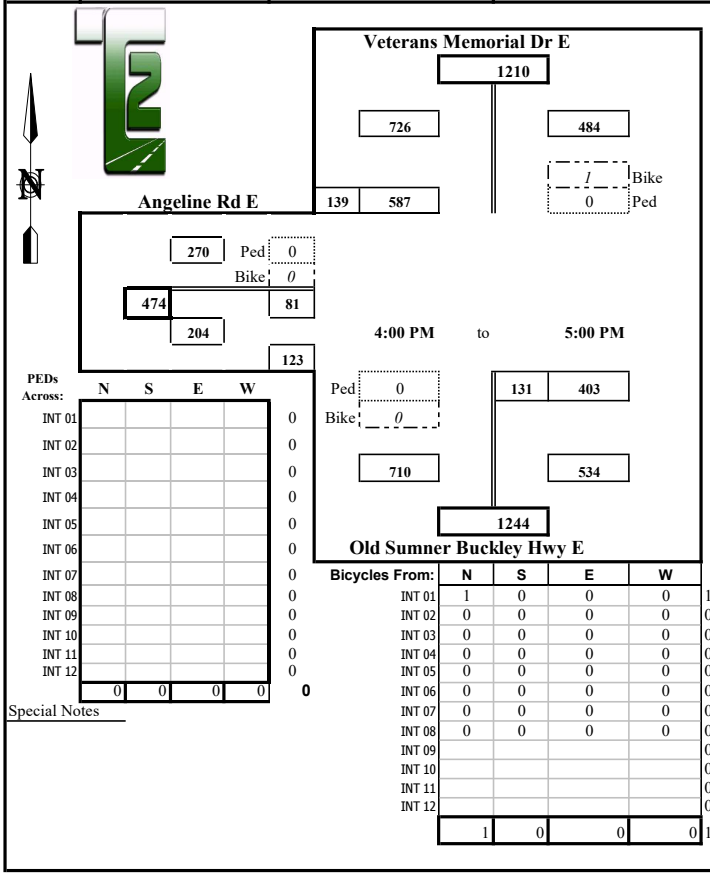
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Veterans Memorial Dr E/Old Sumner Buckley Hwy E & Angeline Rd E **Date of Count:** Thu 02/23/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) Veterans Memorial Dr E				From South on (NB) Old Sumner Buckley Hwy E				From East on (WB) 0				From West on (EB) Angeline Rd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	160	43	1	31	91	0	0	0	0	0	0	21	0	25	371
4:30 P	3	0	154	31	0	30	95	0	0	0	0	0	0	21	0	28	359
4:45 P	1	0	134	36	2	33	100	0	0	0	0	0	0	17	0	35	355
5:00 P	2	0	139	29	3	37	117	0	0	0	0	0	0	22	0	35	379
5:15 P	0	0	137	25	0	36	103	0	0	0	0	0	0	10	0	26	337
5:30 P	0	0	122	28	0	29	92	0	0	0	0	0	0	12	0	30	313
5:45 P	0	0	126	25	0	30	81	0	0	0	0	0	0	14	0	35	311
6:00 P	0	0	104	25	0	21	68	0	0	0	0	0	0	15	0	20	253
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	0	1076	242	6	247	747	0	0	0	0	0	0	132	0	234	2678
	Peak Hour: 4:00 PM to 5:00 PM																
Total	8	0	587	139	6	131	403	0	0	0	0	0	0	81	0	123	1464
Approach	726				534				0				204				1464
%HV	1.1%				1.1%				n/a				n/a				1.0%
PHF	0.89				0.87				n/a				0.89				0.97



1516 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.89	n/a
Check	WB	n/a	n/a
In: 1464	NB	0.87	1.1%
Out: 1464	SB	0.89	1.1%
	T Int.	0.97	1.0%

Conditions:

PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:

	N	S	E	W	
INT 01	1	0	0	0	1
INT 02	0	0	0	0	0
INT 03	0	0	0	0	0
INT 04	0	0	0	0	0
INT 05	0	0	0	0	0
INT 06	0	0	0	0	0
INT 07	0	0	0	0	0
INT 08	0	0	0	0	0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Special Notes

SCJ23015TM_41P

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BONNEY LAKE, WASHINGTON
VETERANS MEMORIAL DR E N/O
SUMNER BUCKLEY HWY E
LOC# 19 V SCJ23015TM

Site Code: 19

Date Start: 07-Mar-23
Date End: 09-Mar-23

Start	06-Mar-23		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	26	27	20	29	17	28	*	*	*	*	*	*	21	28
01:00	*	*	16	15	12	23	13	18	*	*	*	*	*	*	14	19
02:00	*	*	23	13	16	9	19	14	*	*	*	*	*	*	19	12
03:00	*	*	42	17	50	20	46	19	*	*	*	*	*	*	46	19
04:00	*	*	144	34	148	22	137	28	*	*	*	*	*	*	143	28
05:00	*	*	244	43	223	46	226	38	*	*	*	*	*	*	231	42
06:00	*	*	454	145	456	158	426	169	*	*	*	*	*	*	445	157
07:00	*	*	**701**	249	**683**	243	**611**	266	*	*	*	*	*	*	**665**	253
08:00	*	*	523	271	497	268	487	287	*	*	*	*	*	*	502	275
09:00	*	*	397	339	361	366	365	343	*	*	*	*	*	*	374	349
10:00	*	*	381	343	387	326	349	322	*	*	*	*	*	*	372	330
11:00	*	*	413	**414**	379	**445**	401	**407**	*	*	*	*	*	*	398	**422**
12:00 PM	*	*	376	387	411	415	390	436	*	*	*	*	*	*	392	413
01:00	*	*	391	401	404	411	429	418	*	*	*	*	*	*	408	410
02:00	*	*	409	518	392	522	425	535	*	*	*	*	*	*	409	525
03:00	*	*	**475**	590	**485**	630	**443**	608	*	*	*	*	*	*	**468**	609
04:00	*	*	411	**739**	456	**709**	429	**727**	*	*	*	*	*	*	432	**725**
05:00	*	*	386	687	380	615	417	636	*	*	*	*	*	*	394	646
06:00	*	*	329	465	365	479	396	493	*	*	*	*	*	*	363	479
07:00	*	*	258	305	279	332	258	301	*	*	*	*	*	*	265	313
08:00	*	*	155	233	163	235	153	249	*	*	*	*	*	*	157	239
09:00	*	*	110	132	97	130	85	144	*	*	*	*	*	*	97	135
10:00	*	*	59	80	50	75	55	84	*	*	*	*	*	*	55	80
11:00	*	*	16	35	30	44	40	52	*	*	*	*	*	*	29	44
Lane	0	0	6739	6482	6744	6552	6617	6622	0	0	0	0	0	0	6699	6552
Day	0		13221		13296		13239		0		0		0		13251	
AM Peak	-	-	07:00	11:00	07:00	11:00	07:00	11:00	-	-	-	-	-	-	07:00	11:00
Vol.	-	-	701	414	683	445	611	407	-	-	-	-	-	-	665	422
PM Peak	-	-	15:00	16:00	15:00	16:00	15:00	16:00	-	-	-	-	-	-	15:00	16:00
Vol.	-	-	475	739	485	709	443	727	-	-	-	-	-	-	468	725

Comb. Total	0	13221	13296	13239	0	0	0	13251
ADT	ADT 13,252	AADT 13,252						

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BONNEY LAKE, WASHINGTON
VETERANS MEMORIAL DR E N/O
SUMNER BUCKLEY HWY E
LOC# 19 V SCJ23015TM

Site Code: 19

Date Start: 07-Mar-23
Date End: 09-Mar-23

Start Time	07-Mar-23 Tue	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	100			10	90				
12:15		6	102			2	90				
12:30		4	86			6	97				
12:45		8	88	26	376	9	110	27	387	53	763
01:00		4	89			2	78				
01:15		6	103			2	91				
01:30		6	101			7	116				
01:45		0	98	16	391	4	116	15	401	31	792
02:00		10	109			7	119				
02:15		5	105			2	100				
02:30		3	107			2	148				
02:45		5	88	23	409	2	151	13	518	36	927
03:00		4	124			2	141				
03:15		10	116			2	147				
03:30		10	120			7	142				
03:45		18	115	42	475	6	160	17	590	59	1065
04:00		22	94			6	210				
04:15		25	105			7	191				
04:30		44	104			8	158				
04:45		53	108	144	411	13	180	34	739	178	1150
05:00		50	110			8	190				
05:15		50	98			8	164				
05:30		74	84			9	190				
05:45		70	94	244	386	18	143	43	687	287	1073
06:00		76	79			21	148				
06:15		105	106			32	114				
06:30		115	60			42	112				
06:45		158	84	454	329	50	91	145	465	599	794
07:00		176	78			72	78				
07:15		193	77			65	76				
07:30		196	60			52	73				
07:45		136	43	701	258	60	78	249	305	950	563
08:00		124	47			49	71				
08:15		133	48			58	58				
08:30		130	34			74	50				
08:45		136	26	523	155	90	54	271	233	794	388
09:00		85	28			90	38				
09:15		112	23			90	24				
09:30		102	27			81	37				
09:45		98	32	397	110	78	33	339	132	736	242
10:00		88	17			80	26				
10:15		111	16			94	14				
10:30		86	15			84	26				
10:45		96	11	381	59	85	14	343	80	724	139
11:00		116	0			88	10				
11:15		118	7			84	7				
11:30		95	5			130	7				
11:45		84	4	413	16	112	11	414	35	827	51
Total		3364	3375			1910	4572			5274	7947
Percent		49.9%	50.1%			29.5%	70.5%			39.9%	60.1%

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
VETERANS MEMORIAL DR E N/O
SUMNER BUCKLEY HWY E
LOC# 19 V SCJ23015TM

Site Code: 19

Date Start: 07-Mar-23
Date End: 09-Mar-23

Start	08-Mar-23	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		8	98			7	112				
12:15		4	111			9	94				
12:30		3	108			2	106				
12:45		5	94	20	411	11	103	29	415	49	826
01:00		3	98			7	85				
01:15		2	94			4	108				
01:30		4	112			4	105				
01:45		3	100	12	404	8	113	23	411	35	815
02:00		6	88			2	108				
02:15		1	110			1	124				
02:30		6	101			2	124				
02:45		3	93	16	392	4	166	9	522	25	914
03:00		8	121			2	138				
03:15		8	128			4	152				
03:30		15	123			4	150				
03:45		19	113	50	485	10	190	20	630	70	1115
04:00		23	100			5	202				
04:15		30	94			7	191				
04:30		46	126			4	154				
04:45		49	136	148	456	6	162	22	709	170	1165
05:00		50	95			11	178				
05:15		54	94			13	173				
05:30		64	103			8	150				
05:45		55	88	223	380	14	114	46	615	269	995
06:00		85	108			18	150				
06:15		90	96			28	106				
06:30		130	87			42	118				
06:45		151	74	456	365	70	105	158	479	614	844
07:00		160	83			62	92				
07:15		192	74			65	84				
07:30		191	70			50	80				
07:45		140	52	683	279	66	76	243	332	926	611
08:00		116	50			54	60				
08:15		111	56			52	55				
08:30		133	29			60	63				
08:45		137	28	497	163	102	57	268	235	765	398
09:00		90	35			112	38				
09:15		91	26			84	33				
09:30		97	13			88	30				
09:45		83	23	361	97	82	29	366	130	727	227
10:00		94	15			72	21				
10:15		82	16			92	19				
10:30		116	15			81	20				
10:45		95	4	387	50	81	15	326	75	713	125
11:00		96	9			94	11				
11:15		102	9			100	10				
11:30		95	6			124	9				
11:45		86	6	379	30	127	14	445	44	824	74
Total		3232	3512			1955	4597			5187	8109
Percent		47.9%	52.1%			29.8%	70.2%			39.0%	61.0%

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BONNEY LAKE, WASHINGTON
VETERANS MEMORIAL DR E N/O
SUMNER BUCKLEY HWY E
LOC# 19 V SCJ23015TM

Site Code: 19

Date Start: 07-Mar-23
Date End: 09-Mar-23

Start Time	09-Mar-23 Thu	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		7	102			14	100				
12:15		2	96			6	93				
12:30		6	96			5	133				
12:45		2	96	17	390	3	110	28	436	45	826
01:00		3	112			6	98				
01:15		0	103			1	102				
01:30		6	94			5	116				
01:45		4	120	13	429	6	102	18	418	31	847
02:00		3	108			3	105				
02:15		5	106			5	126				
02:30		2	104			1	131				
02:45		9	107	19	425	5	173	14	535	33	960
03:00		12	107			5	148				
03:15		7	116			2	134				
03:30		11	106			4	156				
03:45		16	114	46	443	8	170	19	608	65	1051
04:00		26	99			5	218				
04:15		24	110			7	172				
04:30		39	114			6	162				
04:45		48	106	137	429	10	175	28	727	165	1156
05:00		41	86			8	180				
05:15		60	124			11	166				
05:30		57	105			6	126				
05:45		68	102	226	417	13	164	38	636	264	1053
06:00		78	111			24	153				
06:15		106	115			29	122				
06:30		114	90			48	115				
06:45		128	80	426	396	68	103	169	493	595	889
07:00		158	84			78	81				
07:15		158	69			66	74				
07:30		166	54			58	88				
07:45		129	51	611	258	64	58	266	301	877	559
08:00		100	41			57	56				
08:15		130	42			58	79				
08:30		133	32			70	54				
08:45		124	38	487	153	102	60	287	249	774	402
09:00		110	20			112	34				
09:15		88	25			79	43				
09:30		95	19			64	35				
09:45		72	21	365	85	88	32	343	144	708	229
10:00		80	23			74	29				
10:15		92	8			74	24				
10:30		87	12			82	14				
10:45		90	12	349	55	92	17	322	84	671	139
11:00		98	6			94	11				
11:15		107	15			89	11				
11:30		96	10			116	15				
11:45		100	9	401	40	108	15	407	52	808	92
Total		3097	3520			1939	4683			5036	8203
Percent		46.8%	53.2%			29.3%	70.7%			38.0%	62.0%
Grand Total		9693	10407			5804	13852			15497	24259
Percent		48.2%	51.8%			29.5%	70.5%			39.0%	61.0%
ADT		ADT 13,252		AADT 13,252							

TRAFFIC COUNT CONSULTANTS, INC.

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(253) 770-1407

BONNEY LAKE, WASHINGTON
ANGELINE RD E S/O
SUMNER BUCKLEY HWY E
LOC# 20 V SCJ23015TM

Site Code: 20

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	20-Feb-23		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	17	3	14	4	15	8	*	*	*	*	*	*	15	5
01:00	*	*	6	2	10	4	14	7	*	*	*	*	*	*	10	4
02:00	*	*	6	10	3	13	4	10	*	*	*	*	*	*	4	11
03:00	*	*	5	36	6	41	6	34	*	*	*	*	*	*	6	37
04:00	*	*	4	72	7	70	12	63	*	*	*	*	*	*	8	68
05:00	*	*	17	124	20	109	12	104	*	*	*	*	*	*	16	112
06:00	*	*	23	162	31	177	29	155	*	*	*	*	*	*	28	165
07:00	*	*	98	**198**	83	**197**	58	136	*	*	*	*	*	*	80	**177**
08:00	*	*	86	186	116	189	75	157	*	*	*	*	*	*	92	177
09:00	*	*	92	126	89	144	98	149	*	*	*	*	*	*	93	140
10:00	*	*	81	131	87	136	103	**158**	*	*	*	*	*	*	90	142
11:00	*	*	**131**	147	**129**	135	**121**	129	*	*	*	*	*	*	**127**	137
12:00 PM	*	*	120	119	130	124	146	134	*	*	*	*	*	*	132	126
01:00	*	*	152	134	127	124	126	150	*	*	*	*	*	*	135	136
02:00	*	*	177	121	181	132	201	146	*	*	*	*	*	*	186	133
03:00	*	*	225	**172**	244	**204**	217	151	*	*	*	*	*	*	229	176
04:00	*	*	**248**	170	**258**	186	**264**	**205**	*	*	*	*	*	*	**257**	**187**
05:00	*	*	238	145	251	150	231	164	*	*	*	*	*	*	240	153
06:00	*	*	194	115	224	112	232	129	*	*	*	*	*	*	217	119
07:00	*	*	160	63	129	65	144	80	*	*	*	*	*	*	144	69
08:00	*	*	84	51	99	51	102	54	*	*	*	*	*	*	95	52
09:00	*	*	67	29	64	21	73	33	*	*	*	*	*	*	68	28
10:00	*	*	38	16	41	17	44	25	*	*	*	*	*	*	41	19
11:00	*	*	19	2	24	9	23	9	*	*	*	*	*	*	22	7
Lane	0	0	2288	2334	2367	2414	2350	2390	0	0	0	0	0	0	2335	2380
Day	0		4622		4781		4740		0		0		0		4715	
AM Peak	-	-	11:00	07:00	11:00	07:00	11:00	10:00	-	-	-	-	-	-	11:00	07:00
Vol.	-	-	131	198	129	197	121	158	-	-	-	-	-	-	127	177
PM Peak	-	-	16:00	15:00	16:00	15:00	16:00	16:00	-	-	-	-	-	-	16:00	16:00
Vol.	-	-	248	172	258	204	264	205	-	-	-	-	-	-	257	187

Comb. Total	0	4622	4781	4740	0	0	0	4715

ADT ADT 4,714 AADT 4,714

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
ANGELINE RD E S/O
SUMNER BUCKLEY HWY E
LOC# 20 V SCJ23015TM

Site Code: 20

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	21-Feb-23	SB		Hour Totals		NB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		4	36			0	32				
12:15		5	33			1	32				
12:30		2	27			0	23				
12:45		6	24	17	120	2	32	3	119	20	239
01:00		2	33			1	33				
01:15		1	44			0	38				
01:30		2	41			0	31				
01:45		1	34	6	152	1	32	2	134	8	286
02:00		2	37			2	28				
02:15		2	51			2	35				
02:30		0	47			3	32				
02:45		2	42	6	177	3	26	10	121	16	298
03:00		0	56			10	41				
03:15		1	50			5	30				
03:30		1	61			11	54				
03:45		3	58	5	225	10	47	36	172	41	397
04:00		0	67			12	58				
04:15		0	58			16	36				
04:30		2	63			24	33				
04:45		2	60	4	248	20	43	72	170	76	418
05:00		3	68			33	35				
05:15		3	55			34	32				
05:30		6	57			25	36				
05:45		5	58	17	238	32	42	124	145	141	383
06:00		5	50			32	22				
06:15		5	41			39	44				
06:30		6	51			35	27				
06:45		7	52	23	194	56	22	162	115	185	309
07:00		24	52			69	17				
07:15		36	42			42	9				
07:30		18	36			47	10				
07:45		20	30	98	160	40	27	198	63	296	223
08:00		18	12			35	15				
08:15		8	28			49	10				
08:30		18	24			52	12				
08:45		42	20	86	84	50	14	186	51	272	135
09:00		25	13			30	7				
09:15		21	21			34	12				
09:30		16	16			40	6				
09:45		30	17	92	67	22	4	126	29	218	96
10:00		18	16			36	3				
10:15		20	8			39	3				
10:30		20	2			29	7				
10:45		23	12	81	38	27	3	131	16	212	54
11:00		30	7			40	0				
11:15		32	1			46	1				
11:30		34	7			30	1				
11:45		35	4	131	19	31	0	147	2	278	21
Total		566	1722			1197	1137			1763	2859
Percent		24.7%	75.3%			51.3%	48.7%			38.1%	61.9%

TRAFFIC COUNT CONSULTANTS, INC.

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(253) 770-1407

BONNEY LAKE, WASHINGTON
ANGELINE RD E S/O
SUMNER BUCKLEY HWY E
LOC# 20 V SCJ23015TM

Site Code: 20

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	22-Feb-23	SB		Hour Totals		NB		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		5	43			0	38				
12:15		4	24			1	30				
12:30		1	30			1	30				
12:45		4	33	14	130	2	26	4	124	18	254
01:00		3	26			1	40				
01:15		3	24			1	22				
01:30		2	38			1	26				
01:45		2	39	10	127	1	36	4	124	14	251
02:00		2	38			6	30				
02:15		0	33			1	28				
02:30		1	48			2	30				
02:45		0	62	3	181	4	44	13	132	16	313
03:00		3	60			10	41				
03:15		1	59			6	44				
03:30		1	64			11	61				
03:45		1	61	6	244	14	58	41	204	47	448
04:00		0	64			11	52				
04:15		1	54			9	42				
04:30		2	65			24	48				
04:45		4	75	7	258	26	44	70	186	77	444
05:00		8	62			27	36				
05:15		4	61			30	30				
05:30		7	58			28	40				
05:45		1	70	20	251	24	44	109	150	129	401
06:00		7	58			30	32				
06:15		5	57			41	27				
06:30		6	55			50	24				
06:45		13	54	31	224	56	29	177	112	208	336
07:00		16	28			56	22				
07:15		24	47			57	9				
07:30		19	25			54	16				
07:45		24	29	83	129	30	18	197	65	280	194
08:00		33	29			42	17				
08:15		15	20			58	8				
08:30		28	30			46	12				
08:45		40	20	116	99	43	14	189	51	305	150
09:00		26	21			43	7				
09:15		24	15			23	0				
09:30		23	13			38	10				
09:45		16	15	89	64	40	4	144	21	233	85
10:00		14	18			38	6				
10:15		21	9			33	1				
10:30		23	8			35	6				
10:45		29	6	87	41	30	4	136	17	223	58
11:00		27	2			34	1				
11:15		44	8			33	2				
11:30		28	7			32	5				
11:45		30	7	129	24	36	1	135	9	264	33
Total		595	1772			1219	1195			1814	2967
Percent		25.1%	74.9%			50.5%	49.5%			37.9%	62.1%

TRAFFIC COUNT CONSULTANTS, INC.

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(253) 770-1407

BONNEY LAKE, WASHINGTON
ANGELINE RD E S/O
SUMNER BUCKLEY HWY E
LOC# 20 V SCJ23015TM

Site Code: 20

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start Time	23-Feb-23 Thu	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	42			0	32				
12:15		5	36			4	35				
12:30		2	33			2	37				
12:45		4	35	15	146	2	30	8	134	23	280
01:00		2	27			3	39				
01:15		4	28			0	42				
01:30		4	24			2	34				
01:45		4	47	14	126	2	35	7	150	21	276
02:00		4	63			1	38				
02:15		0	46			2	37				
02:30		0	42			4	34				
02:45		0	50	4	201	3	37	10	146	14	347
03:00		1	62			8	47				
03:15		1	64			5	27				
03:30		0	49			11	48				
03:45		4	42	6	217	10	29	34	151	40	368
04:00		1	77			10	55				
04:15		5	56			13	44				
04:30		2	74			22	60				
04:45		4	57	12	264	18	46	63	205	75	469
05:00		1	62			21	40				
05:15		2	59			28	48				
05:30		6	51			24	38				
05:45		3	59	12	231	31	38	104	164	116	395
06:00		6	55			36	37				
06:15		3	63			47	39				
06:30		8	66			32	25				
06:45		12	48	29	232	40	28	155	129	184	361
07:00		10	35			36	25				
07:15		12	37			38	17				
07:30		16	35			40	20				
07:45		20	37	58	144	22	18	136	80	194	224
08:00		17	23			34	20				
08:15		22	24			35	15				
08:30		20	26			38	11				
08:45		16	29	75	102	50	8	157	54	232	156
09:00		21	22			48	14				
09:15		32	13			36	10				
09:30		27	20			33	4				
09:45		18	18	98	73	32	5	149	33	247	106
10:00		25	16			32	4				
10:15		20	12			48	8				
10:30		24	5			38	8				
10:45		34	11	103	44	40	5	158	25	261	69
11:00		29	8			30	4				
11:15		25	6			37	2				
11:30		33	4			30	3				
11:45		34	5	121	23	32	0	129	9	250	32
Total		547	1803			1110	1280			1657	3083
Percent		23.3%	76.7%			46.4%	53.6%			35.0%	65.0%
Grand Total		1708	5297			3526	3612			5234	8909
Percent		24.4%	75.6%			49.4%	50.6%			37.0%	63.0%
ADT		ADT 4,714		AADT 4,714							

Appendix B

Traffic Volume Projections

SCJ ALLIANCE
CONSULTING SERVICES

Angeline Rd E/Veterans Memorial Dr E Intersection Evaluation

AM Peak Hour Volumes

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2035 Growth	Projected 2035 Volumes	Background 2049 Growth	Projected 2049 Volumes
		L	**114**	21	**135**	44	**158**
	EB	T	**0**	0	**0**	0	**0**
		R	**62**	11	**73**	24	**86**
1		L	**0**	0	**0**	0	**0**
Angeline Rd E	WB	T	**0**	0	**0**	0	**0**
Veterans Memorial Dr E		R	**0**	0	**0**	0	**0**
		L	**46**	8	**54**	18	**64**
TMC Date: 04/11/2023	NB	T	**533**	96	**629**	208	**741**
		R	**0**	0	**0**	0	**0**
7:00 - 8:00		L	**0**	0	**0**	0	**0**
PHF: 0.91	SB	T	**203**	37	**240**	79	**282**
		R	**52**	9	**61**	20	**72**
			1,010		**1,192**		**1,403**

SCJ ALLIANCE
CONSULTING SERVICES

Angeline Rd E/Veterans Memorial Dr E Intersection Evaluation

PM Peak Hour Volumes

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2035 Growth	Projected 2035 Volumes	Background 2049 Growth	Projected 2049 Volumes
		L	**81**	15	**96**	32	**113**
	EB	T	**0**	0	**0**	0	**0**
		R	**123**	22	**145**	48	**171**
1		L	**0**	0	**0**	0	**0**
Angeline Rd E	WB	T	**0**	0	**0**	0	**0**
Veterans Memorial Dr E		R	**0**	0	**0**	0	**0**
		L	**131**	24	**155**	51	**182**
TMC Date: 02/23/2023	NB	T	**403**	73	**476**	157	**560**
		R	**0**	0	**0**	0	**0**
4:00 - 5:00		L	**0**	0	**0**	0	**0**
PHF: 0.97	SB	T	**587**	106	**693**	229	**816**
		R	**139**	25	**164**	54	**193**
			1,464		**1,729**		**2,035**

Appendix C

Cost Estimate Worksheets

Project Name: Angeline Rd-Veterans Memorial Dr RAB

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 5/22/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roundabout	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 115,000.00	1.0	1.0	$ 115,000
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$125,000**	**$ 125,000**
		GRADING					
3	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	890.0	890.0	$ 26,700
4	0408	SELECT BORROW INCL. HAUL	TON	$ 35.00	4230.0	4230.0	$ 148,050
					Subtotal:	**$174,750**	**$ 174,750**
		STORM SEWER					
5	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	6.0	6.0	$ 18,000
6	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 100.00	330.0	330.0	$ 33,000
7	NS-276	STORM POND	L.S.	$ 11,000.00	1.0	1.0	$ 11,000
					Subtotal:	**$62,000**	**$ 62,000**
		STRUCTURE					
8	7169	STRUCTURAL EARTH WALL	S.F.	$ 80.00	2670.0	2670.0	$ 213,600
					Subtotal:	**$213,600**	**$ 213,600**
		SURFACING					
9	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	700.0	700.0	$ 49,000
					Subtotal:	**$49,000**	**$ 49,000**
		CEMENT CONCRETE PAVEMENT					
10	NS-600	STAMPED/PIGMENTED CEMENT CONC. PAVING (SPLITTER ISLAND)	S.Y.	$ 120.00	30.0	30.0	$ 3,600
11	NS-601	STAMPED/PIGMENTED CEMENT CONC. PAVING (TRUCK APRON)	S.Y.	$ 220.00	210.0	210.0	$ 46,200
					Subtotal:	**$49,800**	**$ 49,800**
		HOT MIX ASPHALT					
12	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	660.0	660.0	$ 118,800
					Subtotal:	**$118,800**	**$ 118,800**
		EROSION CONTROL AND ROADSIDE PLANTING					
13	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
14	NS-734	LANDSCAPING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
					Subtotal:	**$30,000**	**$ 30,000**
		TRAFFIC					
15	6698	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EACH	$ 1,500.00	3.0	3.0	$ 4,500
16	6699	ROUNDABOUT CEMENT CONCRETE CURB AND GUTTER	L.F.	$ 60.00	930.0	930.0	$ 55,800
17	6708	ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB	L.F.	$ 130.00	140.0	140.0	$ 18,200
18	6709	ROUNDABOUT TRUCK APRON CEM. CONC. CURB AND GUTTER	L.F.	$ 80.00	210.0	210.0	$ 16,800
19	6757	BEAM GUARDRAIL TYPE 31	L.F.	$ 50.00	260.0	260.0	$ 13,000
20	6807	PLASTIC LINE	L.F.	$ 5.00	1380.0	1380.0	$ 6,900
21	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	60.0	60.0	$ 600
22	6890	PERMANENT SIGNING	L.S.	$ 20,000.00	1.0	1.0	$ 20,000
23	6904	ILLUMINATION SYSTEM	L.S.	$ 100,000.00	1.0	1.0	$ 100,000
24	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 180,000.00	1.0	1.0	$ 180,000
25	6847	PLASTIC WIDE DOTTED ENTRY LINE	L.F.	$ 10.00	100.0	100.0	$ 1,000
					Subtotal:	**$416,800**	**$ 416,800**
		OTHER ITEMS					
26	7038	ROADWAY SURVEYING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
27	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$17,500**	**$ 17,500**

Subtotal Construction:	**$1,257,250**	**$ 1,257,250**
Contingency @ 30%	**$377,175**	**$ 377,175**
TOTAL CONSTRUCTION:	**$1,634,425**	**$ 1,634,425**
Preliminary Engineering (PE) @ 12%	**$196,131**	**$ 196,131**
Construction Management (CM) @ 12%	**$196,131**	**$ 196,131**
SCHEDULE COST TOTALS:	**$2,026,687**	**$ 2,026,687**
	TOTAL PROJECT COST:	**$ 2,026,687**

Project Name: Angeline Rd-Veterans Memorial Dr Signal

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 5/22/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Signal	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 109,000.00	1.0	1.0	$ 109,000
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$119,000**	**$ 119,000**
		GRADING					
3	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	700.0	700.0	$ 21,000
4	0470	EMBANKMENT COMPACTION	C.Y.	$ 10.00	200.0	200.0	$ 2,000
					Subtotal:	**$23,000**	**$ 23,000**
		STORM SEWER					
5	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	5.0	5.0	$ 15,000
6	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 100.00	750.0	750.0	$ 75,000
					Subtotal:	**$90,000**	**$ 90,000**
		STRUCTURE					
7	7169	STRUCTURAL EARTH WALL	S.F.	$ 80.00	1510.0	1510.0	$ 120,800
					Subtotal:	**$120,800**	**$ 120,800**
		SURFACING					
8	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	500.0	500.0	$ 35,000
					Subtotal:	**$35,000**	**$ 35,000**
		HOT MIX ASPHALT					
9	5711	PLANING BITUMINOUS PAVEMENT	S.Y.	$ 40.00	2948.0	2948.0	$ 117,920
10	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	890.0	890.0	$ 160,200
					Subtotal:	**$278,120**	**$ 278,120**
		EROSION CONTROL AND ROADSIDE PLANTING					
11	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
					Subtotal:	**$15,000**	**$ 15,000**
		TRAFFIC					
12	6757	BEAM GUARDRAIL TYPE 31	L.F.	$ 50.00	510.0	510.0	$ 25,500
13	6807	PLASTIC LINE	L.F.	$ 5.00	3850.0	3850.0	$ 19,250
14	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	400.0	400.0	$ 4,000
15	6859	PLASTIC STOP LINE	L.F.	$ 25.00	90.0	90.0	$ 2,250
16	6833	PLASTIC TRAFFIC ARROW	EACH	$ 500.00	10.0	10.0	$ 5,000
17	6912	TRAFFIC SIGNAL SYSTEM	L.S.	$ 315,000.00	1.0	1.0	$ 315,000
18	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 120,000.00	1.0	1.0	$ 120,000
					Subtotal:	**$491,000**	**$ 491,000**
		OTHER ITEMS					
19	7008	SHORING OR EXTRA EXCAVATION CLASS B	S.F.	$ 3.00	1510.0	1510.0	$ 4,530
20	7038	ROADWAY SURVEYING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
21	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$22,030**	**$ 22,030**

Subtotal Construction:	**$1,193,950**	**$ 1,193,950**
Contingency @ 30%	**$358,185**	**$ 358,185**
TOTAL CONSTRUCTION:	**$1,552,135**	**$ 1,552,135**
Preliminary Engineering (PE) @ 12%	**$186,256**	**$ 186,256**
Construction Management (CM) @ 12%	**$186,256**	**$ 186,256**
Right of Way Costs	**$30,000**	**$ 30,000**
SCHEDULE COST TOTALS:	**$1,954,647**	**$ 1,954,647**
	TOTAL PROJECT COST:	**$ 1,954,647**

Project Name: Angeline Rd-Veterans Memorial Dr RAB

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 7/24/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roundabout	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 279,000.00	1.0	1.0	$ 279,000
2	0035	CLEARING AND GRUBBING	L.S.	$ 50,000.00	1.0	1.0	$ 50,000
3	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$339,000**	**$ 339,000**
		GRADING					
4	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	1500.0	1500.0	$ 45,000
5	0408	SELECT BORROW INCL. HAUL	TON	$ 25.00	6270.0	6270.0	$ 156,750
					Subtotal:	**$201,750**	**$ 201,750**
		STORM SEWER					
6	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	22.0	22.0	$ 66,000
7	3105	CATCH BASIN TYPE 2 48 IN. DIAM.	EACH	$ 5,500.00	3.0	3.0	$ 16,500
8	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 75.00	3220.0	3220.0	$ 241,500
9	NS-276	STORM POND	L.S.	$ 35,000.00	1.0	1.0	$ 35,000
					Subtotal:	**$359,000**	**$ 359,000**
		STRUCTURE					
10	7169	STRUCTURAL EARTH WALL	S.F.	$ 80.00	8270.0	8270.0	$ 661,600
11	NS-450	BRIDGE WIDENING	S.F.	$ 275.00	550.0	550.0	$ 151,250
					Subtotal:	**$812,850**	**$ 812,850**
		SURFACING					
12	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	740.0	740.0	$ 51,800
					Subtotal:	**$51,800**	**$ 51,800**
		CEMENT CONCRETE PAVEMENT					
13	NS-600	STAMPED/PIGMENTED CEMENT CONC. PAVING (SPLITTER ISLAND)	S.Y.	$ 250.00	75.0	75.0	$ 18,750
14	NS-601	STAMPED/PIGMENTED CEMENT CONC. PAVING (TRUCK APRON)	S.Y.	$ 350.00	150.0	150.0	$ 52,500
					Subtotal:	**$71,250**	**$ 71,250**
		HOT MIX ASPHALT					
15	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	1200.0	1200.0	$ 216,000
					Subtotal:	**$216,000**	**$ 216,000**
		EROSION CONTROL AND ROADSIDE PLANTING					
16	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 50,000.00	1.0	1.0	$ 50,000
17	NS-734	LANDSCAPING	L.S.	$ 50,000.00	1.0	1.0	$ 50,000
					Subtotal:	**$100,000**	**$ 100,000**
		TRAFFIC					
18	6698	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EACH	$ 1,500.00	3.0	3.0	$ 4,500
19	6699	ROUNDABOUT CEMENT CONCRETE CURB AND GUTTER	L.F.	$ 60.00	930.0	930.0	$ 55,800
20	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	L.F.	$ 40.00	2750.0	2750.0	$ 110,000
21	6708	ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB	L.F.	$ 130.00	140.0	140.0	$ 18,200
22	6709	ROUNDABOUT TRUCK APRON CEM. CONC. CURB AND GUTTER	L.F.	$ 80.00	210.0	210.0	$ 16,800
23	6757	BEAM GUARDRAIL TYPE 31	L.F.	$ 50.00	260.0	260.0	$ 13,000
24	6807	PLASTIC LINE	L.F.	$ 5.00	3900.0	3900.0	$ 19,500
25	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	60.0	60.0	$ 600
26	6890	PERMANENT SIGNING	L.S.	$ 35,000.00	1.0	1.0	$ 35,000
27	6904	ILLUMINATION SYSTEM	L.S.	$ 125,000.00	1.0	1.0	$ 125,000
28	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 250,000.00	1.0	1.0	$ 250,000
29	6847	PLASTIC WIDE DOTTED ENTRY LINE	L.F.	$ 10.00	100.0	100.0	$ 1,000
					Subtotal:	**$649,400**	**$ 649,400**
		OTHER ITEMS					
30	7038	ROADWAY SURVEYING	L.S.	$ 60,000.00	1.0	1.0	$ 60,000
31	7055	CEMENT CONC. SIDEWALK	S.Y.	$ 70.00	3600.0	3600.0	$ 252,000
32	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$314,500**	**$ 314,500**

Subtotal Construction:	**$3,115,550**	**$ 3,115,550**
Contingency @ 30%	**$934,665**	**$ 934,665**
TOTAL CONSTRUCTION:	**$4,050,215**	**$ 4,050,215**
Preliminary Engineering (PE) @ 15%	**$607,532**	**$ 607,532**
Construction Management (CM) @ 12%	**$486,026**	**$ 486,026**
Federal Funds Managment @ 25%	**$1,012,554**	**$ 1,012,554**

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 7/24/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roundabout	TOTAL
		Right of Way Costs				$13,000	$ 13,000
		SCHEDULE COST TOTALS:				$6,169,327	$ 6,169,327
						TOTAL PROJECT COST:	$ 6,169,327

Project Name: Angeline Rd-Veterans Memorial Dr Signal w/Trail

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 2/6/2024

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Signal	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 275,000.00	1.0	1.0	$ 275,000
2	0035	CLEARING AND GRUBBING	L.S.	$ 40,000.00	1.0	1.0	$ 40,000
3	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$325,000**	**$ 325,000**
		GRADING					
4	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	1320.0	1320.0	$ 39,600
5	0408	SELECT BORROW INCL. HAUL	TON	$ 25.00	2240.0	2240.0	$ 56,000
					Subtotal:	**$95,600**	**$ 95,600**
		STORM SEWER					
6	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	21.0	21.0	$ 63,000
7	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 100.00	3640.0	3640.0	$ 364,000
					Subtotal:	**$427,000**	**$ 427,000**
		STRUCTURE					
8	7169	STRUCTURAL EARTH WALL	S.F.	$ 80.00	6610.0	6610.0	$ 528,800
9	NS-450	BRIDGE WIDENING	S.F.	$ 275.00	550.0	550.0	$ 151,250
					Subtotal:	**$680,050**	**$ 680,050**
		SURFACING					
10	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	1290.0	1290.0	$ 90,300
					Subtotal:	**$90,300**	**$ 90,300**
		HOT MIX ASPHALT					
11	5711	PLANING BITUMINOUS PAVEMENT	S.Y.	$ 40.00	2948.0	2948.0	$ 117,920
12	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	1270.0	1270.0	$ 228,600
					Subtotal:	**$346,520**	**$ 346,520**
		EROSION CONTROL AND ROADSIDE PLANTING					
13	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 50,000.00	1.0	1.0	$ 50,000
					Subtotal:	**$50,000**	**$ 50,000**
		TRAFFIC					
14	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	L.F.	$ 40.00	2325.0	2325.0	$ 93,000
15	6757	BEAM GUARDRAIL TYPE 31	L.F.	$ 50.00	510.0	510.0	$ 25,500
16	6807	PLASTIC LINE	L.F.	$ 5.00	3850.0	3850.0	$ 19,250
17	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	400.0	400.0	$ 4,000
18	6857	PLASTIC CROSSWALK LINE	S.F.	$ 15.00	140.0	140.0	$ 2,100
19	6859	PLASTIC STOP LINE	L.F.	$ 25.00	90.0	90.0	$ 2,250
20	6833	PLASTIC TRAFFIC ARROW	EACH	$ 500.00	10.0	10.0	$ 5,000
21	6912	TRAFFIC SIGNAL SYSTEM	L.S.	$ 315,000.00	1.0	1.0	$ 315,000
22	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 150,000.00	1.0	1.0	$ 150,000
					Subtotal:	**$616,100**	**$ 616,100**
		OTHER ITEMS					
23	7008	SHORING OR EXTRA EXCAVATION CLASS B	S.F.	$ 3.00	1510.0	1510.0	$ 4,530
24	7038	ROADWAY SURVEYING	L.S.	$ 60,000.00	1.0	1.0	$ 60,000
25	7055	CEMENT CONC. SIDEWALK	S.Y.	$ 70.00	3415.0	3415.0	$ 239,050
26	7058	CEMENT CONC. CURB RAMP TYPE COMBINATION	EACH	$ 3,000.00	2.0	2.0	$ 6,000
27	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$312,080**	**$ 312,080**

Subtotal Construction:	**$2,942,650**	**$ 2,942,650**
Contingency @ 30%	**$882,795**	**$ 882,795**
TOTAL CONSTRUCTION:	**$3,825,445**	**$ 3,825,445**
Preliminary Engineering (PE) @ 15%	**$573,817**	**$ 573,817**
Construction Management (CM) @ 12%	**$459,053**	**$ 459,053**
Miscellaneous Costs @ 25%	**$956,361**	**$ 956,361**
Right of Way Costs	**$40,000**	**$ 40,000**
SCHEDULE COST TOTALS:	**$5,854,676**	**$ 5,854,676**
TOTAL PROJECT COST:		**$ 5,854,676**

Appendix D

Traffic Operations Worksheets

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	115	60	45	535	205	50
Future Vol, veh/h	115	60	45	535	205	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	126	66	49	588	225	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	939	253	280	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	293	786	1288	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	277	786	1288	-	-	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.4	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1288	-	356	-	-
HCM Lane V/C Ratio	0.038	-	0.54	-	-
HCM Control Delay (s)	7.9	0	26.4	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	3.1	-	-

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	124	89
Average Queue (ft)	53	15
95th Queue (ft)	93	57
Link Distance (ft)	369	353
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection	
Int Delay, s/veh	23.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	85	65	740	280	70
Future Vol, veh/h	160	85	65	740	280	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	168	89	68	779	295	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1247	332	369	0	-	0
Stage 1	332	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	192	710	1195	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	173	710	1195	-	-	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	131.9	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1195	-	235	-	-
HCM Lane V/C Ratio	0.057	-	1.097	-	-
HCM Control Delay (s)	8.2	0	131.9	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	11.4	-	-

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	292	160	4
Average Queue (ft)	141	33	0
95th Queue (ft)	293	104	3
Link Distance (ft)	369	353	366
Upstream Blk Time (%)	2		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

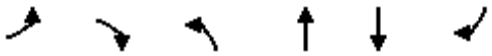
Network wide Queuing Penalty: 0

Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	160	65	740	280
Future Volume (vph)	160	65	740	280
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		2		
Detector Phase	4	2	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%	62.5%
Maximum Green (s)	18.0	33.0	33.0	33.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 53.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	85	65	740	280	70
Future Volume (veh/h)	160	85	65	740	280	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	168	89	68	779	295	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	1	1
Cap, veh/h	218	116	148	990	833	209
Arrive On Green	0.20	0.20	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1113	589	85	1729	1455	365
Grp Volume(v), veh/h	258	0	847	0	0	369
Grp Sat Flow(s),veh/h/ln	1709	0	1814	0	0	1820
Q Serve(g_s), s	5.6	0.0	5.2	0.0	0.0	4.2
Cycle Q Clear(g_c), s	5.6	0.0	14.2	0.0	0.0	4.2
Prop In Lane	0.65	0.34	0.08			0.20
Lane Grp Cap(c), veh/h	335	0	1139	0	0	1042
V/C Ratio(X)	0.77	0.00	0.74	0.00	0.00	0.35
Avail Cap(c_a), veh/h	789	0	1622	0	0	1541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	6.5	0.0	0.0	4.5
Incr Delay (d2), s/veh	3.7	0.0	1.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.0	0.0	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	0.0	7.6	0.0	0.0	4.7
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	258			847	369	
Approach Delay, s/veh	18.6			7.6	4.7	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		26.8		12.1		26.8
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0
Max Q Clear Time (g_c+I1), s		16.2		7.6		6.2
Green Ext Time (p_c), s		6.1		0.6		2.4

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	161	388	139
Average Queue (ft)	78	177	58
95th Queue (ft)	131	309	112
Link Distance (ft)	369	2459	366
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

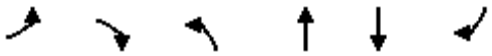
Network wide Queuing Penalty: 0

Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	160	65	740	280
Future Volume (vph)	160	65	740	280
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	5	2	6
Permitted Phases				
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5
Total Split (s)	22.5	11.0	37.5	26.5
Total Split (%)	37.5%	18.3%	62.5%	44.2%
Maximum Green (s)	18.0	6.5	33.0	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min
Walk Time (s)	7.0		7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0	0

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 48.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	85	65	740	280	70
Future Volume (veh/h)	160	85	65	740	280	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	168	89	68	779	295	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	1	1
Cap, veh/h	221	117	124	1024	502	126
Arrive On Green	0.20	0.20	0.07	0.54	0.34	0.34
Sat Flow, veh/h	1113	589	1795	1885	1455	365
Grp Volume(v), veh/h	258	0	68	779	0	369
Grp Sat Flow(s),veh/h/ln	1709	0	1795	1885	0	1820
Q Serve(g_s), s	5.0	0.0	1.3	11.2	0.0	5.8
Cycle Q Clear(g_c), s	5.0	0.0	1.3	11.2	0.0	5.8
Prop In Lane	0.65	0.34	1.00			0.20
Lane Grp Cap(c), veh/h	340	0	124	1024	0	627
V/C Ratio(X)	0.76	0.00	0.55	0.76	0.00	0.59
Avail Cap(c_a), veh/h	882	0	335	1784	0	1148
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	15.7	6.2	0.0	9.4
Incr Delay (d2), s/veh	3.5	0.0	3.7	1.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.6	2.4	0.0	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.7	0.0	19.4	7.4	0.0	10.3
LnGrp LOS	B	A	B	A	A	B
Approach Vol, veh/h	258			847	369	
Approach Delay, s/veh	16.7			8.4	10.3	
Approach LOS	B			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.4		11.4	6.9	16.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		33.0		18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s		13.2		7.0	3.3	7.8
Green Ext Time (p_c), s		5.7		0.6	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	148	97	253	162
Average Queue (ft)	75	41	125	74
95th Queue (ft)	125	77	225	133
Link Distance (ft)	363	2459	2459	369
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

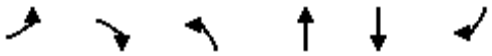
Network wide Queuing Penalty: 0

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	160	65	740	280	70
Future Volume (vph)	160	65	740	280	70
Turn Type	Prot	Prot	NA	NA	Perm
Protected Phases	4	5	2	6	
Permitted Phases					6
Detector Phase	4	5	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	11.0	37.5	26.5	26.5
Total Split (%)	37.5%	18.3%	62.5%	44.2%	44.2%
Maximum Green (s)	18.0	6.5	33.0	22.0	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead		Lag	Lag
Lead-Lag Optimize?		Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min
Walk Time (s)	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 48.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	85	65	740	280	70
Future Volume (veh/h)	160	85	65	740	280	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	168	89	68	779	295	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	1	1
Cap, veh/h	221	117	124	1024	650	551
Arrive On Green	0.20	0.20	0.07	0.54	0.34	0.34
Sat Flow, veh/h	1113	589	1795	1885	1885	1598
Grp Volume(v), veh/h	258	0	68	779	295	74
Grp Sat Flow(s),veh/h/ln	1709	0	1795	1885	1885	1598
Q Serve(g_s), s	5.0	0.0	1.3	11.2	4.2	1.1
Cycle Q Clear(g_c), s	5.0	0.0	1.3	11.2	4.2	1.1
Prop In Lane	0.65	0.34	1.00			1.00
Lane Grp Cap(c), veh/h	340	0	124	1024	650	551
V/C Ratio(X)	0.76	0.00	0.55	0.76	0.45	0.13
Avail Cap(c_a), veh/h	882	0	335	1784	1189	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	15.7	6.2	8.9	7.8
Incr Delay (d2), s/veh	3.5	0.0	3.7	1.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.6	2.4	1.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.7	0.0	19.4	7.4	9.4	8.0
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	258			847	369	
Approach Delay, s/veh	16.7			8.4	9.1	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.4		11.4	6.9	16.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		33.0		18.0	6.5	22.0
Max Q Clear Time (g_c+I1), s		13.2		7.0	3.3	6.2
Green Ext Time (p_c), s		5.7		0.6	0.0	1.7

Intersection Summary		
HCM 6th Ctrl Delay		10.0
HCM 6th LOS		B

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	NB	SB	SB
Directions Served	LR	L	T	T	R
Maximum Queue (ft)	149	88	274	133	56
Average Queue (ft)	68	40	126	64	23
95th Queue (ft)	118	76	227	113	51
Link Distance (ft)	356	2459	2459	374	374
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

MOVEMENT SUMMARY

Site: 1 [AM Projected 2049 (Site Folder: General)]

AM Peak Hour
Angeline Rd at Veterans Memorial Dr
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: NB Veterans Memorial Dr														
3	L2	65	1.0	68	1.0	0.670	11.0	LOS B	6.4	160.7	0.60	0.55	0.60	35.6
8	T1	740	1.0	779	1.0	0.670	5.4	LOS A	6.4	160.7	0.60	0.55	0.60	35.6
Approach		805	1.0	847	1.0	0.670	5.9	LOS A	6.4	160.7	0.60	0.55	0.60	35.6
North: SB Veterans Memorial Dr														
4	T1	280	1.0	295	1.0	0.271	4.3	LOS A	1.6	40.9	0.24	0.42	0.24	37.1
14	R2	70	1.0	74	1.0	0.271	4.3	LOS A	1.6	40.9	0.24	0.42	0.24	36.0
Approach		350	1.0	368	1.0	0.271	4.3	LOS A	1.6	40.9	0.24	0.42	0.24	36.8
West: EB Angeline Rd														
5	L2	160	2.0	168	2.0	0.222	10.9	LOS B	1.2	29.3	0.44	0.66	0.44	34.8
12	R2	85	2.0	89	2.0	0.222	5.3	LOS A	1.2	29.3	0.44	0.66	0.44	33.8
Approach		245	2.0	258	2.0	0.222	9.0	LOS A	1.2	29.3	0.44	0.66	0.44	34.5
All Vehicles		1400	1.2	1474	1.2	0.670	6.0	LOS A	6.4	160.7	0.48	0.54	0.48	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	125	130	405	585	140
Future Vol, veh/h	80	125	130	405	585	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	82	129	134	418	603	144

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1361	675	747	0	-	0
Stage 1	675	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	165	457	866	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	132	457	866	-	-	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	81.7	2.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	866	-	233	-	-
HCM Lane V/C Ratio	0.155	-	0.907	-	-
HCM Control Delay (s)	9.9	0	81.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	7.7	-	-

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	321	254	18
Average Queue (ft)	163	89	1
95th Queue (ft)	366	200	10
Link Distance (ft)	369	353	366
Upstream Blk Time (%)	14	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Intersection	
Int Delay, s/veh	148.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	115	170	180	560	815	195
Future Vol, veh/h	115	170	180	560	815	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	119	175	186	577	840	201

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1890	941	1041	0	-	0
Stage 1	941	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	~ 78	322	672	-	-	-
Stage 1	383	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 46	322	672	-	-	-
Mov Cap-2 Maneuver	~ 46	-	-	-	-	-
Stage 1	227	-	-	-	-	-
Stage 2	379	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1053.2	3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	672	-	94	-	-
HCM Lane V/C Ratio	0.276	-	3.126	-	-
HCM Control Delay (s)	12.4	$	1053.2	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	1.1	-	28.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	1053	1500	27
Average Queue (ft)	1039	923	5
95th Queue (ft)	1074	1832	21
Link Distance (ft)	1043	1464	839
Upstream Blk Time (%)	96	38	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

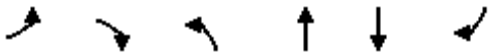
Network wide Queuing Penalty: 0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	170	180	560	815	195
Future Volume (vph)	115	170	180	560	815	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	917			4593	879	
Travel Time (s)	20.8			104.4	20.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	
Total Split (s)	24.0		126.0	126.0	126.0	
Total Split (%)	16.0%		84.0%	84.0%	84.0%	
Maximum Green (s)	19.5		121.5	121.5	121.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	4.5			4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Min	Min	Min	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	170	180	560	815	195
Future Volume (veh/h)	115	170	180	560	815	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1885	1885	1885
Adj Flow Rate, veh/h	119	175	186	577	840	201
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	88	130	190	539	1191	285
Arrive On Green	0.13	0.13	0.81	0.81	0.81	0.81
Sat Flow, veh/h	680	1000	198	666	1470	352
Grp Volume(v), veh/h	295	0	763	0	0	1041
Grp Sat Flow(s),veh/h/ln	1686	0	863	0	0	1822
Q Serve(g_s), s	19.5	0.0	83.5	0.0	0.0	38.0
Cycle Q Clear(g_c), s	19.5	0.0	121.5	0.0	0.0	38.0
Prop In Lane	0.40	0.59	0.24			0.19
Lane Grp Cap(c), veh/h	219	0	729	0	0	1476
V/C Ratio(X)	1.35	0.00	1.05	0.00	0.00	0.71
Avail Cap(c_a), veh/h	219	0	729	0	0	1476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	65.3	0.0	30.4	0.0	0.0	6.3
Incr Delay (d2), s/veh	182.9	0.0	46.1	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.5	0.0	36.2	0.0	0.0	12.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	248.1	0.0	76.5	0.0	0.0	7.9
LnGrp LOS	F	A	F	A	A	A
Approach Vol, veh/h	295			763	1041	
Approach Delay, s/veh	248.1			76.5	7.9	
Approach LOS	F			E	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		126.0		24.0		126.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		121.5		19.5		121.5
Max Q Clear Time (g_c+I1), s		123.5		21.5		40.0
Green Ext Time (p_c), s		0.0		0.0		13.6

Intersection Summary	
HCM 6th Ctrl Delay	66.6
HCM 6th LOS	E

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	802	4606	491
Average Queue (ft)	570	3444	227
95th Queue (ft)	988	5744	417
Link Distance (ft)	890	4572	846
Upstream Blk Time (%)	25	46	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

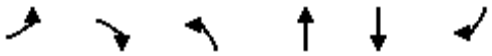
Network wide Queuing Penalty: 0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	170	180	560	815	195
Future Volume (vph)	115	170	180	560	815	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50	0			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	917			1456	879	
Travel Time (s)	20.8			33.1	20.0	
Turn Type	Prot		Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases						
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	22.5		9.5	22.5	22.5	
Total Split (s)	22.6		16.0	77.4	61.4	
Total Split (%)	22.6%		16.0%	77.4%	61.4%	
Maximum Green (s)	18.1		11.5	72.9	56.9	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		None	Min	Min	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 98.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	170	180	560	815	195
Future Volume (veh/h)	115	170	180	560	815	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1885	1885	1885
Adj Flow Rate, veh/h	119	175	186	577	840	201
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	123	181	206	1374	836	200
Arrive On Green	0.18	0.18	0.12	0.73	0.57	0.57
Sat Flow, veh/h	680	1000	1795	1885	1470	352
Grp Volume(v), veh/h	295	0	186	577	0	1041
Grp Sat Flow(s),veh/h/ln	1686	0	1795	1885	0	1822
Q Serve(g_s), s	17.4	0.0	10.2	12.0	0.0	56.9
Cycle Q Clear(g_c), s	17.4	0.0	10.2	12.0	0.0	56.9
Prop In Lane	0.40	0.59	1.00			0.19
Lane Grp Cap(c), veh/h	305	0	206	1374	0	1037
V/C Ratio(X)	0.97	0.00	0.90	0.42	0.00	1.00
Avail Cap(c_a), veh/h	305	0	206	1374	0	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	43.7	5.3	0.0	21.6
Incr Delay (d2), s/veh	42.4	0.0	36.7	0.2	0.0	29.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	6.6	3.9	0.0	30.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	83.0	0.0	80.4	5.5	0.0	50.5
LnGrp LOS	F	A	F	A	A	F
Approach Vol, veh/h	295			763	1041	
Approach Delay, s/veh	83.0			23.8	50.5	
Approach LOS	F			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		77.4		22.6	16.0	61.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		72.9		18.1	11.5	56.9
Max Q Clear Time (g_c+I1), s		14.0		19.4	12.2	58.9
Green Ext Time (p_c), s		4.5		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	337	274	190	893
Average Queue (ft)	178	150	89	783
95th Queue (ft)	327	254	164	1060
Link Distance (ft)	883	1435	1435	846
Upstream Blk Time (%)				43
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

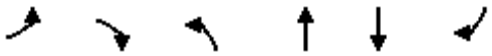
Network wide Queuing Penalty: 0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	170	180	560	815	195
Future Volume (vph)	115	170	180	560	815	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50	0			0
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	917			1456	879	
Travel Time (s)	20.8			33.1	20.0	
Turn Type	Prot		Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases						6
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5
Total Split (s)	22.5		17.0	67.5	50.5	50.5
Total Split (%)	25.0%		18.9%	75.0%	56.1%	56.1%
Maximum Green (s)	18.0		12.5	63.0	46.0	46.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	Min	Min	Min
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 81.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Veterans Memorial Dr & Angeline Rd





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	170	180	560	815	195
Future Volume (veh/h)	115	170	180	560	815	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1885	1885	1885
Adj Flow Rate, veh/h	119	175	186	577	840	201
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	135	199	226	1291	944	800
Arrive On Green	0.20	0.20	0.13	0.68	0.50	0.50
Sat Flow, veh/h	680	1000	1795	1885	1885	1598
Grp Volume(v), veh/h	295	0	186	577	840	201
Grp Sat Flow(s),veh/h/ln	1686	0	1795	1885	1885	1598
Q Serve(g_s), s	13.2	0.0	7.8	10.8	31.1	5.6
Cycle Q Clear(g_c), s	13.2	0.0	7.8	10.8	31.1	5.6
Prop In Lane	0.40	0.59	1.00			1.00
Lane Grp Cap(c), veh/h	335	0	226	1291	944	800
V/C Ratio(X)	0.88	0.00	0.82	0.45	0.89	0.25
Avail Cap(c_a), veh/h	392	0	290	1534	1120	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	0.0	33.0	5.5	17.4	11.0
Incr Delay (d2), s/veh	18.0	0.0	13.7	0.2	8.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	4.2	3.3	14.0	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.1	0.0	46.7	5.8	25.5	11.2
LnGrp LOS	D	A	D	A	C	B
Approach Vol, veh/h	295			763	1041	
Approach Delay, s/veh	48.1			15.8	22.7	
Approach LOS	D			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		57.5		19.9	14.3	43.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		63.0		18.0	12.5	46.0
Max Q Clear Time (g_c+I1), s		12.8		15.2	9.8	33.1
Green Ext Time (p_c), s		4.5		0.3	0.1	5.7

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection: 1: Veterans Memorial Dr & Angeline Rd

Movement	EB	NB	NB	SB	SB
Directions Served	LR	L	T	T	R
Maximum Queue (ft)	263	214	230	641	238
Average Queue (ft)	127	119	90	329	47
95th Queue (ft)	230	195	171	575	162
Link Distance (ft)	870	1435	1435	846	846
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

MOVEMENT SUMMARY

Site: 1 [Projected 2049 (Site Folder: General)]

PM Peak Hour
Angeline Rd at Veterans Memorial Dr
Site Category: (None)
Roundabout

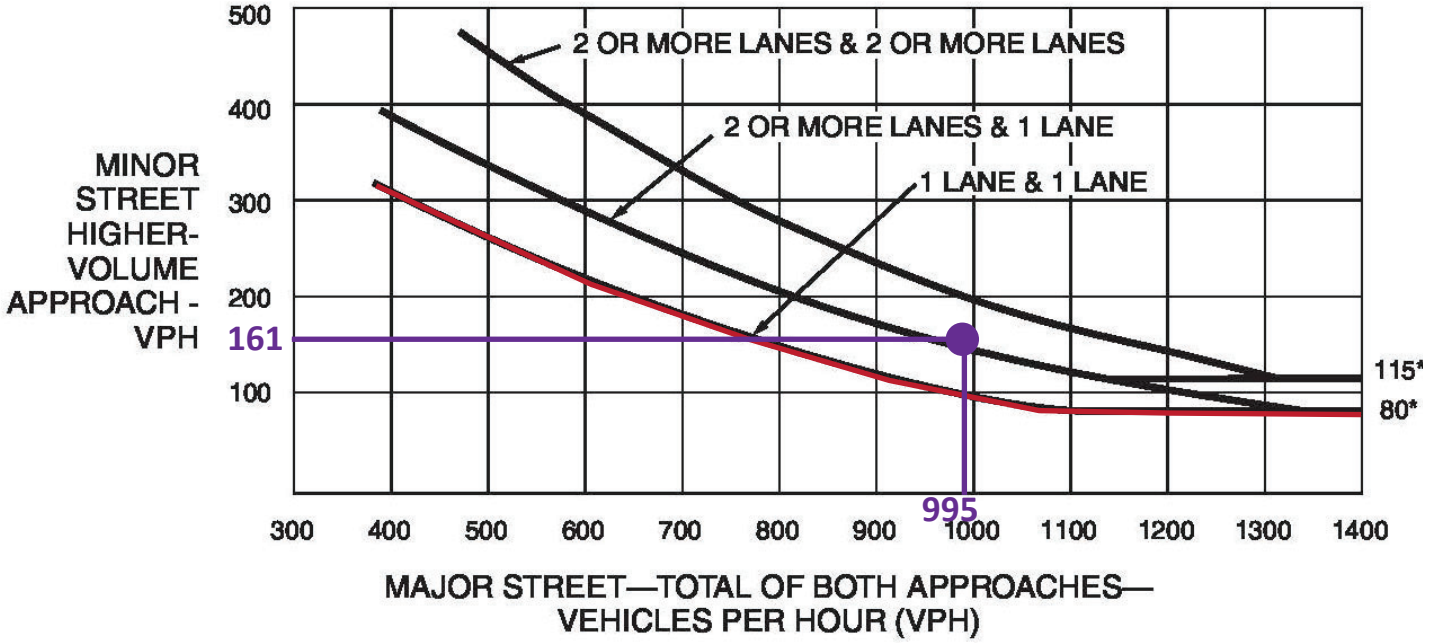
Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: NB Veterans Memorial Dr														
3	L2	180	1.0	186	1.0	0.596	10.5	LOS B	5.8	147.2	0.52	0.53	0.52	35.6
8	T1	560	1.0	577	1.0	0.596	4.9	LOS A	5.8	147.2	0.52	0.53	0.52	35.5
Approach		740	1.0	763	1.0	0.596	6.2	LOS A	5.8	147.2	0.52	0.53	0.52	35.5
North: SB Veterans Memorial Dr														
4	T1	815	1.0	840	1.0	0.844	8.1	LOS A	14.1	355.4	0.88	0.71	0.97	34.9
14	R2	195	1.0	201	1.0	0.844	8.1	LOS A	14.1	355.4	0.88	0.71	0.97	33.9
Approach		1010	1.0	1041	1.0	0.844	8.1	LOS A	14.1	355.4	0.88	0.71	0.97	34.7
West: EB Angeline Rd														
5	L2	115	0.0	119	0.0	0.473	16.3	LOS B	4.1	101.6	0.96	0.98	1.06	33.0
12	R2	170	0.0	175	0.0	0.473	10.7	LOS B	4.1	101.6	0.96	0.98	1.06	32.1
Approach		285	0.0	294	0.0	0.473	12.9	LOS B	4.1	101.6	0.96	0.98	1.06	32.5
All Vehicles		2035	0.9	2098	0.9	0.844	8.1	LOS A	14.1	355.4	0.76	0.68	0.82	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

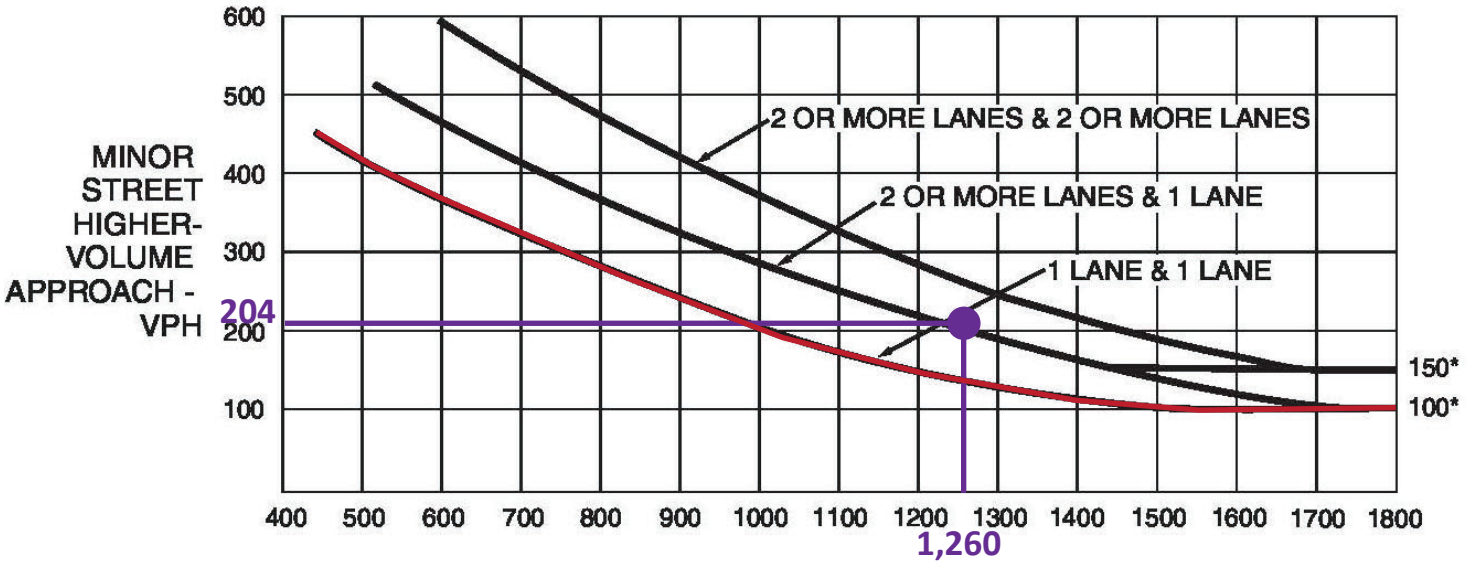
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Organisation: SCJ ALLIANCE | Licence: PLUS / 1PC | Processed: Monday, April 10, 2023 10:22:04 AM
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Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Legend

2023 PM Peak Hour

Appendix E

Crash Data

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* THE FOLLOWING INTERSECTION IN THE CITY OF BONNEY LAKE

Angeline Rd @ Veterans Memorial Dr / Old Sumner Buckley Hwy

01/01/2017 - 12/31/2021

PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)
ANGELINE RD E	OLD SUMNER BUCKLEY HWY					E834862	09/04/2018	07:43	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000	Entering at angle	Making Left Turn	Making Left Turn	Inattention
ANGELINE RD E		84	F	SW	OLD SUMNER BUCKLEY HWY	E968579	10/04/2019	16:05	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Passenger Car	Entering at angle	Going Straight Ahead	Making Right Turn	None
OLD SUMNER BUCKLEY HWY	ANGELINE RD E					E642044	02/05/2017	20:55	No Apparent Injury	0	0	2	0	0	Passenger Car	Not Stated	Entering at angle	Stopped for Traffic	Making Right Turn	None
OLD SUMNER BUCKLEY HWY	ANGELINE RD E					E946936	08/03/2019	22:03	No Apparent Injury	0	0	1	0	0	Passenger Car		Over Embankment - No Guardrail Present	Going Straight Ahead		Under Influence of Alcohol
OLD SUMNER BUCKLEY HWY	ANGELINE RD E					EA67125	09/24/2020	16:45	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	Follow Too Closely
OLD SUMNER BUCKLEY HWY		59	F	SE	ANGELINE RD E	E753327	12/24/2017	13:51	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Motorcycle	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	Inattention
OLD SUMNER BUCKLEY HWY		30	F	SE	ANGELINE RD E	E919654	05/10/2019	09:32	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Pickup,Panel Truck or Vanette under 10,000	From opposite direction - both going straight - sideswipe	Going Straight Ahead	Making Right Turn	Inattention
OLD SUMNER BUCKLEY HWY		108	F	SE	ANGELINE RD E	EB31777	05/18/2021	16:10	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Passenger Car	From same direction - both going straight - one stopped - rear-end	Stopped for Traffic	Going Straight Ahead	None
OLD SUMNER BUCKLEY HWY		129	F	S	ANGELINE RD E	E642045	02/05/2017	21:20	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Not Stated	From opposite direction - all others	Stopped for Traffic	Going Straight Ahead	None
OLD SUMNER BUCKLEY HWY		75	F	SE	ANGELINE RD E	E892099	02/04/2019	15:19	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000	From opposite direction - all others	Going Straight Ahead	Going Straight Ahead	Other Contributing Circ Not Listed
VETERANS MEMORIAL DR E	ANGELINE RD E					E682623	06/15/2017	17:16	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	Entering at angle	Going Straight Ahead	Making Right Turn	Improper Turn/Merge
VETERANS MEMORIAL DR E	ANGELINE RD E					EA50687	07/28/2020	08:50	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000	Entering at angle	Making Left Turn	Going Straight Ahead	Unknown Distraction
VETERANS MEMORIAL DR E	ANGELINE RD E					EA15338	01/28/2019	16:05	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Pickup,Panel Truck or Vanette under 10,000	Entering at angle	Making Left Turn	Going Straight Ahead	Did Not Grant RW to Vehicle
VETERANS MEMORIAL DR E	ANGELINE RD E					E962763	09/19/2019	15:48	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette	Pickup,Panel Truck or Vanette under 10,000	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	Inattention
VETERANS MEMORIAL DR E		84	F	N	ANGELINE RD E	E902223	03/12/2019	06:56	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	From same direction - both going straight - both moving - rear-end	Overtaking and Passing	Making Left Turn	Inattention
ANGELINE RD E	VETERANS MEMORIAL DR E					E784502	03/31/2018	08:44	Possible Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette	Passenger Car	Entering at angle	Making Left Turn	Going Straight Ahead	Inattention
OLD SUMNER BUCKLEY HWY	ANGELINE RD E					E627827	01/03/2017	15:30	Possible Injury	1	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000	From same direction - one left turn - one straight	Changing Lanes	Stopped for Traffic	Inattention
OLD SUMNER BUCKLEY HWY	ANGELINE RD E					EA23533	03/08/2020	14:40	Possible Injury	2	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000	From same direction - both going straight - one stopped - rear-end	Stopped for Traffic	Going Straight Ahead	None
OLD SUMNER BUCKLEY HWY AKA VETERANS MEM DR		80	F	S	ANGELINE RD E	E715224	09/19/2017	16:57	Possible Injury	1	0	3	0	0	Pickup,Panel Truck or Vanette	Passenger Car	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	Inattention
VETERANS MEMORIAL DR E	ANGELINE RD E					E949934	08/07/2019	09:33	Possible Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette	Truck Tractor	From opposite direction - both going straight - sideswipe	Overtaking and Passing	Going Straight Ahead	Under Influence of Drugs
VETERANS MEMORIAL DR E	ANGELINE RD E					EA21905	03/03/2020	18:11	Possible Injury	2	0	2	0	0	Passenger Car	Passenger Car	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	Unknown Distraction
VETERANS MEMORIAL DR E		94	F	N	ANGELINE RD E	E682624	06/15/2017	19:00	Possible Injury	1	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb		Over Embankment - No Guardrail Present	Going Straight Ahead		Under Influence of Alcohol
ANGELINE RD E	VETERANS MEMORIAL DR E					EB88382	11/11/2021	15:52	Suspected Minor Injury	2	0	2	0	0	Pickup,Panel Truck or Vanette	Passenger Car	Entering at angle	Making Left Turn	Going Straight Ahead	Did Not Grant RW to Vehicle
ANGELINE RD E		125	F	SW	OLD SUMNER BUCKLEY HWY	E966208	09/30/2019	22:01	Unknown	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb		Fire Hydrant	Going Straight Ahead		Unknown Distraction

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Appendix K: Intersection Control Evaluation
Church Lake Road E at W Tapps Highway

May 2024

BONNEY Lake

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printing purposes.

Intersection Control Evaluation

Church Lake Road E at W Tapps Highway

City of Bonney Lake, Washington

Prepared For:
City of Bonney Lake, Washington

Prepared By:
SCJ Alliance
8730 Tallon Lane NE, Suite 200
Lacey, WA 98516
360.352.1465

May 2024

SCJ ALLIANCE
CONSULTING SERVICES

Intersection Control Evaluation

Project Information

Project:	Church Lake Road E at West Tapps Highway
Prepared for:	City of Bonney Lake Jason Sullivan, Planning & Building Supervisor 9002 Main Street E, Bonney Lake, WA 98391

Reviewing Agency

Jurisdiction:	City of Bonney Lake, Washington

Project Representative

Prepared by:	SCJ Alliance 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465 scjalliance.com
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Project Reference:	SCJ #23-000008
	Path: N:\Projects\0610 City of Bonney Lake\23-000008 Angeline Rd-Veterans Memorial Dr Study\02-Church Lake Rd ICE\04-Dels\Final ChurchLk@Tapps ICE.docx

Signature

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by Anne Sylvester, PTE and Ryan Shea, PTP

Approved by Eric Johnston, PE, Principal



05/16/2024

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1 Introduction

The intersection of Church Lake Road E and West Tapps Highway E in the City of Bonney Lake has been identified for improvements in the City's current transportation plan. This intersection currently operates under stop control for West Tapps Highway. The transportation plan identifies traffic signal control, as well as an eastbound left turn lane and a southbound left turn lane at this location. The baseline and contextual needs for this project focus on:

- Church Lake Road E provides a significant east/west connection across the city, and improvements to the intersection with West Tapps Highway will improve safety and the efficiency of traffic movement in that corridor.
- Improving expected future LOS F traffic operations for side street traffic during summer months on West Tapps Highway to LOS D and/or v/c of 0.90 or better. West Tapps Highway is one of a limited number of north/south roads in the northern part of the city and the provision of good traffic operations is essential to circulation within the city.

The project location is shown in **Figure 1**.

1.1 Purpose of this Report

The purpose of this study is to assess a range of improvement alternatives in greater detail including the originally proposed traffic signal and a roundabout.

1.2 Report Content and Organization

This report is organized into six chapters, the first of which is this Introduction. Chapter 2 presents a discussion of existing conditions including characterization of the existing street system, a current three-day roadway traffic count and peak hour turning movements, and a summary of recent crash history and safety at the intersection.

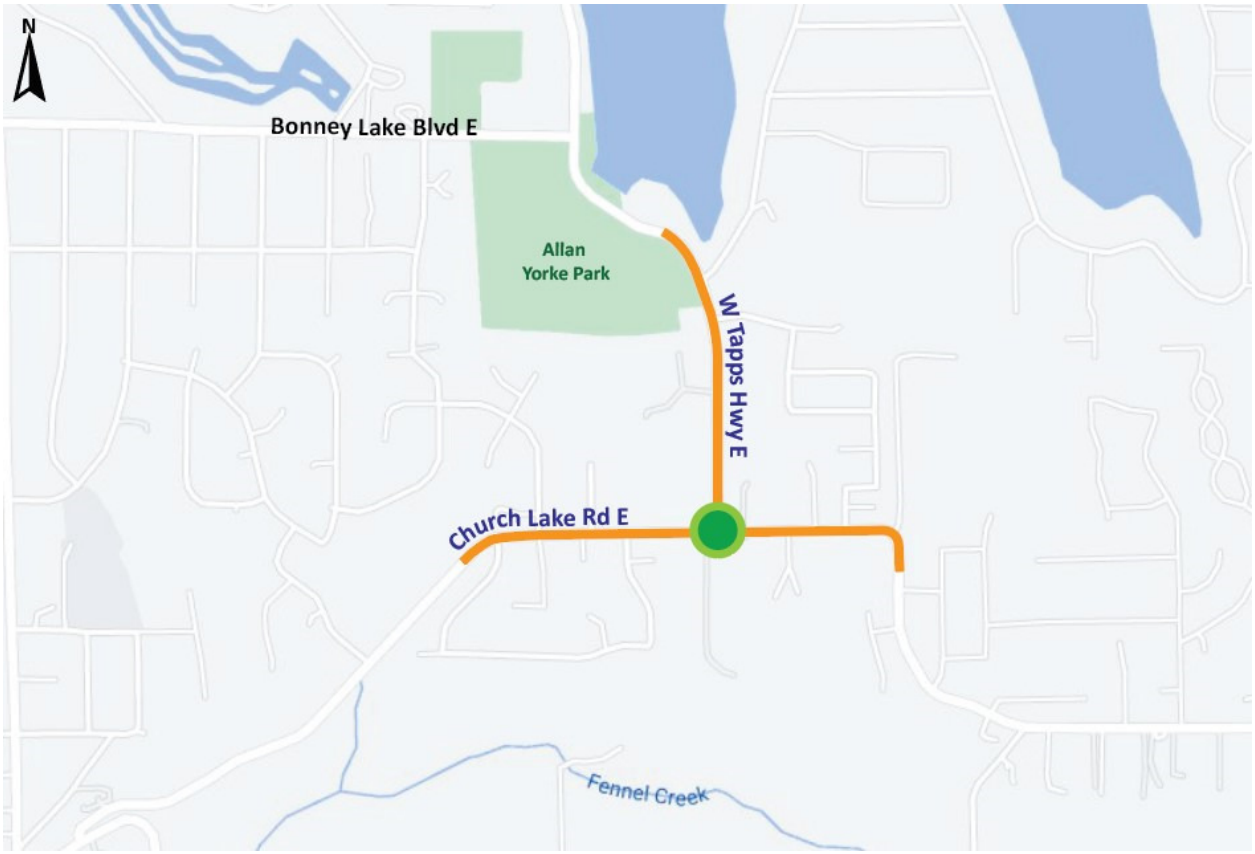
Chapter 3 presents a discussion of future traffic volume projections.

Chapter 4 describes the development and evaluation of No Build and two Build intersection improvement alternatives including right of way and environmental feasibility, cost estimates, context and sustainability elements including multimodal capabilities, maintenance and operational considerations, and geometrics and physical constraints.

Chapter 5 includes a discussion of traffic operational and safety impacts of the No Build and two Build Alternatives.

Chapter 6 outlines study recommendations. This chapter also provides a brief summary of public engagement activities associated with the evaluation of alternatives and selection of a preferred course of action.

Figure 1. Project Vicinity



2 Existing Conditions

2.1 Roadway System

2.1.1 Church Lake Road E

Church Lake Road E is a two-lane Minor Arterial roadway in the City of Bonney Lake extending from the intersection with Veterans Memorial Drive E on the west to Kelly Lake Road E on the east. There are no bicycle lanes or sidewalks on this road and the posted speed limit is 25 miles per hour.

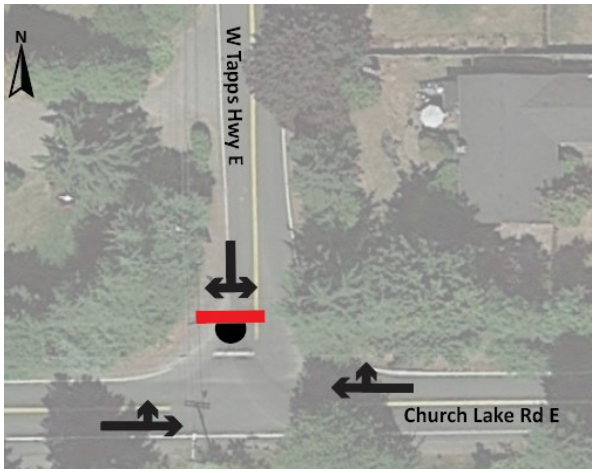
2.1.2 West Tapps Highway

West Tapps Highway is identified in the 2015 *Bonney Lake Community Mobility Element* as a two-lane Minor Arterial and is recommended for redesignation as a "primary multi-modal road" that extends from S Tapps Drive E on the north and Church Lake Road E on the south. There are no sidewalks or bicycle lanes on this road in the vicinity of Church Lake Road E but the designation of primary multi-modal road establishes a community priority for developing pedestrian, bicycle, and trail facilities. The posted speed limit is 25 miles per hour.

2.1.3 Church Lake Road E at West Tapps Highway Intersection

The intersection of Church Lake Road E with West Tapps Highway currently operates under stop control for the W Tapps Highway approach with a single travel lane from which both right and left turns can be made. Single lane approaches are also provided on Church Lake Road E from which left turns can be made in the eastbound direction and right turns in the westbound direction. There are no sidewalks or crosswalks at the intersection which is shown in **Figure 2**.

Figure 2. Church Lake Road at W Tapps Highway Intersection



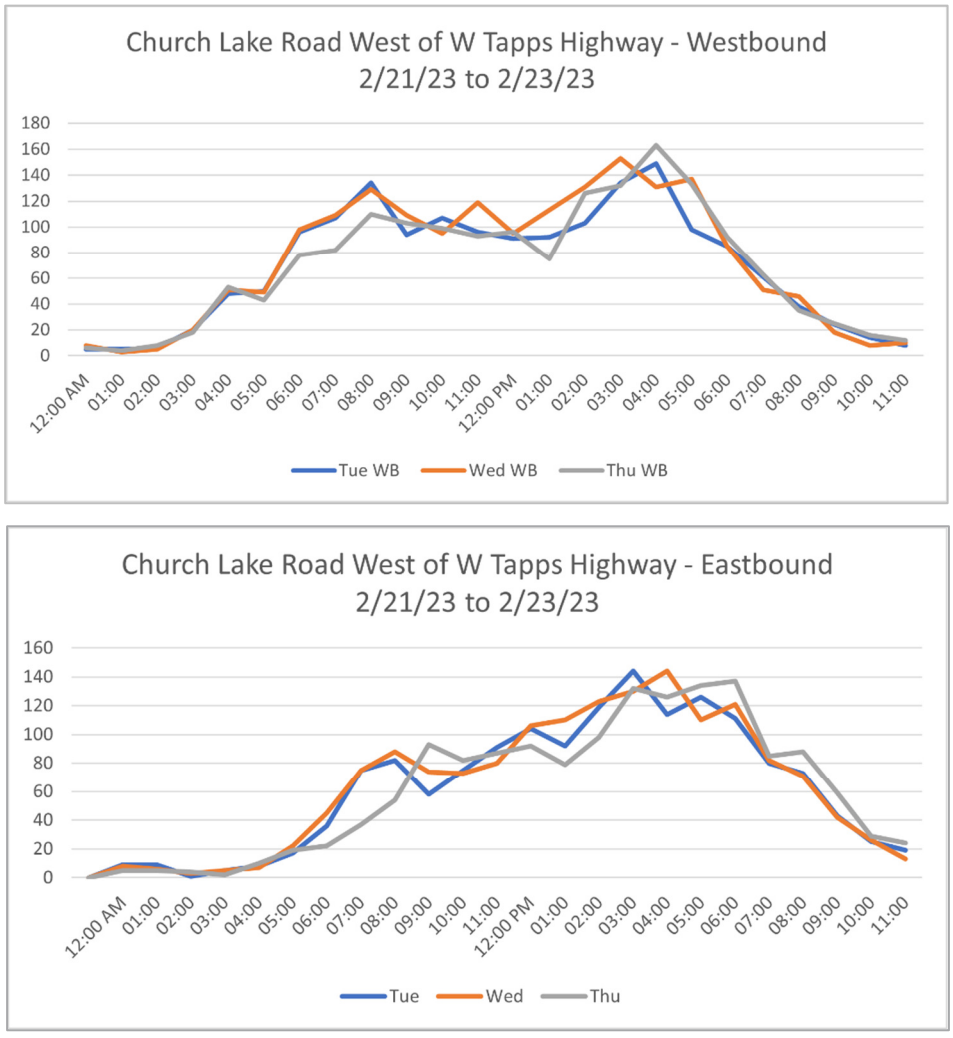
2.2 Traffic Counts

Traffic Count Consultants, TC2, a transportation data collection service, provided both hourly roadway counts on Church Lake Road and W Tapps Highway, and PM peak period turning movement counts at the intersection of Church Lake Road with W Tapps Highway.

2.2.1 Roadway Counts

Roadway counts were taken on Church Lake Road west of W Tapps Highway for a three-day period from midnight on Tuesday February 21, 2023 through midnight on Thursday February 23, 2023. Data was collected at 15-minute intervals for the three-day period and summarized by hour. This data in both eastbound and westbound directions is presented in **Figure 3**. Detailed information is included in **Appendix A**.

Figure 3. Church Lake Road West of W Tapps Highway Hourly Traffic Volumes



As noted in Figure 3, westbound traffic exhibited two peak periods, one during the morning rush hour and the other during the evening. In the eastbound direction, traffic tends to peak during the afternoon and early evening.

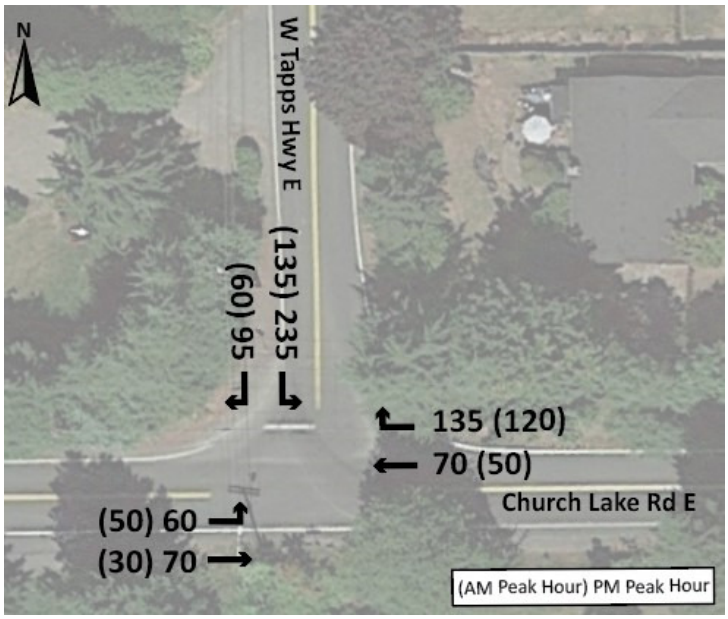
Total daily traffic volumes averaged over the three days are just over 3,200 vehicles on Church Lake Road. This volume is nearly evenly split between eastbound and westbound vehicles with an

average of 1,530 eastbound and 1,700 westbound. Daily vehicle counts will be used as the basis for analyzing traffic signal warrants, and the feasibility of traffic signal installation.

2.2.2 Turning Movement Counts

Peak hour turning movement counts were obtained for the intersection of Church Lake Road E and W Tapps Highway to serve as the basis for existing and future operational analysis and the comparison of improvement alternatives. The PM peak hour count was conducted on February 23, 2023 between 4:00 and 6:00 PM, while the AM peak hour count was conducted on April 20, 2023 between 7:00 and 9:00 AM. The highest hour in the AM peak occurred between 8:00 and 9:00 AM, while the PM peak period occurred between 4:00 and 5:00 PM and has been used for intersection operational analysis. The 2023 AM and PM peak hour volumes are shown in **Figure 5**. Detailed turning movement count data is also included in **Appendix A.**

Figure 4. Church Lake Road E at W Tapps Highway 2023 AM and PM Peak Hour Volumes



The turning movement count also included a record of pedestrian and bicyclist activity at the intersection during the peak periods. The data record indicates that there were no pedestrians or bicyclists observed at the intersection during either the AM or PM peak periods.

2.3 Intersection Sight Distance

Church Lake Road has a posted speed of 25 mph in the vicinity of W Tapps Highway which would normally be the basis for evaluating intersection sight distance needs and potential deficiencies. However, the city noted that a pattern of speeding along W Tapps Highway is a concern so sight distance requirements were evaluated on the basis of the 85th percentile speed in this location.

Based on a speed study conducted from October 3, 2023 through October 5, 2023, the 85th percentile speed was identified as roughly 33 mph. This equates to a minimum intersection sight distance of 320

feet for westbound right turns at W Tapps Highway. The 85th percentile speed for eastbound traffic was roughly 34 mph which equates to a minimum intersection sight distance of 375 feet for left turns.

As shown in **Figure 5**, the available sight distance is approximately 600 feet to the west (right) which is sufficient to meet the required sight distance of 375 feet. Available sight distance to the east (left) is only 270 feet which is insufficient to meet the required sight distance of 320 feet with speeds at 33 mph. It should be noted that there is sufficient sight distance to meet a 240-foot requirement based on the posted speed of 25 mph.

Additionally, it should be noted that there is some vegetation interference with sight distance to the left which requires a vehicle to pull far forward into the intersection to see the full distance. Approaching the intersection from the east there is a vertical curve which inhibits adequate sight distance (see photo on the left in **Figure 6**). There is an advance warning sign indicating limited sight distance for the Tapps Highway connection.

Figure 5. Church Lake Road E at W Tapps Highway Minimum Recommended Sight Distance

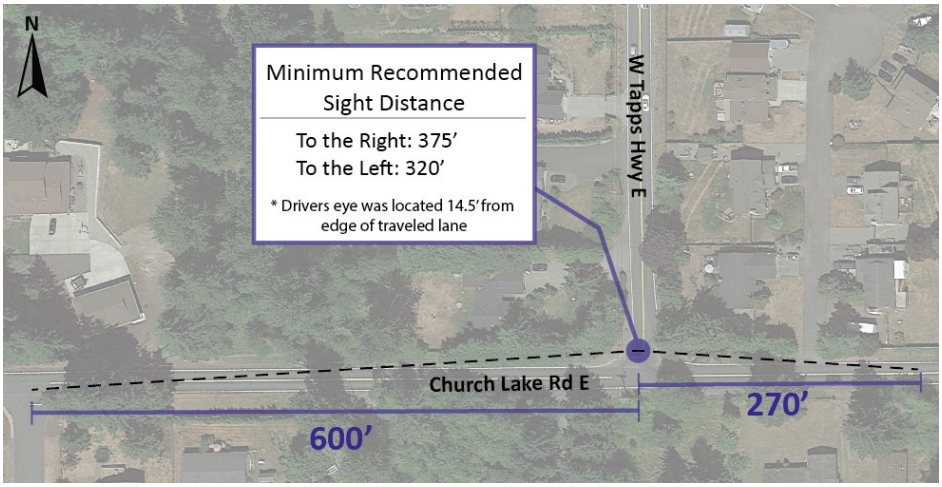


Figure 6. Church Lake Road E at W Tapps Highway Intersection Sight Distance



Looking East from W Tapps Highway



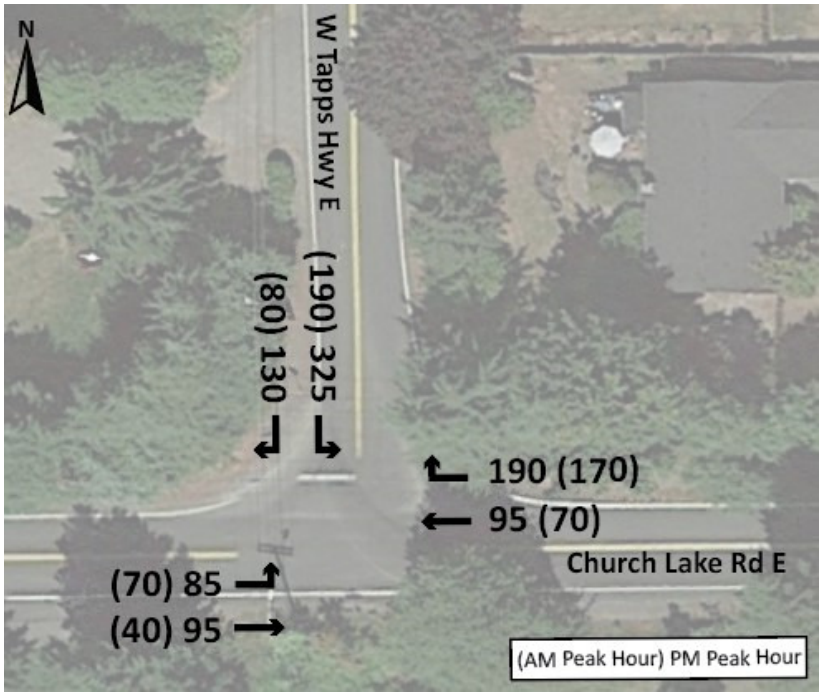
Looking West from W Tapps Highway

3 Future Traffic Volumes

Traffic volume projections have been prepared for the planning horizon year of 2049 consistent with the pending update to the City's Community Mobility Plan. 2049 represents 100 years since the city was first incorporated. Projections were based on a review of traffic growth rates obtained from the current Puget Sound Regional Council (PSRC) travel demand model. A 1.5 percent annualized growth rate was assumed.

The projected 2049 AM and PM peak hour traffic volumes for the Church Lake Road E/W Tapps Highway intersection are shown in **Figure 7**. Worksheets showing the calculation of future year traffic projections are included in **Appendix B**.

Figure 7. Church Lake Road E at W Tapps Highway 2049 AM and PM Peak Hour Volumes



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4 Intersection Alternatives

The City's current transportation plan includes a long-range improvement to the intersection of Church Lake Road E with W Tapps Highway. This intersection would involve installation of a traffic signal, as well as an eastbound left turn lane and a southbound left turn lane at this location. Before advancing this improvement, the city wants to re-evaluate the intersection to confirm the appropriate form of traffic control that should be implemented. Two intersection improvement alternatives have been developed and are described and evaluated in this chapter.

4.1 Identification of Alternatives

Two intersection improvement alternatives have been identified and studied including the addition of traffic signal control with added lane channelization, and single lane roundabout control. Analysis will be conducted at the sketch planning level to determine optimal traffic operations, and to identify footprint and determine how it will impact right of way, environment, and cost.

- *Traffic Signal* – As shown in **Figure 8**, this alternative initially assumes the same channelization as exists today on both roadways approaching the intersection.

Figure 8. Church Lake Road E at W Tapps Highway - Traffic Signal Alternative



- *Roundabout* – As shown in **Figure 9**, this alternative would involve construction of a three-leg roundabout that provides a single lane approach on all intersection legs.

Figure 9. Church Lake Road E at W Tapps Highway - Roundabout Alternative



- *All-Way Stop* – This alternative would involve installation of additional stop signs on Church Lake Road such that all intersection approaches would be stop-controlled.

4.2 Feasibility

The feasibility of the three improvement alternatives was evaluated in terms of impacts on available right of way, the built and natural environment, and estimated costs.

4.2.1 Right of Way

4.2.1.1 Alternative 1 – Traffic Signal

As shown in Figure 7, Alternative 1 would use the existing intersection footprint and is not anticipated to impact existing available right of way.

4.2.1.2 Alternative 2 – Roundabout

As shown in Figure 8, Alternative 2 would require expansion beyond the existing pavement footprint and available right of way. It would be necessary to acquire small amounts of additional right of way on the

northwest and northeast corners of the intersection and a larger amount of right of way on the south side of the intersection to accommodate both the circular island and vehicle pathway and a stormwater management facility to be located south of the intersection. The stormwater facility would need to be fairly large as existing soils do not infiltrate well.

4.2.1.3 Alternative 3 – All-Way Stop Control

As with Alternative 1, this alternative would use the existing intersection footprint and is not anticipated to affect existing right of way.

4.2.2 Environmental

4.2.2.1 Alternative 1 – Signal

Alternative 1 would use the existing intersection footprint and would remain within the available right of way. This alternative would have minimal or no environmental impacts.

4.2.2.2 Alternative 2 – Roundabout

As this alternative would require acquisition of right of way to construct, there would be some impact to residential properties surrounding the intersection. The effects are expected to be minor on the north side of the intersection, with a greater impact on a residential parcel to the south. Acquisition for the roadway and pond would be relatively limited in scope and would not adversely affect site access or existing structures. It should also be noted that there is a potential wetland on the property to the west of the roundabout and pond. Any required buffering from the pond will need to be determined and may affect the right of way acquisition. This will be determined during project design.

4.2.2.3 Alternative 3 – All-Way Stop Control

As with Alternative 1, this alternative would use the existing intersection footprint and would remain within the available right of way. This alternative would have minimal or no environmental impacts.

4.2.3 Cost Estimate

A planning level cost estimate has been prepared for each intersection alternative to assist in the selection of the recommended improvement. It should be noted that any physical improvement to the intersection such as a signal or roundabout will require additional mitigation to address an existing stormwater management problem at the intersection. This mitigation would add $130,000 to the cost of either intersection improvement.

4.2.3.1 Alternative 1 – Signal

The estimated cost for this alternative would be $707,300. Details of the planning level cost estimate are included in **Appendix C**.

4.2.3.2 Alternative 2 – Roundabout

The estimated cost for this alternative would be $1,576,600. Details of the planning level cost estimate are included in **Appendix C**.

4.2.3.3 Alternative 3 – All-Way Stop Control

The estimated cost for installation of signs would likely be less than $5,000 but, if advanced, should be done in conjunction with the proposed correction to an existing vertical curve to the east of the intersection. Installation of a flashing stop beacon to improve the visibility of the new traffic control would be approximately $60,000 (see **Appendix C** for details).

4.2.3.4 Vertical Curve Correction

In addition to considering improvement options at the Church Lake Road/W Tapps Highway intersection, a cost analysis was also completed to evaluate a roadway reconstruction option that would level the existing vertical curve that affects sight distance when approaching the intersection from the east. This improvement would require modification of an existing 8-inch water main and would cost an estimated $533,700 (see **Appendix C** for details).

4.3 Context and Sustainability

4.3.1 Multimodal Capabilities

No bicycle or pedestrian facilities currently exist at the intersection or within reasonable distance from the intersection on the approach legs. Roadway shoulders are minimal or non-existent. None of the alternatives would include the addition of sidewalks or bicycle lanes through the intersection. However, the W Tapps Highway/Church Lake Road intersection provides access to Allan Yorke Park which will see substantial expansion in the future including the addition of separated bicycle and pedestrian facilities. Nothing in any of the alternatives would preclude longer-term enhancement to active transportation access through the intersection and up W Tapps Highway to the park.

4.3.2 Maintenance and Sustainability

4.3.2.1 Alternative 1 - Signals

Signalized intersections require continual maintenance and engineering for optimal operations. Consideration should be given to the installation of signals, lighting, and cabinets outside of the roadway clear zone but in areas that are reasonably accessible for long-term sustainability and safety.

4.3.2.2 Alternative 2 - Roundabouts

Roundabouts are relatively easy to maintain depending on specific design features such as pavement type, traffic island materials, the placement of signing and lighting, pedestrian crossings and bicycle access, drainable locations, and curbs. The use of hardscape splitter islands would require less maintenance than vegetated islands over the long term. Vegetated center islands would also require greater on-going maintenance. Sustainably, the roundabout option eliminates the hardware, maintenance and electrical costs that are associated with a traffic signal.

4.3.2.3 Alternative 3 – All-Way Stop Control

Stop sign control is relatively easy to maintain, requiring replacement when damaged due to natural causes (such as loss of reflectivity) or vehicle collision. On-going operations and maintenance of a flashing stop beacon would incur ongoing costs for electricity and routine maintenance equivalent to what is required for the stop signs by themselves.

5 Traffic Operations and Safety

Using the existing and future 2049 peak hour traffic volumes, traffic operations and safety was evaluated at the study intersection for each control alternative.

5.1 Traffic Operations Analysis

Motor vehicle operations were evaluated by conducting traffic analysis and identifying deficiencies for AM and PM peak hours in the 2023 base year and 2049 design analysis year. According to the requirements identified in the City's 2015 *Comprehensive Plan, Community Mobility Element*, traffic performance at intersections must meet mobility targets that are comprised of both delay-based intersection levels of service and volume-to-capacity ratio for key movements.

5.1.1 Performance Targets

5.1.1.1 Levels of Service

The acknowledged source for determining operating performance for arterial segments and independent intersections is the current edition of the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB).

Intersection analysis was performed using the Synchro/SimTraffic software package (version 11). This software implements the methods of the 6th Edition HCM. The analysis for the scenario with roundabout control was performed using the SIDRA software package (version 9.0). Operations analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a street or highway during a specific time interval. As described in **Table 1**, LOS ranges from A (very little delay) to F (long delays and congestion).

The City of Bonney Lake has adopted a minimum LOS D standard for this intersection. Any transportation facility that functions below the adopted standard would be considered as failing. For intersections under minor street stop sign control, the intersection LOS of the most difficult movement (typically the minor street left turn) represents the intersection level of service.

Table 1. Level of Service Criteria based on Average Vehicle Delay

Level of Service	Signalized and Roundabout Intersection Average Control Delay (seconds/vehicle)	Stop-Controlled or Roundabout Intersection Average Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Highway Capacity Manual, 6th Edition, 2016.

5.1.1.2 Volume-to-Capacity Ratios

The Bonney Lake *Community Mobility Plan* identifies the need for an additional performance standard beyond delay-based LOS. This additional standard requires that all signalized intersections have a volume-to-capacity ratio for each of the individual legs of the intersection that does not exceed 1.0. The V/C is determined by the actual number of vehicles on the roadway as compared to the capacity of the roadway. **Table 2** correlates v/c ratios to qualitative levels of service.

Table 2. Level of Service Criteria for Arterials based on Volume-to-Capacity Ratios

Level of Service	V/C Ratio	Description
A	0.00 to 0.60	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.
B	0.61 to 0.70	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.
C	0.71 to 0.80	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.
D	0.81 to 0.90	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	0.91 to 1.00	Operations with significant intersection approach delays and low average speeds.
F	Greater Than 1.00	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.

5.1.2 Intersection Operational Analysis

For intersections under minor street stop-control, the LOS of the most difficult movement (typically the minor street left-turn) represents the intersection Level of Service for purposes of assessing potential impacts. For traffic signals, all-way stop control, and roundabouts, the intersection average delay is used to assess potential impacts. The following table shows the Level of Service criteria for two-way stop-controlled and roundabout intersections and for signalized and all-way stop-controlled intersections.

The analysis was conducted for the AM and PM peak hours for existing 2023 traffic volumes and 2049 traffic volumes with no improvement with analysis results presented in **Table 3**. As the PM peak hour would operate with substantially higher delays than the AM peak hour, analysis of improvement options has focused on the PM peak.

Existing 2023 AM peak hour traffic is currently operating at LOS B with about 13 seconds of average delay. During the 2023 PM peak hour, traffic is operating at LOS C with about 16 seconds of average delay.

By the 2049 PM peak hour, operations with the existing channelization and traffic control would drop to LOS E with over 40 seconds of average delay and a V/C ratio of 0.87. The southbound traffic queue on W Tapps Highway would be approximately 200 feet in length. The vehicle queuing analysis was conducted using the SimTraffic simulation tool included in the Synchro software package. The analysis shows the

average of five simulations, providing the 95th percentile queue, which is the peak typical queue experienced, excluding the highest five percent of occurrences. The 95th percentile queue is a useful parameter for determining the appropriate length of turn pockets but is not typical of what the average driver would experience.

Table 3. Peak Hour Level of Service

	AM Peak Hour			PM Peak Hour		
	Traffic Performance		95th Percentile Queues (in feet)	Traffic Performance		95th Percentile Queues (in feet)
Concepts Evaluated	**LOS (Delay)**	**V/C**	**Longest Queue (approach)**	**LOS (Delay)**	**V/C**	**Longest Queue (approach)**
2023 Existing Conditions	B (13.3)[1]	0.38[1]	--	C (16.1)[1]	0.53[1]	--
2049 No Improvement	C (20.6)[1]	0.62[1]	--	**E (40.2)**[1]	**0.87**[1]	**200' (SB)**[2]
2049 Traffic Signal with Existing Channelization	--	--	--	A (9.2)	--	165' (SB)[2]
2049 Roundabout	A (0.7)	0.31	50 (SB)[2]	A (0.8)	0.41	65 (SB)[2]
2049 All-Way Stop Control with Existing Channelization	--	--	--	C (16.2)	0.71	125' (SB)

Note: Queuing distances are rounded to the nearest five feet.
1. LOS or V/C is for the worst movement which is on southbound W Tapps Highway
2. Queue is on W Tapps Highway

Three improvement alternatives were evaluated including the addition of traffic signals, the development of a single lane roundabout, and the installation of all-way stop control. As shown in Table 3, the traffic signal alternative would provide an acceptable level of service (LOS) A during the 2049 PM peak hour and would experience approximately 165 feet of queuing on W Tapps Highway heading into the intersection. No additional lane channelization for left or right turns would be needed.

The roundabout alternative would only require a single lane approach in each direction but would offer LOS A operations for both the 2049 AM and PM peak hours with the longest 95th percentile queue being about 65 feet (on W Tapps Highway heading southbound into the intersection).

The all-way stop control alternative would keep the existing single lane approach on all legs and would operate at LOS C during the 2049 PM peak hour.

Detailed results of the operational analyses are attached as **Appendix D**.

5.1.3 Summertime Traffic Evaluation

Knowing that traffic along Church Lake Road E and W Tapps Highway experiences more congestion during the summertime peak due to the proximity of Alan Yorke Park on Church Lake, traffic counts were taken and analysis conducted to account for this seasonality. Analysis focused on the PM peak period, since the evaluation documented earlier in this report indicated that this was the busiest time of day.

A PM peak period count was conducted on Wednesday, August 2, 2023 between 4:00 and 6:00 PM. The highest single hour in the PM peak occurred between 4:30 and 5:30 PM, and has been used for intersection operational analysis. Detailed turning movement count data is also included in **Appendix A.**

As described earlier in this report traffic volume projections have been prepared for the planning horizon year of 2049 consistent with the pending update to the City's Community Mobility Plan. A 1.5 percent annualized growth rate was assumed and applied to the 2023 summertime turning movement counts. Traffic projections are included in **Appendix B**.

Analysis was conducted for the PM peak hour for existing 2023 traffic volumes and 2049 traffic volumes with the various improvement alternatives. Analysis results are presented in **Table 4** and are compared with analysis results for the wintertime PM peak hours.

As shown in the table, both of the PM peak hour counts take in 2023 (February and August) are operating at LOS C, but average delay is higher for the worst movement (southbound on W Tapps Highway) during the summertime. The projected 2049 PM peak hour LOS is expected to drop from LOS E during the wintertime to LOS F during the summertime. The breakpoint for intersection failure appears to be about 2031 at which point intersection improvements would be necessary.

The traffic signal, roundabout, and all-way stop improvements were evaluated with the projected 2049 PM peak hour traffic volumes. Traffic signalization is expected to operate at LOS B with about 13 seconds of average delay during the summer peak. The roundabout improvement is expected to operate at LOS A with 1.1 seconds of average delay during the summertime. The all-way stop improvement is expected to operate at LOS C with over 20 seconds of average delay during the 2049 summer peak. All improvements would provide for acceptable long-term traffic operations. Detailed results of the operational analyses are included in **Appendix D**.

Table 4. Comparison of Seasonal PM Peak Hour Level of Service

	February Data		August Data	
Concepts Evaluated	**LOS (Delay)**	**V/C**	**LOS (Delay)**	**V/C**
2023 Existing Conditions	C (16.1)[1]	0.53[1]	C (24.2)[1]	0.67[1]
2031 No Improvement	--	--	**E (35.1)**[1]	**0.80**[1]
2049 No Improvement	**E (40.2)**[1]	**0.87**[1]	**F (145.9)**[1]	**1.21**[1]
2049 Traffic Signal with Existing Channelization	A (9.2)	--	B (12.8)	--
2049 Roundabout	A (0.8)	0.41	A (1.1)	0.41
2049 All-Way Stop Control with Existing Channelization	C (16.2)	0.71	C (20.4)	0.79

1. LOS or V/C is for the worst movement which is on southbound W Tapps Highway

5.1.4 Signal Warrant Analysis

Table 5 presents a summary of the peak hour, peak 4-hour and peak 8-hour signal warrant analysis for the Church Lake Road/W Tapps Highway intersection. As indicated in the table and based on the single lane approaches to this intersection, all warrants would be met. The percentage of peak 4-hour volumes is 78 percent, while the percentage of 8-hour volumes is 53 percent. Graphics illustrating the peak and 4-hour warrant analysis are included in Appendix D.

Table 5. Signal Warrant Analysis

Roadway	2023 Volumes			Warrant 1: 8-Hour Vehicular Volume		Warrant 2: 4-Hour Vehicular Volume	Warrant 3: Peak Hour Vehicular Volume
	Peak Hour (VPH)	4th Hour (VPH)	8th Hour (VPH)	Condition A Minimum Volume	Condition B Minimum Volume		
Veterans Memorial Drive							
Total Both Approaches	466	363	247	**500**	**750**	**See Figure 4C-1 – Appendix D**	**See Figure 4C-3 – Appendix D**
Angeline Road							
Southbound	459	358	243	**150**	**75**	**See Figure 4C-1**	**See Figure 4C-3**
Northbound	0	0	0				
Minimum Volume Warrants Satisfied:				**No**	**No**	**Yes**	**Yes**

5.1.5 Stop Sign Warrant Analysis

The Manual of Uniform Traffic Control Devices (MUTCD) includes a process to evaluate the need and justification for installation of all-way traffic control devices. Three warrants have been identified, only one of which needs to be met but it must be justified in full. These warrants include:

1. Where traffic signals are warranted and urgently needed, the multiway stop as an interim measure that can be installed quickly to control traffic while arrangements are being made for the signal installation.
2. Where there is a crash problem as evidenced by five or more reported crashes in a 12-month period of a type that could benefit from all-way stop installation (such as turn or angle collisions)
3. Where minimum traffic volumes must be met including:
    - All entering volumes must average at least 500 vehicles per hour for any eight hours of an average day (300 on the main road and 200 on the minor road); and
    - The combined vehicle and pedestrian volume from the minor street must average at least 200 per hour for the same eight hours, with an average delay to vehicle traffic of at least 30 seconds per vehicle during the maximum hour. However, if the 85th percentile speed of the major street exceeds 40 mph, the minimum vehicle volume warrant is 70 percent of the foregoing requirement.

In evaluating the intersection of Church Lake Road with W Tapps Highway, the following can be concluded:

1. Signal installation is not currently warranted and is not expected to be warranted until about 2031. All way stop installation would only be permitted as an interim measure if the warrants could be met and installation was delayed for whatever reason (such as availability of funding or equipment purchase).

2. The evaluation of crash history indicates that a total of six crashes occurred over the five year period between January 1, 2018 and December 31, 2022, with an average annual crash of 1.2 vehicles. This warrant would not be met.
3. As indicated in hourly traffic count data collected on Church Lake Road, the eighth highest hourly volume equals about 190 vehicles. Data for the eighth highest hour on W Tapps Highway must be estimated from the available PM peak hour count. The eighth highest hour would represent approximately 70 percent of the PM peak which equates to about 230 vehicles. The sum of these two approaching volumes would equal 420 vehicles which does not meet the threshold of 500 vehicles identified in the MUTCD.

Based on this analysis, installation of an All-Way Stop at the intersection of Church Lake Road with W Tapps Highway is not warranted and is not recommended for installation at this time. On a periodic basis traffic counts should be taken on both roads at the intersection to monitor when the eighth highest hourly volumes become sufficient to warrant installation of an All-Way Stop as a precursor to traffic signal installation.

5.2 Safety Analysis

Study intersection safety was assessed through crash data and to identify deficiencies. The data was reviewed to identify potential patterns for motor vehicle, pedestrian, and bicyclist crashes. The Washington Department of Transportation (WSDOT) provides crash data for study area roadways. The data was collected over the five-year span between January 1, 2018 and December 31, 2022 and is presented in **Table 6**.

During this five-year period there were six total crashes reported at or related to the study intersection, with two involving possible or suspected minor injuries. Of these six crashes, three involved rear end collisions, and three involved hitting a fixed object. There were no bicycle or pedestrian crashes reported at the intersection over the five year analysis period (2018-2022).

Table 6. Church Lake Road/W Tapps Highway Crash Data by Type and Severity (2018-2022)

Description	Fatal/Serious (crashes)	Fatal/All Injury (crashes)	Property Damage Only	Total (crashes)
Rear-end	0	1	2	3
Angle	0	1	2	3
Total	**0**	**2**	**4**	**6**

The Federal Highway Administration's Crash Modification Factors Clearinghouse maintains and publishes information about the effectiveness of various transportation improvements (or crash countermeasures[1]) in reducing crash incidence and/or severity. Crash Modification Factors (CMFs)

[1] Crash countermeasures are actions taken to reduce the danger or threat of a particular type of crash. The effectiveness of various countermeasures are identified through various Crash Modification Factors (CMFs) that indicate the proportion of crashes that would be expected to change after implementation of a countermeasure. FHWA provides an extensive database of CMFs in its online Crash Modification Factors Clearinghouse.

provide research-based data that indicate the proportion of crashes that would be expected to change after implementation of a crash countermeasure such as a signal or a roundabout. CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected.

The following sections present information about the safety-related pros and cons for the intersection improvement alternatives under consideration at the Church Lake Road/W Tapps Highway intersection. Detailed crash data and crash analysis results are included in **Appendix E**.

5.2.1 Signal Alternative

Based on CMF research for a three-legged urban intersection (CMF #316), a 14 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from stop control to a signal. This would apply to injury or fatal crashes resulting from all types of collisions, reducing the expected number of these crashes from an observed 1.2 per year to an average of 1.0 crashes per year. It should be noted that this reduction is an average for the intersection and a more detailed review would indicate that an increase should be anticipated in rear end crashes with this CMF. This increase may effectively negate the safety value of signalization.

However, to further enhance the effectiveness of signal installation, additional complementary countermeasures can be implemented in conjunction with signals to reduce crashes. These include retroreflective backplates on signal heads, leading pedestrian intervals (LPI), lighting, and yellow change intervals. The retroreflective backplates, lighting and yellow change intervals should be implemented at this intersection. LPI may not be needed because of the low pedestrian volume and lack of pedestrian crash history at the intersections. This could be reevaluated in the future if needed.

5.2.2 Roundabout Alternative

Based on CMF research for an urban intersection (CMF #210), an 88 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from stop control to a single lane roundabout. This would apply to injury or fatal crashes resulting from all types of collisions reducing the expected number of these crashes from an observed 1.2 per year to an average of about 0.2 per year, which is negligible. When evaluating the safety effect of converting a stop sign to a multi-lane roundabout (using CMR #4297 with a 63 percent reduction) the existing injury crashes are expected to be reduced to an average of 0.44 crashes per year. In both instances, a substantial crash reduction benefit could be realized with implementation of a roundabout.

Roundabouts are considered by FHWA to be a Proven Safety Countermeasure because of their many safety benefits. Roundabouts reduce the number of conflict points between vehicles from nine conflict

CMFs are expressed as a factor which is multiplied by the number of crashes of a relevant and specific type that are currently being experienced. The result would determine the magnitude of changes in the number of that type of crash that would be expected. For example, if a stop-controlled intersection experienced 5.2 crashes per year over the analysis period and traffic signal installation was considered. The CMF for installing a traffic signal was .56 for all crashes, the expected total crashes after signal installation would be 5.2 X 0.56 = 2.9 total crashes per year or a reduction of 44 percent.

points at traditional three-leg intersections to six conflict points at roundabouts. The roundabout geometry also eliminates right angle and left turn crashes which are associated with higher severity crashes. The low speeds associated with roundabouts also allow drivers more time to react to potential conflicts and crash severity can be reduced compared to traditionally controlled intersections which helps to improve the safety performance of roundabouts.

In addition to vehicle-vehicle safety, roundabouts can improve safety for pedestrians as well. The pedestrian only needs to cross one direction of traffic at a time and addition countermeasures such as flashing beacons or added illumination could further enhance pedestrian safety.

5.2.3 All-Way Stop Control Alternative

Based on CMF research for an urban intersection (CMF #313), a 43 percent reduction in the predicted average annual crash frequency is anticipated for converting the intersection from two-way stop control to all-way stop control. This would apply to all vehicle and pedestrians crashes at all levels of severity, reducing the expected number of these crashes from an observed 1.2 per year to an average of about 0.7 per year. This is higher than expected crash experience with a roundabout but lower than with installation of a traffic signal.

There are two key safety issues that would govern the installation of All-Way Stop control at the intersection of Church Lake Road with W Tapps Highway. These include:

- Do the signs meet MUTCD warrants? Like the installation of unwarranted signals, the installation of unwarranted stop signs can create a potentially adverse reaction by the driving population when it appears they are being stopped for no apparent reason. If drivers who are accustomed to no or very little east/west delay at this intersection encounter delays every time they travel along Church Lake Road, they may become impatient and ignore the sign. This could lead to an increase in angle and turn crashes at the intersection.
- What is the effect of limited sight distance approaching the intersection from the east? While All-Way Stop Control can be recommended for locations where sight distance is limited, the fact that the intersection does not meet warrants could result in increased risk for vehicles turning from W Tapps Highway. A better solution to this problem is to reduce the vertical grade on Church Lake Road to improve sight distance.

It is important to note that the primary purpose for installation of any traffic control device such as stop signs or signals is to make the assignment of right of way crystal clear to all motorists using the intersection. Numerous studies have been conducted over decades that indicate stop signs should never be used for speed control as the opposite effect can often occur, resulting in motorists speeding up after the sign which they perceive as unnecessary. This could result in an increased risk of crashes involving motorists who are frustrated with the delay caused by an unwarranted sign. Section 2B.04 of the MUTCD specifically states that "*YIELD or STOP signs should not be used for speed control".*

5.3 Sight Distance Improvement

The sight distance analysis presented in Chapter 2 is based on existing geometrics and 85th percentile speeds on Church Lake Road approaching W Tapps Highway. The analysis indicated that available sight distance from W Tapps Highway to the west (for eastbound approaching traffic) is about 600 feet. Only

375 feet of sight distance would be required for the measured 85th percentile speed of 34 mph. Available sight distance to the east (for westbound traffic) is 270 feet which is insufficient to meet the required sight distance of 320 feet at the measured 85th percentile speed of 33 mph. It should be noted that there is sufficient sight distance to meet a 240-foot requirement based on the posted speed of 25 mph. The available sight distance in this direction is affected by the vertical curve on the east side of the intersection which can be seen in Figure 6.

To address this sight distance limitation, a reduction in the vertical curve to provide for increased sight distance was considered and a cost estimate identified. The improvement would involve roadway reconstruction of approximately 650 feet and would cost an estimated $533,700. With this improvement, sight distance in both directions would be adequate for the expected roadway speeds.

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6 Summary and Recommendations

This chapter presents a summary of the public engagement activities that have been undertaken in conjunction with this project leading to the specific recommendations that are presented below.

6.1 Public Engagement Activities

Public engagement for the project focused on a presentation and work session with the Bonney Lake Planning Commission at a meeting held on December 6, 2023. There was extensive discussion of the need for improvements and the pros and cons of various improvement alternatives. There was general concurrence for installation of a traffic signal at this location as a longer-term improvement. However, there was reluctance on the part of the Planning Commission and audience members to wait until 2031 to address the existing safety concern at the intersection. It was suggested that consideration be given to changing the existing two-way stop to an all-way stop. This evaluation has been included in the final version of this study report. Additionally, mitigation of the vertical curve that limits westbound approaching sight distance was also recommended as an immediate term improvement.

6.2 Comparison of Alternatives

There are a variety of benefits associated with roundabouts but they may require greater costs and need more right of way than a signalized intersection. **Table 7** lists some of the basic pros and cons of roundabouts in comparison with traffic signals and all-way stop control in terms of operations, safety, cost, construction, and environmental and issues.

As noted in Table 7, all alternatives would provide very good traffic operations, ranging from LOS A to LOS C in the 2049 AM and PM peak hours based on winter/spring traffic volumes The single lane roundabout would provide a slightly shorter traffic queue on W Tapps Highway but otherwise the differences are not substantive. The roundabout does have advantages in off-peak periods when traffic volumes are lower and motorists would not need to stop if no other vehicles are present. During the summertime 2049 PM peak hour, performance with the signalized alternative would drop to LOS B and LOS C with the all-way stop control alternative. Traffic queues with all-way stop control are expected to be less than 200 feet in length.

In terms of overall safety for vehicles and pedestrians, roundabouts operate with fewer conflict points and lower speeds than traffic signals or all-way stop control, and have been shown to experience fewer crashes. In addition, roundabouts effectively calm traffic using physical roadway design to reduce vehicle speeds rather than relying solely on signage or control devices. The improvement of westbound sight distance along Church Lake Road would be applicable to all intersection concepts.

The cost difference among the alternatives is significant with the roundabout estimated to be about $1.6 million compared to the $700,000 estimate with a traffic signal, and about $65,000 with the all-way stop control (including both signs and a flashing beacon). It should be noted that the latter alternative would best be constructed in conjunction with improvement to the limited westbound sight distance on Church Lake Road which would cost approximately $533,700. Roundabouts typically have lower operational and maintenance costs overtime as there is no electronic equipment to maintain and upgrade as with signals. On-going maintenance and operations costs associated with the all-way stop

Table 7. Comparison of Roundabout, Signalized and All-Way Stop Intersection Alternatives

	Roundabout	***Signal***	***All-Way Stop Control***
Operations	• Single lane roundabout would provide LOS A service through 2049 in AM and PM peak hours with queues of less than 100 feet. • Cannot provide explicit priority to specific users (e.g., emergency vehicles, transit, pedestrians) unless supplemental traffic control devices are provided.	• Signal with no added turn lanes would provide LOS A in 2049 winter PM peak hour with queues of less than 200 feet, and LOS B in the summer PM peak. • Peak hour and peak four-hour signal warrants would be met with 2023 volumes. Eight-hour warrants would not be met.	• All-way stop with no added turn lanes would provide LOS C in 2049 winter and summary PM peak hours with queues of less than 200 feet. • All-Way Stop control warrants would not be met.
Safety	• Crash reduction of 88 percent predicted based on FHWA Crash Modification Factors (CMF) research. • Fewer injury crashes[1] resulting from fewer conflict points for single lane roundabouts • Reduced crash severity (lower speeds). • Without reduction in vertical curve to the east, sight distance would not meet 85th percentile speeds. Speeds approaching roundabout would be lower.	• Crash reduction of 14 percent predicted based on FHWA CMF research. • Increase in rear end crashes compared to other intersection treatments. • Without reduction in vertical curve to the east, sight distance would be compromised at 85th percentile speeds.	• Crash reduction of 43 percent predicted based on FHWA CMP research. • Without reduction in vertical curve to the east, sight distance would be compromised at 85th percentile speeds and may result in motorists on Church Lake disregarding the stop sign.
Cost	• Construction cost is estimated at $1,576,600.[2] • Lower operating and maintenance costs resulting from no ongoing traffic signal maintenance. • May need to maintain landscaping.	• Construction cost is estimated at $707,300.[2] • Requires continual maintenance and engineering for optimal operations.	• Construction cost is estimated at $5,000 for added signs and $60,000 for a flashing beacon. • Would likely need to include reduction of existing vertical curve at a cost of $533,700.[2] • Requires ongoing maintenance to maintain reflectivity and repair if hit.
Construction	• Possible to construct roundabout to allow for future expansion of the intersection and roadway widening.	• Traffic control during construction can be more complicated if modification is made to vertical curve east of the intersection.	• Traffic control during construction will largely be complicated by modifications to the vertical curve.

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Table 7 Continued, Comparison of Roundabout, Signalized and All-Way Stop Intersection Alternatives

	Roundabout	***Signal***	***All-Way Stop Control***
Environmental Factors	• Right of way acquisition would be required. • Potential need for wetland buffering to the west of the project location. • Noise, air quality impacts, and fuel consumption may be reduced. • Little stopping during off-peak periods.	• Project would be constructed within the existing right of way and would have minimal or no environmental impacts.	• Project would be constructed within the existing right of way and would have minimal or no environmental impacts.

1. FHWA, NCHRP Report 672*, Roundabouts: An Informational Guide: Second Edition*, 2010, page 2-12.
2. Would require the addition of $130,000 to address existing stormwater problem in the vicinity of the intersection.

alternative would be low. It should be noted that any improvement to the intersection including the vertical curve reduction would need to address the existing stormwater problem at the intersection. This would uniformly increase the cost of each option by $130,000.

Some right of way acquisition would be necessary with the roundabout to accommodate a detention pond which may require buffering from a nearby wetland. This need would be further determined during the design process. No right of way acquisition would be required with the signalized or all-way stop alternatives.

6.3 Recommendations

Based on the discussion and input received at the December 6, 2023 Planning Commission meeting, it was recommended that the city approve installation of a traffic signal at the study intersection when needed to provide acceptable traffic operations. In the interim, it is recommended that improvements be made to the vertical curve approach the Church Lake Road/W Tapps Highway intersection from the east within a reasonable timeframe. Within one year after the vertical curve regrade, the city should re-evaluate traffic and safety conditions at the intersection to determine if installation of all-way stop control would be warranted prior to traffic signalization. All-way stop control is not currently warranted for installation.

Appendix A

Traffic Counts

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

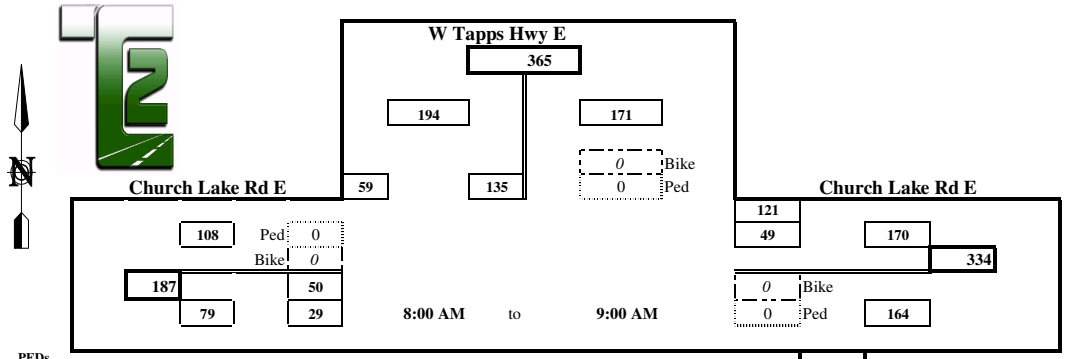
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: W Tapps Hwy E & Church Lake Rd E **Date of Count:** Thu 04/20/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) W Tapps Hwy E				From South on (NB) 0				From East on (WB) Church Lake Rd E				From West on (EB) Church Lake Rd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	21	0	20	0	0	0	0	0	0	13	21	1	9	5	0	89
7:30 A	0	38	0	18	0	0	0	0	0	0	13	18	1	10	5	0	102
7:45 A	2	28	0	17	0	0	0	0	0	0	13	22	0	10	4	0	94
8:00 A	0	16	0	15	0	0	0	0	1	0	8	19	0	13	9	0	80
8:15 A	0	26	0	14	0	0	0	0	1	0	16	32	1	15	6	0	109
8:30 A	4	29	0	11	0	0	0	0	1	0	8	27	0	8	5	0	88
8:45 A	2	19	0	15	0	0	0	0	3	0	14	29	0	15	7	0	99
9:00 A	6	61	0	19	0	0	0	0	1	0	11	33	0	12	11	0	147
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	14	238	0	129	0	0	0	0	7	0	96	201	3	92	52	0	808
Peak Hour: 8:00 AM to 9:00 AM																	
Total	12	135	0	59	0	0	0	0	6	0	49	121	1	50	29	0	443
Approach	194				0				170				79				443
%HV	6.2%				n/a				3.5%				1.3%				4.3%
PHF	0.61				n/a				0.89				0.86				0.75



588 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.86	1.3%
WB	0.89	3.5%
NB	n/a	n/a
SB	0.61	6.2%
T Int.	0.75	4.3%

Check In: 443 Out: 443

Conditions:

PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

SCJ23015TM_04A

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

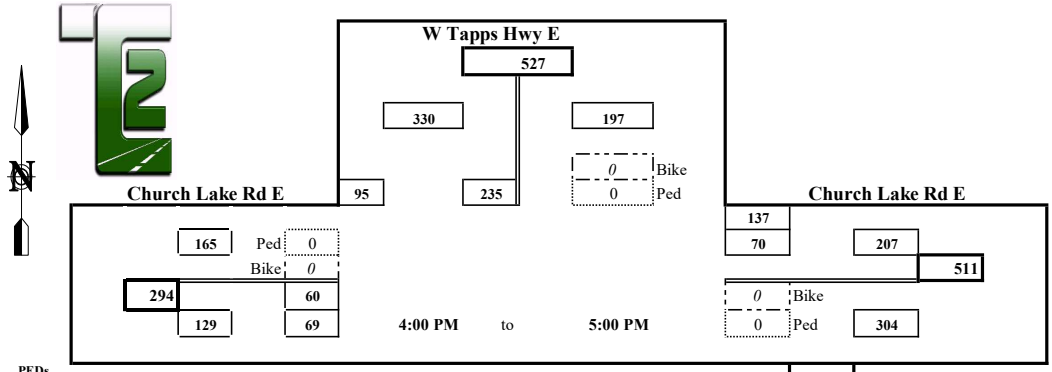
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: W Tapps Hwy E & Church Lake Rd E **Date of Count:** Thu 02/23/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) W Tapps Hwy E				From South on (NB) 0				From East on (WB) Church Lake Rd E				From West on (EB) Church Lake Rd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	68	0	21	0	0	0	0	1	0	19	37	1	14	19	0	178
4:30 P	3	51	0	21	0	0	0	0	0	0	17	39	1	16	15	0	159
4:45 P	1	65	0	28	0	0	0	0	0	0	19	36	0	16	16	0	180
5:00 P	1	51	0	25	0	0	0	0	1	0	15	25	0	14	19	0	149
5:15 P	0	48	0	16	0	0	0	0	1	0	8	47	0	21	11	0	151
5:30 P	0	45	0	21	0	0	0	0	0	0	13	28	0	16	20	0	143
5:45 P	0	64	0	16	0	0	0	0	0	0	13	27	0	15	10	0	145
6:00 P	0	48	0	22	0	0	0	0	0	0	15	32	0	16	18	0	151
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	440	0	170	0	0	0	0	3	0	119	271	2	128	128	0	1256
Peak Hour: 4:00 PM to 5:00 PM																	
Total	7	235	0	95	0	0	0	0	2	0	70	137	2	60	69	0	666
Approach	330				0				207				129				666
%HV	2.1%				n/a				1.0%				1.6%				1.7%
PHF	0.89				n/a				0.92				0.98				0.93



720 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.98	1.6%
WB	0.92	1.0%
NB	n/a	n/a
SB	0.89	2.1%
T Int.	0.93	1.7%

Check In: 666 Out: 666

Conditions:

PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

SCJ23015TM_04P

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
CHURCH LAKE RD E W/O
W TAPPS HWY E
LOC# 10 V SCJ23015TM

Site Code: 10

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	20-Feb-23		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	9	5	8	8	5	6	*	*	*	*	*	*	7	6
01:00	*	*	9	5	6	3	5	4	*	*	*	*	*	*	7	4
02:00	*	*	1	6	3	5	4	8	*	*	*	*	*	*	3	6
03:00	*	*	5	20	5	20	2	18	*	*	*	*	*	*	4	19
04:00	*	*	8	48	7	51	10	53	*	*	*	*	*	*	8	51
05:00	*	*	17	50	22	49	19	43	*	*	*	*	*	*	19	47
06:00	*	*	36	96	45	98	22	78	*	*	*	*	*	*	34	91
07:00	*	*	75	107	75	109	37	82	*	*	*	*	*	*	62	99
08:00	*	*	82	**134**	**88**	**129**	54	**110**	*	*	*	*	*	*	75	**124**
09:00	*	*	58	94	74	109	**93**	103	*	*	*	*	*	*	75	102
10:00	*	*	75	107	73	95	82	99	*	*	*	*	*	*	77	100
11:00	*	*	**91**	96	80	119	87	93	*	*	*	*	*	*	**86**	103
12:00 PM	*	*	104	91	106	95	92	96	*	*	*	*	*	*	101	94
01:00	*	*	92	92	110	113	79	75	*	*	*	*	*	*	94	93
02:00	*	*	119	103	123	131	98	126	*	*	*	*	*	*	113	120
03:00	*	*	**144**	134	130	**153**	132	132	*	*	*	*	*	*	**135**	140
04:00	*	*	114	**149**	**144**	131	126	**163**	*	*	*	*	*	*	128	**148**
05:00	*	*	126	98	110	137	134	133	*	*	*	*	*	*	123	123
06:00	*	*	111	85	121	85	**137**	92	*	*	*	*	*	*	123	87
07:00	*	*	80	61	82	51	85	63	*	*	*	*	*	*	82	58
08:00	*	*	73	38	71	46	88	35	*	*	*	*	*	*	77	40
09:00	*	*	43	24	42	18	59	25	*	*	*	*	*	*	48	22
10:00	*	*	25	14	26	8	29	16	*	*	*	*	*	*	27	13
11:00	*	*	19	8	13	10	24	12	*	*	*	*	*	*	19	10
Lane	0	0	1516	1665	1564	1773	1503	1665	0	0	0	0	0	0	1527	1700
Day	0		3181		3337		3168		0		0		0		3227	
AM Peak	-	-	11:00	08:00	08:00	08:00	09:00	08:00	-	-	-	-	-	-	11:00	08:00
Vol.	-	-	91	134	88	129	93	110	-	-	-	-	-	-	86	124
PM Peak	-	-	15:00	16:00	16:00	15:00	18:00	16:00	-	-	-	-	-	-	15:00	16:00
Vol.	-	-	144	149	144	153	137	163	-	-	-	-	-	-	135	148

Comb. Total	0	3181	3337	3168	0	0	0	3227

ADT ADT 3,229 AADT 3,229

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
CHURCH LAKE RD E W/O
W TAPPS HWY E
LOC# 10 V SCJ23015TM

Site Code: 10

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	21-Feb-23	EB		Hour Totals		WB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		5	32			1	18				
12:15		2	16			0	20				
12:30		1	18			0	32				
12:45		1	38	9	104	4	21	5	91	14	195
01:00		6	21			2	26				
01:15		1	23			2	18				
01:30		2	19			1	22				
01:45		0	29	9	92	0	26	5	92	14	184
02:00		0	25			1	21				
02:15		0	30			3	26				
02:30		0	34			1	26				
02:45		1	30	1	119	1	30	6	103	7	222
03:00		1	28			2	30				
03:15		3	34			7	27				
03:30		1	40			4	26				
03:45		0	42	5	144	7	51	20	134	25	278
04:00		2	38			10	38				
04:15		2	27			3	34				
04:30		0	22			15	34				
04:45		4	27	8	114	20	43	48	149	56	263
05:00		3	25			13	34				
05:15		5	34			12	23				
05:30		4	40			11	24				
05:45		5	27	17	126	14	17	50	98	67	224
06:00		5	18			14	22				
06:15		7	45			25	21				
06:30		13	22			21	20				
06:45		11	26	36	111	36	22	96	85	132	196
07:00		18	23			30	22				
07:15		21	20			33	13				
07:30		20	20			24	13				
07:45		16	17	75	80	20	13	107	61	182	141
08:00		19	26			26	11				
08:15		15	15			32	12				
08:30		26	16			34	8				
08:45		22	16	82	73	42	7	134	38	216	111
09:00		15	16			32	8				
09:15		17	11			25	6				
09:30		9	11			21	6				
09:45		17	5	58	43	16	4	94	24	152	67
10:00		23	10			32	4				
10:15		12	7			25	4				
10:30		17	6			21	3				
10:45		23	2	75	25	29	3	107	14	182	39
11:00		19	4			28	2				
11:15		21	6			24	4				
11:30		29	4			18	1				
11:45		22	5	91	19	26	1	96	8	187	27
Total		466	1050			768	897			1234	1947
Percent		30.7%	69.3%			46.1%	53.9%			38.8%	61.2%

TRAFFIC COUNT CONSULTANTS, INC.
Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
CHURCH LAKE RD E W/O
W TAPPS HWY E
LOC# 10 V SCJ23015TM

Site Code: 10

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start	22-Feb-23	EB		Hour Totals		WB		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		5	25			3	30				
12:15		1	24			2	26				
12:30		1	27			0	23				
12:45		1	30	8	106	3	16	8	95	16	201
01:00		2	27			0	32				
01:15		0	32			0	27				
01:30		1	23			3	24				
01:45		3	28	6	110	0	30	3	113	9	223
02:00		0	31			1	22				
02:15		3	19			2	34				
02:30		0	36			1	32				
02:45		0	37	3	123	1	43	5	131	8	254
03:00		3	21			3	30				
03:15		0	46			6	34				
03:30		0	34			3	49				
03:45		2	29	5	130	8	40	20	153	25	283
04:00		2	34			11	37				
04:15		1	26			14	36				
04:30		2	46			12	45				
04:45		2	38	7	144	14	13	51	131	58	275
05:00		5	26			12	38				
05:15		2	24			11	26				
05:30		6	34			18	34				
05:45		9	26	22	110	8	39	49	137	71	247
06:00		4	31			11	26				
06:15		10	26			31	19				
06:30		14	39			24	24				
06:45		17	25	45	121	32	16	98	85	143	206
07:00		20	27			38	18				
07:15		12	29			29	9				
07:30		21	10			16	17				
07:45		22	16	75	82	26	7	109	51	184	133
08:00		24	16			26	16				
08:15		14	23			30	11				
08:30		30	13			30	9				
08:45		20	19	88	71	43	10	129	46	217	117
09:00		19	17			32	5				
09:15		21	12			26	5				
09:30		14	8			22	6				
09:45		20	5	74	42	29	2	109	18	183	60
10:00		10	6			34	3				
10:15		18	8			18	2				
10:30		24	6			24	1				
10:45		21	6	73	26	19	2	95	8	168	34
11:00		16	4			31	2				
11:15		22	2			24	2				
11:30		22	3			30	5				
11:45		20	4	80	13	34	1	119	10	199	23
Total		486	1078			795	978			1281	2056
Percent		31.1%	68.9%			44.8%	55.2%			38.4%	61.6%

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BONNEY LAKE, WASHINGTON
CHURCH LAKE RD E W/O
W TAPPS HWY E
LOC# 10 V SCJ23015TM

Site Code: 10

Date Start: 21-Feb-23
Date End: 23-Feb-23

Start Time	23-Feb-23 Thu	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	26			1	24				
12:15		1	25			1	28				
12:30		1	16			3	24				
12:45		0	25	5	92	1	20	6	96	11	188
01:00		0	27			0	13				
01:15		3	12			2	19				
01:30		2	22			1	24				
01:45		0	18	5	79	1	19	4	75	9	154
02:00		2	22			1	23				
02:15		0	19			4	28				
02:30		2	24			1	36				
02:45		0	33	4	98	2	39	8	126	12	224
03:00		2	34			3	28				
03:15		0	26			4	30				
03:30		0	31			4	32				
03:45		0	41	2	132	7	42	18	132	20	264
04:00		3	32			9	35				
04:15		3	30			12	43				
04:30		1	32			14	50				
04:45		3	32	10	126	18	35	53	163	63	289
05:00		1	34			15	30				
05:15		5	40			7	35				
05:30		4	31			9	30				
05:45		9	29	19	134	12	38	43	133	62	267
06:00		1	34			17	22				
06:15		5	31			27	30				
06:30		11	46			18	24				
06:45		5	26	22	137	16	16	78	92	100	229
07:00		7	27			28	23				
07:15		6	23			21	12				
07:30		6	17			17	19				
07:45		18	18	37	85	16	9	82	63	119	148
08:00		15	24			18	13				
08:15		7	31			23	8				
08:30		13	17			29	7				
08:45		19	16	54	88	40	7	110	35	164	123
09:00		19	21			28	5				
09:15		27	12			24	7				
09:30		21	11			26	10				
09:45		26	15	93	59	25	3	103	25	196	84
10:00		16	4			18	8				
10:15		19	8			28	1				
10:30		24	3			23	3				
10:45		23	14	82	29	30	4	99	16	181	45
11:00		20	5			15	3				
11:15		24	9			28	4				
11:30		30	5			26	2				
11:45		13	5	87	24	24	3	93	12	180	36
Total		420	1083			697	968			1117	2051
Percent		27.9%	72.1%			41.9%	58.1%			35.3%	64.7%
Grand Total		1372	3211			2260	2843			3632	6054
Percent		29.9%	70.1%			44.3%	55.7%			37.5%	62.5%
ADT		ADT 3,229		AADT 3,229							

Prepared for: **SCJ Alliance**

Traffic Count Consultants, Inc.

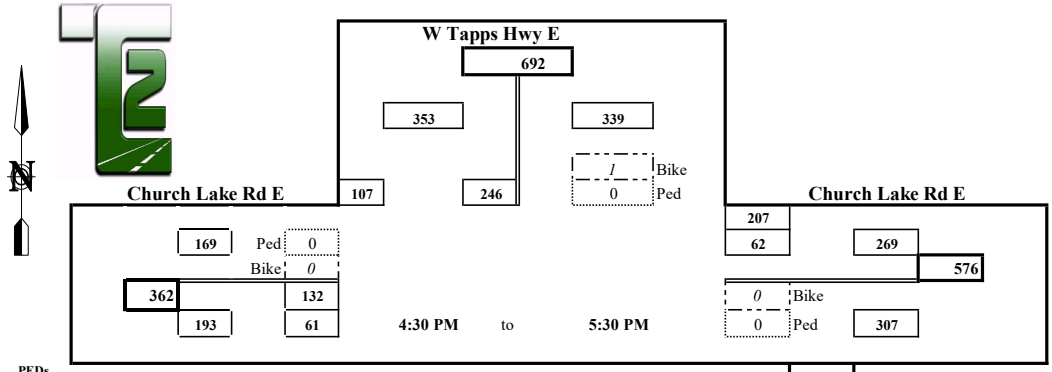
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: W Tapps Hwy E & Church Lake Rd E **Date of Count:** Wed 08/02/2023

Location: Bonney Lake, Washington **Checked By:** Jen

Time Interval	From North on (SB) W Tapps Hwy E				From South on (NB) 0				From East on (WB) Church Lake Rd E				From West on (EB) Church Lake Rd E				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	66	0	23	0	0	0	0	0	0	19	46	0	23	18	0	195
4:30 P	0	51	0	20	0	0	0	0	0	0	20	64	0	22	17	0	194
4:45 P	1	74	0	30	0	0	0	0	0	0	19	45	0	27	13	0	208
5:00 P	0	55	0	30	0	0	0	0	0	0	16	51	0	31	15	0	198
5:15 P	0	59	0	22	0	0	0	0	0	0	14	52	1	36	18	0	201
5:30 P	1	58	0	25	0	0	0	0	0	0	13	59	0	38	15	0	208
5:45 P	0	47	0	26	0	0	0	0	0	0	11	59	0	35	14	0	192
6:00 P	0	57	0	26	0	0	0	0	0	0	11	54	0	23	10	0	181
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	467	0	202	0	0	0	0	0	0	123	430	1	235	120	0	1577
	Peak Hour: 4:30 PM to 5:30 PM																
Total	2	246	0	107	0	0	0	0	0	0	62	207	1	132	61	0	815
Approach	353				0				269				193				815
%HV	0.6%				n/a				n/a				0.5%				0.4%
PHF	0.85				n/a				0.93				0.89				0.98



832 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.89	0.5%
WB	0.93	n/a
NB	n/a	n/a
SB	0.85	0.6%
T Int.	0.98	0.4%

Check In: 815 Out: 815

Conditions:

PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:

	N	S	E	W	
INT 01	0	0	1	1	2
INT 02	0	0	0	0	0
INT 03	0	0	0	0	0
INT 04	0	0	0	0	0
INT 05	0	0	0	0	0
INT 06	1	0	0	0	1
INT 07	0	0	0	0	0
INT 08	0	0	0	0	0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	1	1	3

SCJ23015TM_04P

Appendix B

Traffic Volume Projections

SCJ ALLIANCE
CONSULTING SERVICES

W Tapps wy E/Church Lake Rd E Intersection Evaluation

AM Peak Hour Volumes

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2035 Growth	Projected 2035 Volumes	Background 2049 Growth	Projected 2049 Volumes
		L	**50**	9	**59**	20	**70**
	EB	T	**29**	5	**34**	11	**40**
		R	**0**	0	**0**	0	**0**
1		L	**0**	0	**0**	0	**0**
W Tapps Hwy E	WB	T	**49**	9	**58**	19	**68**
Church Lake Rd E		R	**121**	22	**143**	47	**168**
		L	**0**	0	**0**	0	**0**
TMC Date: 04/20/2023	NB	T	**0**	0	**0**	0	**0**
		R	**0**	0	**0**	0	**0**
7:00 - 8:00		L	**135**	24	**159**	53	**188**
PHF: 0.75	SB	T	**0**	0	**0**	0	**0**
		R	**59**	11	**70**	23	**82**
			443		**523**		**616**

SCJ ALLIANCE
CONSULTING SERVICES

W Tapps wy E/Church Lake Rd E Intersection Evaluation

PM Peak Hour Volumes

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2035 Growth	Projected 2035 Volumes	Background 2049 Growth	Projected 2049 Volumes
		L	**60**	11	**71**	23	**83**
	EB	T	**69**	12	**81**	27	**96**
		R	**0**	0	**0**	0	**0**
1		L	**0**	0	**0**	0	**0**
W Tapps Hwy E	WB	T	**70**	13	**83**	27	**97**
Church Lake Rd E		R	**137**	25	**162**	53	**190**
		L	**0**	0	**0**	0	**0**
TMC Date: 02/23/2023	NB	T	**0**	0	**0**	0	**0**
		R	**0**	0	**0**	0	**0**
4:00 - 5:00		L	**235**	42	**277**	92	**327**
PHF: 0.93	SB	T	**0**	0	**0**	0	**0**
		R	**95**	17	**112**	37	**132**
			666		**786**		**925**

SCJ ALLIANCE
CONSULTING SERVICES

W Tapps wy E/Church Lake Rd E Intersection Evaluation

PM Peak Hour Volumes for Summertime

Growth Rate **1.5%**

Intersection	Movement		Existing 2023 Volumes	Background 2035 Growth	Projected 2035 Volumes	Background 2049 Growth	Projected 2049 Volumes
		L	**132**	24	**156**	51	**183**
	EB	T	**61**	11	**72**	24	**85**
		R	**0**	0	**0**	0	**0**
1		L	**0**	0	**0**	0	**0**
W Tapps Hwy E	WB	T	**62**	11	**73**	24	**86**
Church Lake Rd E		R	**207**	37	**244**	81	**288**
		L	**0**	0	**0**	0	**0**
TMC Date: 02/23/2023	NB	T	**0**	0	**0**	0	**0**
		R	**0**	0	**0**	0	**0**
4:00 - 5:00		L	**246**	44	**290**	96	**342**
PHF: 0.93	SB	T	**0**	0	**0**	0	**0**
		R	**107**	19	**126**	42	**149**
			815		**961**		**1,133**

Appendix C

Cost Estimates

Project Name: Church Lake RD-W Tapps HWY E Roundabout

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 5/16/2024

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roundabout	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 75,000.00	1.0	1.0	$ 75,000
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$85,000**	**$ 85,000**
		GRADING					
3	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	660.0	660.0	$ 19,800
4	0408	SELECT BORROW INCL. HAUL	TON	$ 35.00	140.0	140.0	$ 4,900
					Subtotal:	**$24,700**	**$ 24,700**
		STORM SEWER					
5	3091	CATCH BASIN TYPE 1	EACH	$ 3,000.00	8.0	8.0	$ 24,000
6	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	L.F.	$ 100.00	390.0	390.0	$ 39,000
7	NS-276	STORM POND	L.S.	$ 23,000.00	1.0	1.0	$ 23,000
					Subtotal:	**$86,000**	**$ 86,000**
		SURFACING					
8	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	580.0	580.0	$ 40,600
					Subtotal:	**$40,600**	**$ 40,600**
		CEMENT CONCRETE PAVEMENT					
9	NS-600	STAMPED/PIGMENTED CEMENT CONC. PAVING (SPLITTER ISLAND)	S.Y.	$ 120.00	70.0	70.0	$ 8,400
10	NS-601	STAMPED/PIGMENTED CEMENT CONC. PAVING (TRUCK APRON)	S.Y.	$ 220.00	150.0	150.0	$ 33,000
					Subtotal:	**$41,400**	**$ 41,400**
		HOT MIX ASPHALT					
11	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	540.0	540.0	$ 97,200
					Subtotal:	**$97,200**	**$ 97,200**
		EROSION CONTROL AND ROADSIDE PLANTING					
12	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
13	NS-734	LANDSCAPING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
					Subtotal:	**$30,000**	**$ 30,000**
		TRAFFIC					
14	6698	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EACH	$ 1,500.00	3.0	3.0	$ 4,500
15	6699	ROUNDABOUT CEMENT CONCRETE CURB AND GUTTER	L.F.	$ 60.00	850.0	850.0	$ 51,000
16	6708	ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB	L.F.	$ 130.00	140.0	140.0	$ 18,200
17	6709	ROUNDABOUT TRUCK APRON CEM. CONC. CURB AND GUTTER	L.F.	$ 80.00	190.0	190.0	$ 15,200
18	6807	PLASTIC LINE	L.F.	$ 5.00	1300.0	1300.0	$ 6,500
19	6828	PLASTIC WIDE LANE LINE	L.F.	$ 10.00	70.0	70.0	$ 700
20	6890	PERMANENT SIGNING	L.S.	$ 20,000.00	1.0	1.0	$ 20,000
21	6904	ILLUMINATION SYSTEM	L.S.	$ 100,000.00	1.0	1.0	$ 100,000
22	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 180,000.00	1.0	1.0	$ 180,000
23	6847	PLASTIC WIDE DOTTED ENTRY LINE	L.F.	$ 10.00	120.0	120.0	$ 1,200
					Subtotal:	**$397,300**	**$ 397,300**
		OTHER ITEMS					
24	7038	ROADWAY SURVEYING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
25	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$17,500**	**$ 17,500**

Subtotal Construction:	**$819,700**	**$ 819,700**
Contingency @ 30%	**$245,910**	**$ 245,910**
TOTAL CONSTRUCTION:	**$1,065,610**	**$ 1,065,610**
Preliminary Engineering (PE) @ 20%	**$213,122**	**$ 213,122**
Construction Management (CM) @ 12%	**$127,873**	**$ 127,873**
Right of Way Costs	**$170,000**	**$ 170,000**
SCHEDULE COST TOTALS:	**$1,576,605**	**$ 1,576,605**
	TOTAL PROJECT COST:	**$ 1,576,605**

Project Name: Church Lake RD-W Tapps HWY E Signal

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 5/16/2024

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Signal	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 40,000.00	1.0	1.0	$ 40,000
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$50,000**	**$ 50,000**
		EROSION CONTROL AND ROADSIDE PLANTING					
3	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$10,000**	**$ 10,000**
		TRAFFIC					
4	6859	PLASTIC STOP LINE	L.F.	$ 25.00	50.0	50.0	$ 1,250
5	6912	TRAFFIC SIGNAL SYSTEM	L.S.	$ 300,000.00	1.0	1.0	$ 300,000
6	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 60,000.00	1.0	1.0	$ 60,000
					Subtotal:	**$361,250**	**$ 361,250**
		OTHER ITEMS					
7	7038	ROADWAY SURVEYING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
8	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$17,500**	**$ 17,500**

Subtotal Construction:	**$438,750**	**$ 438,750**
Contingency @ 30%	**$131,625**	**$ 131,625**
TOTAL CONSTRUCTION:	**$570,375**	**$ 570,375**
Preliminary Engineering (PE) @ 12%	**$68,445**	**$ 68,445**
Construction Management (CM) @ 12%	**$68,445**	**$ 68,445**
SCHEDULE COST TOTALS:	**$707,265**	**$ 707,265**
	TOTAL PROJECT COST:	**$ 707,265**

Project Name: Church Lake RD-W Tapps HWY Span Wire Flasher

Client Name: City of Bonney Lake

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 12/15/2023

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Signal	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 3,500.00	1.0	1.0	$ 3,500
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 500.00	1.0	1.0	$ 500
					Subtotal:	**$4,000**	**$ 4,000**
		EROSION CONTROL AND ROADSIDE PLANTING					
3	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 500.00	1.0	1.0	$ 500
					Subtotal:	**$500**	**$ 500**
		TRAFFIC					
4	6859	PLASTIC STOP LINE	L.F.	$ 25.00	50.0	50.0	$ 1,250
5	6912	TRAFFIC SIGNAL SYSTEM	L.S.	$ 25,000.00	1.0	1.0	$ 25,000
6	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 5,000.00	1.0	1.0	$ 5,000
					Subtotal:	**$31,250**	**$ 31,250**
		OTHER ITEMS					
7	7038	ROADWAY SURVEYING	L.S.	$ 1,000.00	1.0	1.0	$ 1,000
8	7736	SPCC PLAN	L.S.	$ 500.00	1.0	1.0	$ 500
					Subtotal:	**$1,500**	**$ 1,500**

Subtotal Construction:	**$37,250**	**$ 37,250**
Contingency @ 30%	**$11,175**	**$ 11,175**
TOTAL CONSTRUCTION:	**$48,425**	**$ 48,425**
Preliminary Engineering (PE) @ 12%	**$5,811**	**$ 5,811**
Construction Management (CM) @ 12%	**$5,811**	**$ 5,811**
SCHEDULE COST TOTALS:	**$60,047**	**$ 60,047**
TOTAL PROJECT COST:		**$ 60,047**

Project Name: Church Lake RD-W Tapps HWY E

Client Name: City of Bonney Lake - Vertical Curve Reduction

SCJ Project No.: 23-000008

Estimate Level: Concept

Date: 5/13/2024

SCJ ALLIANCE
CONSULTING SERVICES

BID ITEM NO.	WSDOT STD ITEM NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	TOTAL QUANTITY	Schedule A Roadway Regrading	TOTAL
		PREPARATION					
1	0001	MOBILIZATION	L.S.	$ 20,000.00	1.0	1.0	$ 20,000
2	0050	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$30,000**	**$ 30,000**
		GRADING					
3	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	$ 30.00	1230.0	1230.0	$ 36,900
					Subtotal:	**$36,900**	**$ 36,900**
		WATER LINES					
4	3867	DUCTILE IRON PIPE FOR WATER MAIN 8 IN. DIAM.	L.F.	$ 242.00	375.0	375.0	$ 90,750
					Subtotal:	**$90,750**	**$ 90,750**
		SURFACING					
5	5100	CRUSHED SURFACING BASE COURSE	TON	$ 70.00	376.9	376.9	$ 26,380
					Subtotal:	**$26,380**	**$ 26,380**
		HOT MIX ASPHALT					
6	5767	HMA CL. 1/2 IN. PG 58H-22	TON	$ 180.00	420.0	420.0	$ 75,600
					Subtotal:	**$75,600**	**$ 75,600**
		EROSION CONTROL AND ROADSIDE PLANTING					
7	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.	$ 10,000.00	1.0	1.0	$ 10,000
					Subtotal:	**$10,000**	**$ 10,000**
		TRAFFIC					
8	6806	PAINT LINE	L.F.	$ 3.00	1320.0	1320.0	$ 3,960
9	6971	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	$ 40,000.00	1.0	1.0	$ 40,000
					Subtotal:	**$43,960**	**$ 43,960**
		OTHER ITEMS					
10	7038	ROADWAY SURVEYING	L.S.	$ 15,000.00	1.0	1.0	$ 15,000
11	7736	SPCC PLAN	L.S.	$ 2,500.00	1.0	1.0	$ 2,500
					Subtotal:	**$17,500**	**$ 17,500**

Subtotal Construction:	**$331,090**	**$ 331,090**
Contingency @ 30%	**$99,327**	**$ 99,327**
TOTAL CONSTRUCTION:	**$430,417**	**$ 430,417**
Preliminary Engineering (PE) @ 12%	**$51,650**	**$ 51,650**
Construction Management (CM) @ 12%	**$51,650**	**$ 51,650**
SCHEDULE COST TOTALS:	**$533,716**	**$ 533,716**
	TOTAL PROJECT COST:	**$ 533,716**

Appendix D

Traffic Operations Worksheets

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	30	50	120	135	60
Future Vol, veh/h	50	30	50	120	135	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	1	1	4	4	6	6
Mvmt Flow	67	40	67	160	180	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	227	0	-	0	321	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	4.11	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.209	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1347	-	-	-	664	889
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	847	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1347	-	-	-	630	889
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	847	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1347	-	-	-	692
HCM Lane V/C Ratio	0.049	-	-	-	0.376
HCM Control Delay (s)	7.8	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.7

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	40	70	170	190	80
Future Vol, veh/h	70	40	70	170	190	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	1	1	4	4	6	6
Mvmt Flow	93	53	93	227	253	107

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	320	0	-	0	446	207
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	4.11	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.209	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1246	-	-	-	562	823
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	791	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1246	-	-	-	519	823
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	791	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1246	-	-	-	583
HCM Lane V/C Ratio	0.075	-	-	-	0.617
HCM Control Delay (s)	8.1	0	-	-	20.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	4.2

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	70	135	235	95
Future Vol, veh/h	60	70	70	135	235	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	65	75	75	145	253	102

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	220	0	-	0	353	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1349	-	-	-	645	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1349	-	-	-	613	899
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1349	-	-	-	675
HCM Lane V/C Ratio	0.048	-	-	-	0.526
HCM Control Delay (s)	7.8	0	-	-	16.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	3.1

Intersection	
Int Delay, s/veh	20.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	95	95	190	325	130
Future Vol, veh/h	85	95	95	190	325	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	91	102	102	204	349	140

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	306	0	-	0	488	204
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1255	-	-	-	539	837
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	764	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1255	-	-	-	497	837
Mov Cap-2 Maneuver	-	-	-	-	497	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	40.2
HCM LOS			E

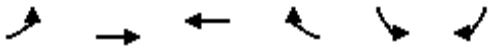
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1255	-	-	-	562
HCM Lane V/C Ratio	0.073	-	-	-	0.871
HCM Control Delay (s)	8.1	0	-	-	40.2
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	9.7

Intersection: 1: Church Lake Rd E & W Tapps Highway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	63	19	251
Average Queue (ft)	21	1	110
95th Queue (ft)	53	8	196
Link Distance (ft)	676	981	704
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	95	95	190	325	130
Future Volume (veh/h)	85	95	95	190	325	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1870	1870
Adj Flow Rate, veh/h	91	102	102	204	349	140
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	1	1	2	2
Cap, veh/h	284	228	161	322	456	183
Arrive On Green	0.29	0.29	0.29	0.29	0.37	0.37
Sat Flow, veh/h	292	793	561	1122	1225	492
Grp Volume(v), veh/h	193	0	0	306	490	0
Grp Sat Flow(s),veh/h/ln	1086	0	0	1683	1721	0
Q Serve(g_s), s	0.8	0.0	0.0	4.2	6.6	0.0
Cycle Q Clear(g_c), s	5.0	0.0	0.0	4.2	6.6	0.0
Prop In Lane	0.47			0.67	0.71	0.29
Lane Grp Cap(c), veh/h	512	0	0	483	641	0
V/C Ratio(X)	0.38	0.00	0.00	0.63	0.76	0.00
Avail Cap(c_a), veh/h	1059	0	0	1148	1173	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.9	0.0	0.0	8.2	7.3	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.4	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.1	1.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	0.0	0.0	9.6	9.2	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		193	306		490	
Approach Delay, s/veh		8.3	9.6		9.2	
Approach LOS		A	A		A	

Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			12.1		14.3	12.1
Change Period (Y+Rc), s			4.5		4.5	4.5
Max Green Setting (Gmax), s			18.0		18.0	18.0
Max Q Clear Time (g_c+I1), s			7.0		8.6	6.2
Green Ext Time (p_c), s			0.8		1.2	1.5

Intersection Summary		
HCM 6th Ctrl Delay	9.2	
HCM 6th LOS	A	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection: 1: Church Lake Rd E & W Tapps Highway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	93	116	196
Average Queue (ft)	54	55	100
95th Queue (ft)	89	95	163
Link Distance (ft)	676	981	704
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

MOVEMENT SUMMARY

Site: 1 [Church Lake Road and W Tapps Hwy - AM (Site Folder: General)]

Projected 2049
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: WB Church Lake Rd														
6	T1	70	4.0	93	4.0	0.273	0.5	LOS A	1.5	39.3	0.28	0.14	0.28	36.3
16	R2	170	4.0	227	4.0	0.273	0.5	LOS A	1.5	39.3	0.28	0.14	0.28	35.4
Approach		240	4.0	320	4.0	0.273	0.5	LOS A	1.5	39.3	0.28	0.14	0.28	35.6
North: SB W Tapps Hwy														
7	L2	190	6.0	253	6.0	0.314	0.6	LOS A	1.8	46.1	0.29	0.15	0.29	34.3
14	R2	80	6.0	107	6.0	0.314	0.6	LOS A	1.8	46.1	0.29	0.15	0.29	33.7
Approach		270	6.0	360	6.0	0.314	0.6	LOS A	1.8	46.1	0.29	0.15	0.29	34.1
West: EB Church Lake Rd														
5	L2	70	1.0	93	1.0	0.138	1.2	LOS A	0.7	16.7	0.41	0.27	0.41	34.4
2	T1	40	1.0	53	1.0	0.138	1.2	LOS A	0.7	16.7	0.41	0.27	0.41	34.5
Approach		110	1.0	147	1.0	0.138	1.2	LOS A	0.7	16.7	0.41	0.27	0.41	34.4
All Vehicles		620	4.3	827	4.3	0.314	0.7	LOS A	1.8	46.1	0.31	0.17	0.31	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Church Lake Road and W Tapps Hwy - PM (Site Folder: General)]

Projected 2049
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: WB Church Lake Rd														
6	T1	95	1.0	102	1.0	0.254	0.5	LOS A	1.4	36.2	0.28	0.14	0.28	36.3
16	R2	190	1.0	204	1.0	0.254	0.5	LOS A	1.4	36.2	0.28	0.14	0.28	35.4
Approach		285	1.0	306	1.0	0.254	0.5	LOS A	1.4	36.2	0.28	0.14	0.28	35.7
North: SB W Tapps Hwy														
7	L2	325	2.0	349	2.0	0.412	0.7	LOS A	2.6	66.5	0.33	0.18	0.33	34.4
14	R2	130	2.0	140	2.0	0.412	0.7	LOS A	2.6	66.5	0.33	0.18	0.33	33.7
Approach		455	2.0	489	2.0	0.412	0.7	LOS A	2.6	66.5	0.33	0.18	0.33	34.2
West: EB Church Lake Rd														
5	L2	85	2.0	91	2.0	0.197	1.8	LOS A	1.0	25.9	0.49	0.37	0.49	34.4
2	T1	95	2.0	102	2.0	0.197	1.8	LOS A	1.0	25.9	0.49	0.37	0.49	34.5
Approach		180	2.0	194	2.0	0.197	1.8	LOS A	1.0	25.9	0.49	0.37	0.49	34.5
All Vehicles		920	1.7	989	1.7	0.412	0.8	LOS A	2.6	66.5	0.35	0.21	0.35	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\Projects\0610 City of Bonney Lake\23-000008 Angeline Rd-Veterans Memorial Dr Study\02-Church Lake Rd ICE\03-Analysis\Ops\RAB.sip9

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	95	95	190	325	130
Future Vol, veh/h	85	95	95	190	325	130
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	91	102	102	204	349	140
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	11.7	12.4	20.4
HCM LOS	B	B	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	0%	71%
Vol Thru, %	53%	33%	0%
Vol Right, %	0%	67%	29%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	180	285	455
LT Vol	85	0	325
Through Vol	95	95	0
RT Vol	0	190	130
Lane Flow Rate	194	306	489
Geometry Grp	1	1	1
Degree of Util (X)	0.317	0.445	0.715
Departure Headway (Hd)	5.895	5.233	5.262
Convergence, Y/N	Yes	Yes	Yes
Cap	608	686	685
Service Time	3.947	3.281	3.297
HCM Lane V/C Ratio	0.319	0.446	0.714
HCM Control Delay	11.7	12.4	20.4
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.4	2.3	6

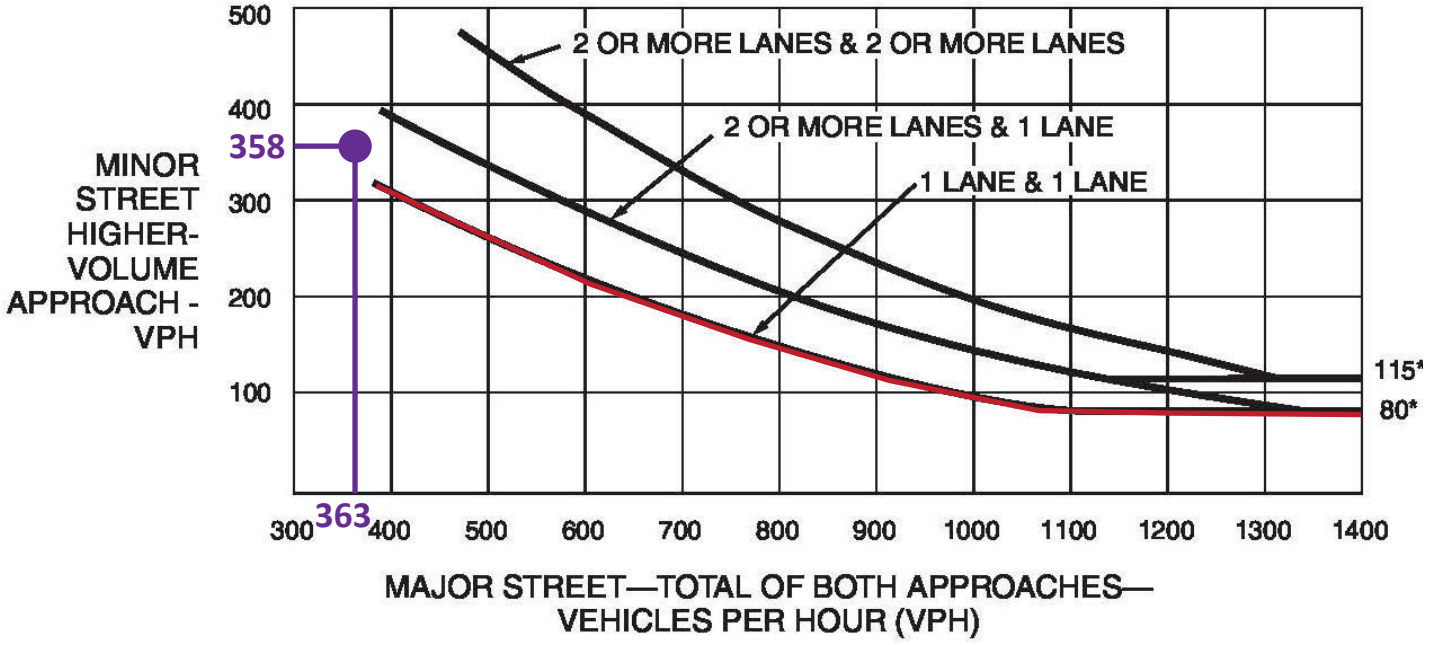
Intersection: 1: Church Lake Rd E & W Tapps Hwy

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	82	92	156
Average Queue (ft)	46	55	78
95th Queue (ft)	72	83	127
Link Distance (ft)	676	981	704
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

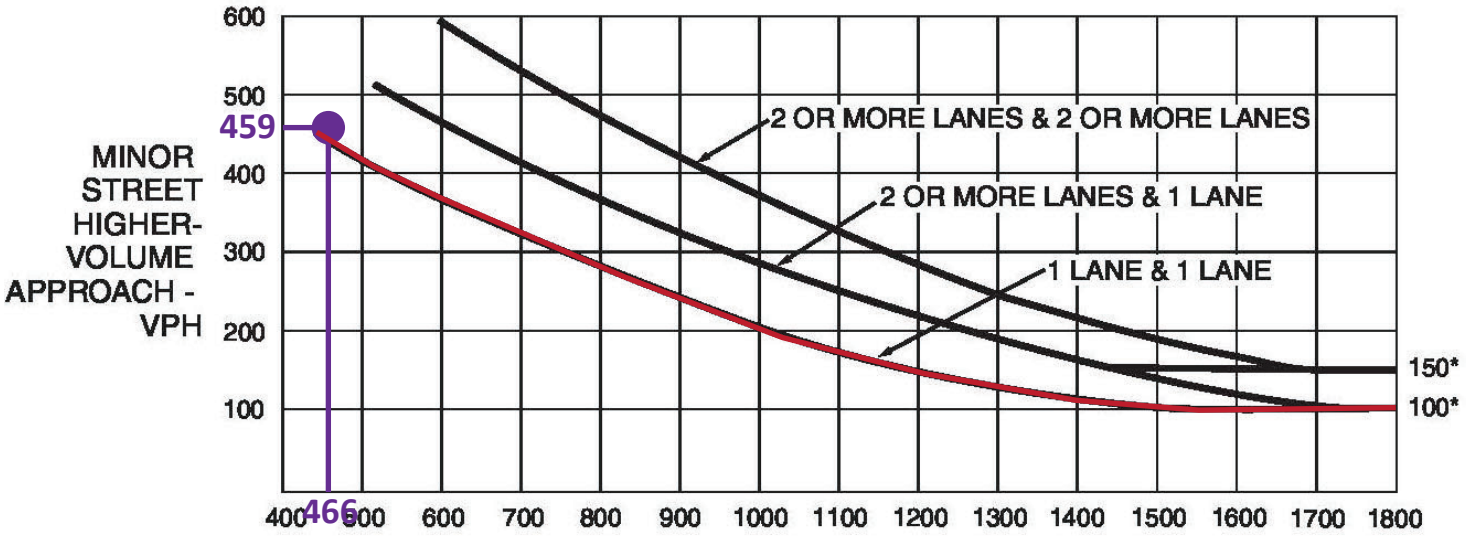
Network wide Queuing Penalty: 0

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Legend

2049 PM Peak Hour

Intersection	
Int Delay, s/veh	11.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	135	61	72	207	246	107
Future Vol, veh/h	135	61	72	207	246	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	138	62	73	211	251	109

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	517	179
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	338	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1284	-	-	-	520	866
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	462	866
Mov Cap-2 Maneuver	-	-	-	-	462	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	24.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	538
HCM Lane V/C Ratio	0.107	-	-	-	0.67
HCM Control Delay (s)	8.1	0	-	-	24.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	5

Intersection	
Int Delay, s/veh	16.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	150	70	70	230	275	120
Future Vol, veh/h	150	70	70	230	275	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	153	71	71	235	281	122

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	306	0	-	0	566	189
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1260	-	-	-	487	855
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1260	-	-	-	426	855
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	696	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	35.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1260	-	-	-	503
HCM Lane V/C Ratio	0.121	-	-	-	0.801
HCM Control Delay (s)	8.3	0	-	-	35.1
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.4	-	-	-	7.5

Intersection	
Int Delay, s/veh	64.4

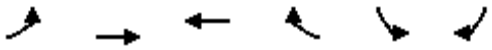
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	85	85	290	340	150
Future Vol, veh/h	185	85	85	290	340	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	189	87	87	296	347	153

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	383	0	-	0	700	235
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1181	-	-	-	407	807
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1181	-	-	-	~ 339	807
Mov Cap-2 Maneuver	-	-	-	-	~ 339	-
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	634	-

Approach	EB	WB	SB
HCM Control Delay, s	5.9	0	145.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1181	-	-	-	412
HCM Lane V/C Ratio	0.16	-	-	-	1.214
HCM Control Delay (s)	8.6	0	-	-	145.9
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.6	-	-	-	20.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	85	85	290	340	150
Future Volume (veh/h)	185	85	85	290	340	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	189	87	87	296	347	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	359	139	162	552	418	184
Arrive On Green	0.43	0.43	0.43	0.43	0.35	0.35
Sat Flow, veh/h	488	323	376	1279	1198	528
Grp Volume(v), veh/h	276	0	0	383	501	0
Grp Sat Flow(s),veh/h/ln	811	0	0	1655	1730	0
Q Serve(g_s), s	7.3	0.0	0.0	7.0	10.9	0.0
Cycle Q Clear(g_c), s	14.3	0.0	0.0	7.0	10.9	0.0
Prop In Lane	0.68			0.77	0.69	0.31
Lane Grp Cap(c), veh/h	498	0	0	714	603	0
V/C Ratio(X)	0.55	0.00	0.00	0.54	0.83	0.00
Avail Cap(c_a), veh/h	753	0	0	1071	1035	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	0.0	8.6	12.2	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.6	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.9	3.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.3	0.0	0.0	9.2	15.3	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h		276	383		501	
Approach Delay, s/veh		13.3	9.2		15.3	
Approach LOS		B	A		B	

Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			22.2		18.8	22.2
Change Period (Y+Rc), s			4.5		4.5	4.5
Max Green Setting (Gmax), s			26.5		24.5	26.5
Max Q Clear Time (g_c+I1), s			16.3		12.9	9.0
Green Ext Time (p_c), s			1.4		1.4	2.4

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

MOVEMENT SUMMARY

Site: 1 [Church Lake Road and W Tapps Hwy - Summer PM (Site Folder: General)]

Projected Summer 2049
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: WB Church Lake Rd														
6	T1	85	1.0	87	1.0	0.344	1.1	LOS A	2.1	52.8	0.44	0.29	0.44	36.0
16	R2	290	1.0	296	1.0	0.344	1.1	LOS A	2.1	52.8	0.44	0.29	0.44	35.1
Approach		375	1.0	383	1.0	0.344	1.1	LOS A	2.1	52.8	0.44	0.29	0.44	35.3
North: SB W Tapps Hwy														
7	L2	340	1.0	347	1.0	0.412	0.6	LOS A	2.8	69.6	0.32	0.16	0.32	34.5
14	R2	150	1.0	153	1.0	0.412	0.6	LOS A	2.8	69.6	0.32	0.16	0.32	33.8
Approach		490	1.0	500	1.0	0.412	0.6	LOS A	2.8	69.6	0.32	0.16	0.32	34.3
West: EB Church Lake Rd														
5	L2	185	1.0	189	1.0	0.276	1.9	LOS A	1.5	38.1	0.52	0.40	0.52	34.0
2	T1	85	1.0	87	1.0	0.276	1.9	LOS A	1.5	38.1	0.52	0.40	0.52	34.1
Approach		270	1.0	276	1.0	0.276	1.9	LOS A	1.5	38.1	0.52	0.40	0.52	34.0
All Vehicles		1135	1.0	1158	1.0	0.412	1.1	LOS A	2.8	69.6	0.41	0.26	0.41	34.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: SCJ ALLIANCE | Licence: PLUS / 1PC | Processed: Monday, October 2, 2023 9:34:37 AM
Project: N:\Projects\0610 City of Bonney Lake\23-000008 Angeline Rd-Veterans Memorial Dr Study\02-Church Lake Rd ICE\03-Analysis\Ops\Summer RAB.sip9

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	85	85	290	340	150
Future Vol, veh/h	185	85	85	290	340	150
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	189	87	87	296	347	153
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	14.9	16	26.8
HCM LOS	B	C	D

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	69%	0%	69%
Vol Thru, %	31%	23%	0%
Vol Right, %	0%	77%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	270	375	490
LT Vol	185	0	340
Through Vol	85	85	0
RT Vol	0	290	150
Lane Flow Rate	276	383	500
Geometry Grp	1	1	1
Degree of Util (X)	0.475	0.582	0.789
Departure Headway (Hd)	6.205	5.473	5.68
Convergence, Y/N	Yes	Yes	Yes
Cap	576	654	635
Service Time	4.294	3.555	3.747
HCM Lane V/C Ratio	0.479	0.586	0.787
HCM Control Delay	14.9	16	26.8
HCM Lane LOS	B	C	D
HCM 95th-tile Q	2.5	3.8	7.7

Intersection: 1: Church Lake Rd E & W Tapps Hwy

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	100	140	185
Average Queue (ft)	56	69	85
95th Queue (ft)	90	110	142
Link Distance (ft)	676	981	704
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Appendix E

Crash Data

APPENDIX E - CHURCH LAKE ROAD E AT W TAPPS HIGHWAY E CRASH DATA - 1/1/2018 TO 12/31/2022

CITY	PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY	REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	FIRST COLLISION TYPE / OBJECT STRUCK	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)
Bonney Lake	CHURCH LAKE RD E	W TAPPS HWY E		EA10173	01/31/2020	09:16	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vane	Pickup,Panel Truck or Vanet	At Intersection and Related	From same direction - both going straight - one stopped - rear-end	Lost in Thought / Day Dreaming	Other Distractions
Bonney Lake	W TAPPS HWY E		CHURCH LAKE RD E	EC34847	04/05/2022	17:25	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanet	Intersection Related but Not at Intersection	From same direction - both going straight - one stopped - rear-end	Unknown Distraction	
Bonney Lake	W TAPPS HWY E		CHURCH LAKE RD E	E928452	06/04/2019	16:30	Possible Injury	1	0	3	0	0	Pickup,Panel Truck or Vane	Passenger Car	Intersection Related but Not at Intersection	From same direction - both going straight - one stopped - rear-end	Inattention	

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Appendix L: 192nd Avenue Extension and 100th Street Extension Evaluation

April 2025

BONNEY Lake

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printing purposes.

SCJ ALLIANCE
CONSULTING SERVICES

TECHNICAL MEMORANDUM

TO:	Jason Sullivan, Public Services Director
FROM:	Ryan Shea, PTP
DATE:	April 23, 2025
RE:	192nd Avenue Extension and 100th Street E Extension Evaluation SCJ #23-000007

PURPOSE

The City of Bonney Lake (City) requested evaluation of two road extensions:

1. **192nd Avenue East Extension**
   The City previously identified a project to widen and extend 192nd Avenue from SR-410 to connect with 104th Street E/192nd Avenue E to provide an additional connection between State Route (SR) 410 and Rhodes Lake Road E. Due to the existing terrain and built environment, this extension will be a significant expense. The City has requested an updated analysis of this extension so that the benefits and cost of the project can be re-evaluated.

2. **101st Street East/211th Avenue East Extension**
   The City has also identified an extension of 100th Street E from its current eastern terminus to 214th Avenue E. As the extension would align with 101st Street East on the east side of 214th Avenue East, the existing segment of 100th would be renamed 101st Avenue East. This would include an extension of 211th Avenue E south from SR 410 to 101st Street E, thus providing additional connectivity to SR 410 for the development activity between SR 410, 214th Avenue E, and South Prairie Road.

This memorandum evaluates the potential benefits of each improvement to determine if one or both extensions should be included in the updated Mobility Element as part of the 2024 Comprehensive Plan periodic update. The study area for both potential roadway extensions is shown in **Figure 1**.

Figure 1 – Proposed Extensions



BACKGROUND

192ND AVENUE E COORIDOR STUDY (2006)

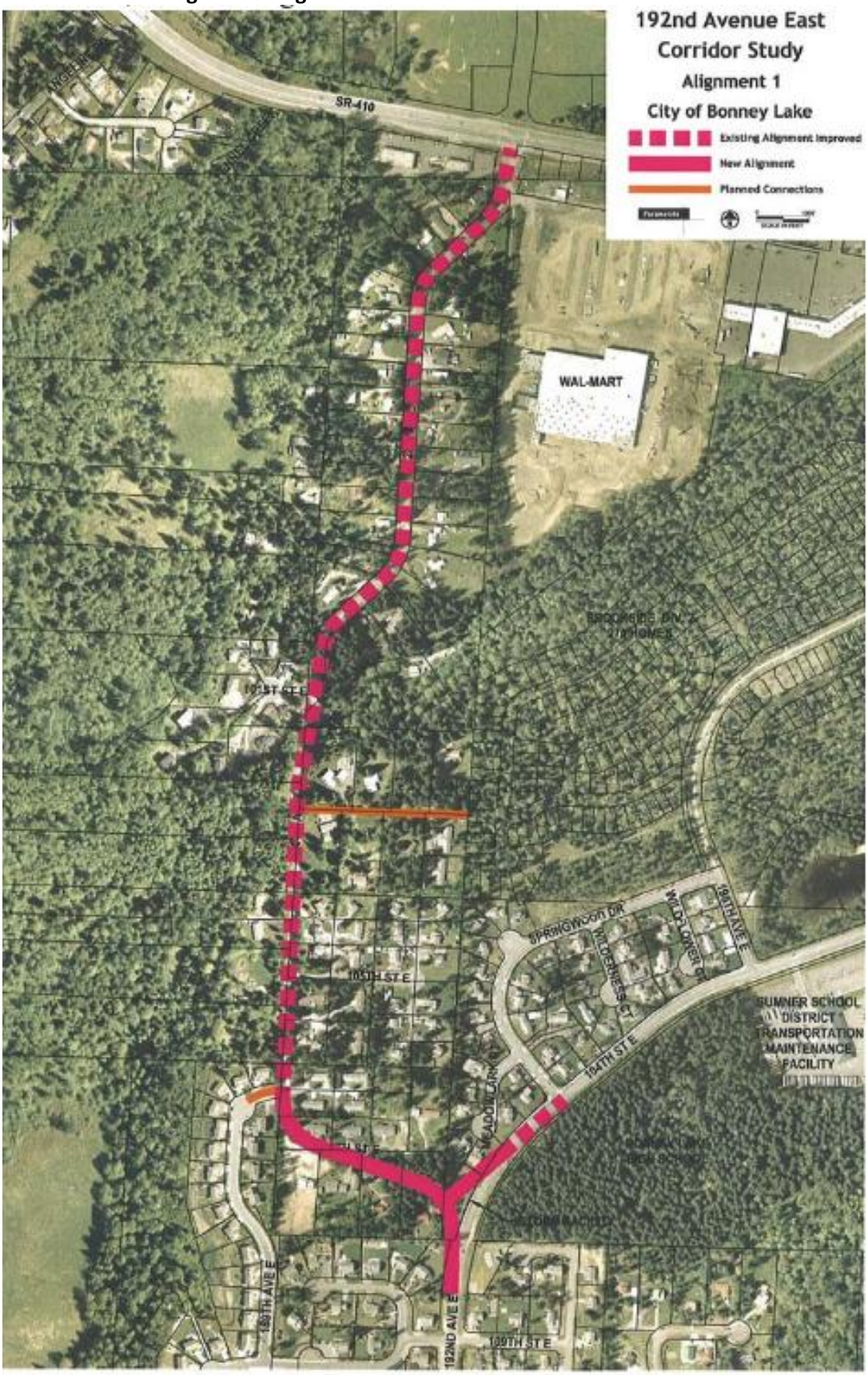
In March of 2006, the City published the *192nd Avenue East Corridor Study* which evaluated five alignment alternatives to provide a connection between the two existing segments of 192nd Ave E. The first segment extends from SR 410 to the south for approximately 2,500 linear feet before transitioning to a private gravel road. The second segment extends from Rhodes Lake Rd E to 104th Street E.

The primary purpose of the 192nd Avenue E extension was to provide a more direct connection between the residential areas and the commercial core, as well as improve access to SR 410.

Alignment #1 was selected as the preferred alignment. This alignment generally follows the same route as the existing City owned portion of the north segment of 192nd Ave E. The proposed roadway would continue south along what is now a private roadway, curving east just north of 107th Street E, then curving south to connect with the southern segment of 192nd Ave E, connecting at a tee intersection with 104th Ave E. This alignment is shown below in **Figure 2**.

While the City did acquire two parcels and a small segment of right-of-way, no meaningful progress has been made on the construction or development of the 192nd Avenue E corridor over the last 18 years.

Figure 2 – Alignment #1 of the 192nd Avenue Extension



MOBILITY ELEMENT (2015)

Intersection Analysis

The Mobility Element in the City's 2015 Comprehensive Plan identified transportation system improvements to help address capacity related problems with SR 410. One of these improvements was the extension of 192nd Avenue as a future multimodal arterial that would provide an additional connection between SR 410 and Rhodes Lake Road.

To prepare the 2015 Mobility Element, the City analyzed 31 intersections during the PM peak hour. Of these, nine (9) were located on SR 410. Three (3) of these intersections were projected to operate at Level of Service (LOS) E[1] or worse. To correct the projecting failing LOS, the City identified the following improvement:

- SR 410 at Veterans Memorial Drive – Construct a 2nd southbound (SB) left turn lane and a westbound (WB) left turn lane. This project is now complete.
- SR 410 at 192nd Avenue – Construct a 2nd northbound (NB) left turn lane and a NB right turn lane.
- SR 410 at 214th Avenue – Construct a 2nd NB through lane, a 2nd eastbound (EB) left turn lane, a 2nd WB left turn lane, and a 2nd SB through lane.

The identified improvements to SR 410 at 192nd Avenue E were specifically to support the planned extension of 192nd Avenue E to 104th Street E.

Screen Line Analysis

The Mobility Element also included a screen line evaluation, which assessed the overall volume capacity of the primary corridors by group, to evaluate the collective capacity to travel through the city. In total there were seven (7) screen line groups, assessing capacity for portions of the street network. This analysis allows the city to evaluate the broader roadway capacity over multiple corridors, which account for alternative route options if/when a specific corridor operates at or below capacity. The screen lines are shown in **Figure 3**.

Screen line C1 includes the north/south corridors south of SR 410. Currently, 192nd Avenue East does not qualify for inclusion in the analysis, since it does not currently provide an alternative to other north/south routes. An extension of 192nd Avenue E to 104th Street E would allow for traffic to shift to this corridor as needed. The full capacity of 192nd Avenue could then be included in the C1 screen line analysis.

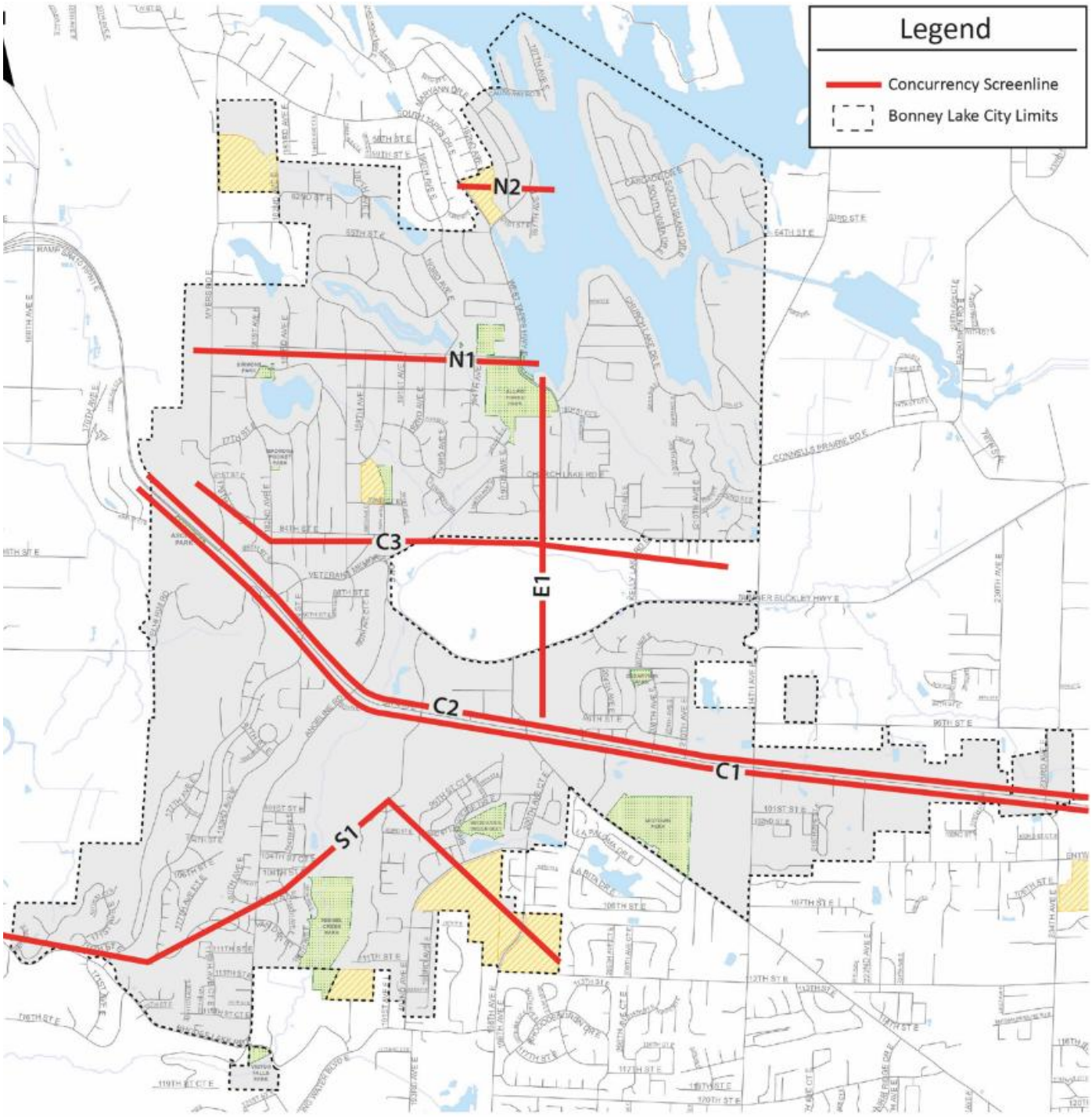
The analysis for the 2015 Mobility Element included the 192nd Avenue corridor, and overall identified an acceptable level of service for this screen line with two needed capacity improvements:

- Extension of 192nd Avenue to 104th Street E
- Widening of 214th Avenue to a five-lane corridor between SR 410 and South Prairie Road

Together, these improvements provided the necessary additional capacity to accommodate the traffic volume forecasts.

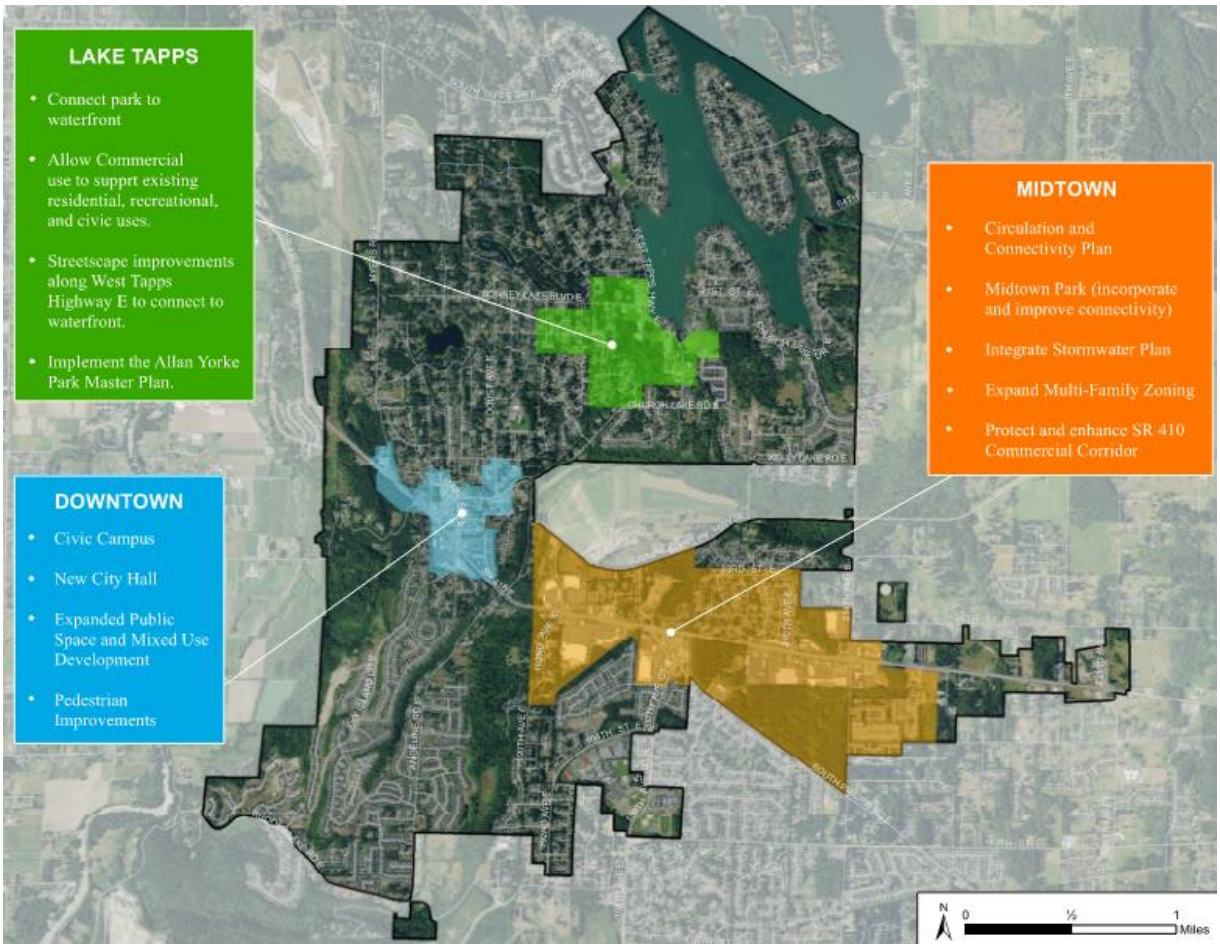
[1] See attachment for a description of level of service

Figure 3 – Bonney Lake Screen Line Locations



CENTERS PLAN (2017)

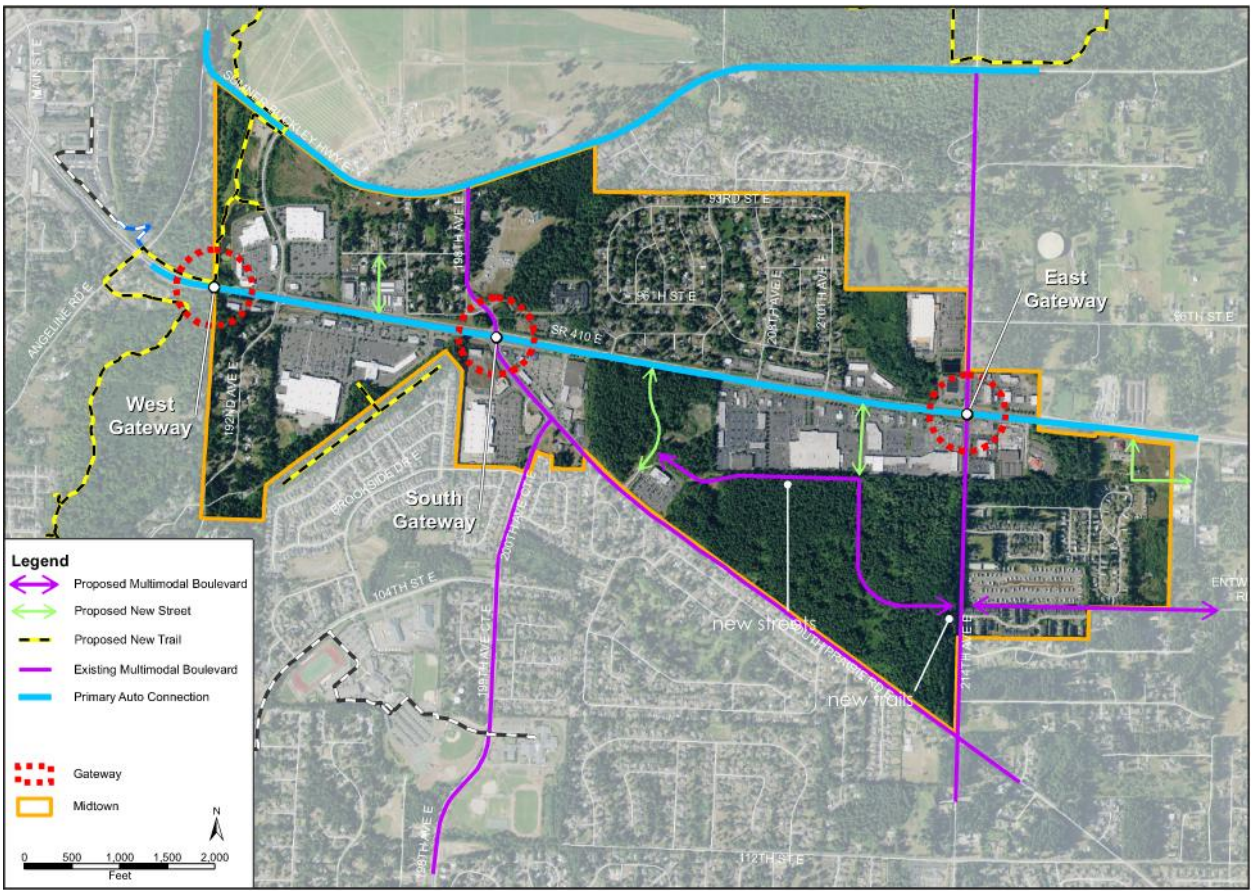
In 2017, the city completed the *Bonney Lake Centers Plan* (Centers Plan) to develop a unified land use plan for areas of the City that were envisioned to absorb most of the future residential and commercial growth. The goal was to holistically plan for these areas and to establish clear priorities, strategies, and responsibilities to achieve community goals. The plan identified three centers: Downtown, Midtown, and Lake Tapps.



In order to provide the transportation and circulation network needed to support the future growth in the Midtown Center, the Centers Plan envisioned the construction of 204th Avenue East between South Prairie Road and SR 410, the extension of a multimodal boulevard (101st Avenue E) between 204th Avenue E and 214th Avenue E, and extension of 211th Avenue connecting SR 410 to the new multimodal boulevard (101st Avenue E).

This transportation system was in part based on the 2009 WSU Development Agreement, which required the construction of 204th Avenue E between SR-410 and South Prairie (Section 6.6.1), the allowance for a future vehicular connection between the residential portion of the project and 211th Avenue E. (Section 6.6.2), and the granting of an access easement between 204th Avenue E and park property to be dedicated to the City of Bonney Lake (Section 6.6.3). In 2014, the City and WSU entered into the First Amendment to WSU Development Agreement to require the developer of the commercial component of the WSU Forest to provide a vehicular connection between the commercial area of the WSU forest and the existing commercial area to the east (Section 6.6.6).

The actual development of the commercial portion of the WSU forest was occurring contemporaneously with the preparation of the Centers Plan. During the review and approval of the layout for the commercial areas it was determined that the area for the easement envisioned in the 1st WSU Development Amendment was not possible due to the grade changes at the proposed location. In order to fulfill the intent of Section 6.6.6, the developer agreed to convert the easement identified in 6.6.2 of the Development Agreement into a public road that would connect to 204th Avenue E and to the City property, allowing for the connection between the adjacent commercial areas via a new roadway then identified as 100th Street E. (now 101st Street E).



PARKS, TRAILS, RECREATION, & OPEN SPACE PLAN (2024)

In 2024, the city adopted the Bonney Lake Parks, Trails, Recreation, & Open Space (PTROS) Plan to guide the development of the City's park system. As part of this plan, the city prepared a conceptual plan for the park land located between the commercial and residential elements of the WSU Forest. This area now referred to as the Bonney Lake Sport's Complex (formerly Midtown Park) was based on the road network envisioned in the 2017 Centers Plan. The plan for the Bonney Lake Sport's Complex calls for the extension of 101st Street E from its current terminus to the eastern edge of the City property in anticipation of providing connections between 204th Avenue East, 211th Avenue East, and 214th Avenue East.



ANALYSIS

As part of the 2024 update to the Mobility Element, new long range (2049) traffic volume forecasts were calculated. These updated traffic volume forecasts were used to update the intersection operations analysis and the city-wide screen line analysis.

Intersection Analysis

Based on the current growth forecast for Bonney Lake, the intersections along SR 410 are generally projected to operate with less delay than previously documented. Unlike the 2015 Mobility Element, the SR 410 intersections with 192nd Avenue and 214th Avenue are all projected to operate at LOS D or better.

In the case of 192nd Avenue this improvement in operations is due to the lack of an assumed corridor extension in the initial analysis.

Overall, these three (3) intersections are projected to experience less delay due to lower growth projections on SR 410, especially east of South Prairie Road. This is due to an increase in traffic volume growth on South Prairie Road and 200th Avenue Court. As a result, the South Prairie Road/200th Avenue Court intersection is projected to operate at a level of service E, which indicates significant congestion. An Intersection Control Evaluation (ICE) to identify the appropriate improvements. Additional discussion of the 192nd Avenue extension on this intersection discussed below.

Screen Line Analysis

Using the 2049 traffic volume forecasts, an updated screen line analysis was performed for each screen line identified in the 2015 Mobility Element. To determine if any future capacity was necessary, the initial analysis assumed no change to the existing roadway capacity and corridors. The 2049 screen line analysis results are provided in **Table 1**.

Table 1. Roadway 2049 Screen line Volume to Capacity Ratios

Screenline	2049 Roadway V/C Ratio [2]	Screenline LOS
S1	0.44	0.50
C1	**0.73**	0.60
C2	0.47	0.60
C3	0.38	0.50
N1	0.39	0.50
N2	0.21	0.50
E1	0.44	0.50

The only screen line that results in a failing LOS is C1. The widening of 214th Avenue E to a five-lane corridor between SR-410 and South Prairie is assumed in the plan as it provides the biggest capacity benefits, reducing the overall v/c ratio[2] by 0.107, and increases capacity on the corridor with the second largest volume along screen line C1. While this is a significant improvement, this improvement does not provide enough capacity to reach the City's screen line LOS standard.

To reach the City's screen line LOS standard for the 2049 horizon, at least one additional capacity improvement is needed. Therefore, the following two capacity improvement projects were evaluated:

- Option 1: An extension of 192nd Avenue from SR410 to 104th Avenue East.
- Option 2: Extension of 211th Avenue E south to the Midtown Residential development, as part of 100th Street E extension.

OPTION 1: 192ND AVENUE EXTENSION TO 104TH STREET E

Currently 192nd Avenue provides access between Sumner-Buckley Highway on the north and 107th Street E on the south. It includes an intersection with SR 410 that operates under traffic signal control. South of SR 410 this road serves two functions:

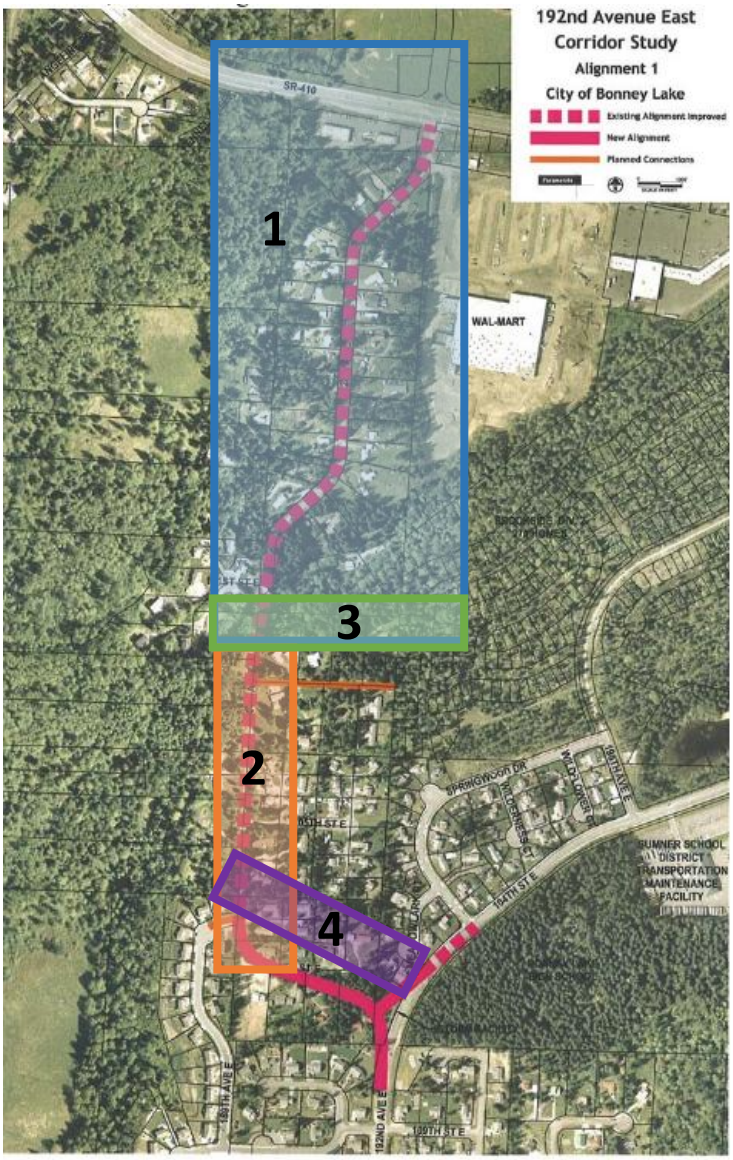
- Western access for the Walmart commercial center

[2] See attachment for description of v/c ratio

- Access for a residential neighborhood extending the length of 192nd Avenue.

South of SR 410, this roadway does not have a secondary outlet, and all traffic is routed to the intersection with SR 410. 192nd Avenue is not included in the C1 screen line evaluation since it does not serve as a regionally available route from traveling north/south across SR 410.

The 2015 Mobility Element identified four components necessary for an extension to 192nd Avenue:



1. <u>192nd Avenue from SR 410 to 103rd Street E:</u>

- Construct street with three (3) travel lanes, curb, gutter, sidewalk, bike lanes, and landscaping on both sides.
- Purchase 20 feet of ROW from SR 410 to 101st Street E and 80 feet of ROW from 101st Street E to 103rd Street E
- Will require stormwater conveyance system with detention and water quality facilities.

2. <u>192nd Avenue from 103rd Street E to 107th Street E:</u>

- Construct street with three (3) travel lanes, curb, gutter, sidewalk, bike lanes, and landscaping on both sides.
- Purchase 80 feet of ROW from 103rd Street E to 107th Street E
- Will require stormwater conveyance system with detention and water quality facilities.

3. <u>103rd Street E between 192nd Avenue and 194th Avenue:</u>

- Construct street with 2 lanes, curb, gutter, and sidewalks.
- Purchase 50 of right-of-way from 192nd Avenue E to 194th Avenue E
- Will require stormwater conveyance system with detention and water quality facilities.

4. <u>107th Street E between 192nd Avenue and 104th Street E:</u>

- Construct street with two travel lanes, curb, gutter, sidewalk, bike lanes, and landscaping on both sides.
- Purchase 60 feet if ROW between 192nd Avenue E and 104th Avenue E
- Will require stormwater conveyance system with detention and water quality facilities.

These improvements would connect 192nd Avenue E to the adjacent neighborhood to the east and also to the 104th Street E/192nd Avenue E corridor, providing access south to Rhodes Lake Road. With this

improvement in place the corridor would provide regional access to SR 410 and would be included in the C1 screen line analysis.

Intersection Analysis

The Pierce County Travel Demand Model was used to assign traffic volumes to the overall street network, comparing the existing 192nd Avenue E corridor against the corridor with the 192nd Avenue E extension completed. With the extension, the major changes in PM peak hour[3] volumes for the long-term horizon are summarized below:

- An overall increase in traffic from 280 total trips to 795 total trips (south of Walmart). This is largely an increase in southbound volume.
- A corresponding decrease in PM peak hour traffic on South Prairie Road of:
    - Approximately 280 less vehicles traveling southbound.
    - Approximately 90 less vehicles traveling northbound.

This shift in traffic would impact multiple signalized intersections. Each of these intersections were evaluated to determine the level of impact 192nd Avenue E extension would have on the intersection. The analysis results are provided in **Table 2**.

Table2. Projected 2049 PM Peak Hour Analysis Results with and without 192ndAvenue Extension

Intersection	Baseline (Without Extension)	With 192nd Ave E Extension	Change
	LOS (Delay)	LOS (Delay)	LOS (Delay)
SR 410 at 192nd Avenue E	C (28.4)	C (31.3)	+2.7
SR 410 at 195th Avenue E	C (33.9)	C (34.4)	+0.5
SR 410 at 198th Avenue E/South Prairie Road	D (54.0)	D (51.1)	-2.9
200th Avenue Court at South Prairie Road	E (69.5)	E (65.7)	-3.8

The 192nd Avenue extension does not provide a meaningful benefit to any of the impacted intersections. This is primarily because the volume reductions are coming from intersection movements that are performing with relatively low delay. For example, SR 410 at South Prairie Road and 200th Avenue Court at South Prairie Road are the two impacted intersections projected to operate with the highest amount of delay. In both instances, the primary reduction in volume is to a free right turn movement, which does not factor into the overall delay calculations. This, combined with a generally low overall volume reduction, results in the limited operational benefits.

Screen Line Analysis

The extension of 192nd Avenue would also provide additional roadway capacity for the C1 screen line. The inclusion of this corridor, and the corresponding PM peak hour volumes, would improve the overall v/c ratio of the screen line by 0.029This improvement in the v/c ratio would result in the C1 screen line meeting the City's LOS standard.

[3] The PM peak hour represents the highest hour of traffic that occurs during the evening. This hour typically occurs somewhere between 4:00 and 6:00 PM

OPTION 2: 101ST STREET/211TH AVENUE EXTENSIONS

Option 2 is the construction of a multimodal boulevard from 204th Avenue E to 214th Avenue E, now referred to a 101st Street E. As part of this extension, the current private 211th Avenue E would be converted to a public roadway and extended from its current terminus to 101st Avenue E providing an additional north south connection to SR410. These roadways were envisioned in the 2017 Centers Plan to provide the transportation network necessary to support growth within the area. These roadways were also based on commitments spelled out in the WSU Forest Development Agreement and the 1st Amendment to the WSU Forest Development Agreement.

204th Avenue and the western portion of 100th Street E (now 101st Avenue E) have already been constructed. The eastern portion is planned for a regional sports complex and residential development. As the Center's Plan was developed after the completion of the 2015 Mobility Element the development of a multimodal boulevard between 204th Avenue E and 214th Avenue was not included in the 2015 analysis. The extension of 211th Avenue from SR 410 south to intersection with the WSU property was included (R24) based on the commitments in the 2009 WSU Development Agreement. However, since it did not provide a regional north south alternative it was not included in the 2015 screen line LOS analysis. This analysis evaluates the potential intersection and screen line implications of both extensions being constructed.

Intersection Analysis

The eastern portion of the WSU development, which was identified for residential development in the 2009 WSU Development Agreement. During the preparation of the 2009 Agreement, the City issued *WSU Site Project Bonney Lake Environmental Impact Statement* (WSU EIS), which evaluated impacts on the public roadways. The WSU EIS assumed that the residential component would generate 489 PM peak hour trips, with 300 inbound and 189 outbound. Midtown Properties submitted a Traffic Impact Analysis (TIA) that included an estimate for the distribution of these vehicles and assigns them to the proposed access points without an assumed internal connection to the existing 100th Street E stub to the west. To assess the potential impacts of an extension of 100th Street E to 214th Avenue, the project trips have been reassigned to favor this connection. The TIA documents that 56% of the project traffic will travel to/from the west, split between 198th Avenue, 200th Street Court, and SR 410. For each of these roadways a route to 100th Street E via 204th Avenue would be reasonably equivalent to using any of the proposed access points on South Prairie Road or 214th Avenue. For this analysis it is assumed that half of the traffic from the west would shift to 100th Street E, in lieu of South Prairie Road.

It is also likely that some amount of existing local traffic currently using 204th Avenue to reach either South Prairie Road or SR 410 would utilize an extension of 100th Street to reach 214th Avenue. Traffic counts were collected at the intersection of 204th Ave at 100th Street. These counts show a few hundred vehicles traveling each direction on 204th, and nearly 200 vehicles exiting the Costco driveway across from 100th Street. The most likely traffic to shift to the proposed 100th Street extension from this area would be the traffic associated with the Costco site. For this analysis it is assumed that 50 vehicles travelling to/from this site would shift to 100th Street E to reach 214th Avenue.

Lastly, the extension of 211th Avenue to the 100th Street E roadway would also provide an additional access point to the Midtown Residential development, and the only access point that directly connects to SR 410. The TIA documents 33% of the project traffic travelling to/from points north and east, and these vehicles would have a reasonably equivalent route via 211th Avenue as they would from the access

points provided on 214th Avenue. As with the 100th Street E extension, it is assumed that half of the traffic from the east would shift to 211th Avenue E, in lieu of 214th Avenue E.

With these assumptions the following PM peak hour volume changes would occur:

- A total shift on west SR 410 of 100 vehicles away from South Prairie Road, to 204th Avenue E. This results in:
    - A reduction of 100 trips from the South Prairie Road/200th Avenue Court intersection.
    - An increase of 100 trips at the SR 410/204th Avenue E intersection.
- A total shift on east South Prairie Road of 100 vehicles away from 204th Avenue E, to 101st Avenue E extension. This results in:
    - A reduction of 100 trips from the South Prairie Road/204th Avenue E intersection
- A total shift on east SR 410 of 80 vehicle away from 214th Avenue E, to SR 410. This results in:
    - An increase of 80 trips at the SR 410/211th Avenue E intersection.

An analysis of the primary intersections impacted by this reassignment was conducted with and without the change and is summarized in **Table 3**.

Table 3. Projected 2049 PM Peak Hour Analysis Results with and without 100th Street and 211th Avenue Extensions

Intersection	Baseline	With 100th St and 211th Ave Extensions	Change
	LOS (Delay)	LOS (Delay)	LOS (Delay)
SR 410 at 198th Avenue E/South Prairie Road	D (54.0)	D (54.1)	+0.1
SR 410 at 204th Avenue E	C (21.3)	B (18.7)	-2.6
SR 410 at 211th Avenue E	B (11.2)	B (12.9)	+1.7
SR 410 at 214th Avenue E	D (49.0)	D (47.6)	-1.4
204th Avenue E at South Prairie Road	B (12.3)	B (11.1)	-1.2
200th Avenue Court at South Prairie Road	E (69.5)	E (63.4)	-6.1

These shifts would reduce delay and improve the LOS at many study intersections. However, it should be noted that the shift in Midtown Residential traffic away from South Prairie Road and to 100th Street E via SR 410 and 204th Avenue would improve the intersection of 200th Avenue Court at South Prairie Road by six seconds, which is a larger benefit than the 192nd Avenue extension is projected to provide. This additional route will also allow the overall network to redistribute based on localized delays, providing improved traffic flows for each of the surrounding roadways.

Screen Line Analysis

As with the 192nd Avenue E extension, the extensions of 100th Street and 211th Avenue E would provide additional capacity to the C1 screen line. The inclusion of the 211th Avenue corridor, and the corresponding PM peak hour volumes, would improve the overall v/c ratio of the screen line by 0.025. This is comparable to the benefit provided by the 192nd Avenue E extension and would also result in the C1 screen line reaching the city's LOS standard. The benefits to the C1 screen line are the direct result of the extension of 211th Avenue E, but the benefit is only possible with the extension of 101st Street E, which provides access to the 211th Avenue E corridor.

COST ESTIMATES

A major consideration for which option to advance will be the overall cost of each option. The 192nd Avenue E extension, having previously been studied, has had cost estimates calculated in the past. The most recent cost estimate was updated to current dollars using adjustment factors provided by WSDOT, resulting in a total project cost of $9,300,000. This cost includes right-of-way acquisition, design, and construction management.

Option 2, the extensions of 100th Street E and 211th Avenue E, did not have a previous cost estimate to reference and so a new cost estimate was prepared. A total project cost of $3,900,000 was estimated for this option. This is approximately 42% of the 192nd Avenue E extension, or $5,400,000 less.

CONCLUSION AND RECOMMENDATION

As part of the current update to the city's mobility element an evaluation of potential extensions of 192nd Avenue and the package of 100th Street E and 211th Avenue E has been performed. The previous mobility plan assumed all of these improvements to be in place, with the exception of 101st Street E. Given the potential cost of these improvements, the city is seeking to refresh the potential roadway system benefits of each to determine if one or both should continue to be included in the mobility plan.

Based on an assessment of impacts to surrounding intersection operations, both improvement packages have similar, marginal impacts. Within this part of Bonney Lake, the intersection projected to experience the most vehicle delay during the PM peak hour is 200th Street Court at South Prairie Road. Neither extension improvement would resolve the LOS issue at this intersection, but the 100th Street E and 211th Avenue E extensions are projected to have a larger impact.

These roadway extensions were also evaluated based on the city's screen line standards. Both would have impacts on the C1 screen line, which includes all north/south routes south of SR 410. This screen line is projected to fall below the city's LOS standard under baseline conditions and even including widening of 214th Avenue E. Currently 192nd Avenue E and 211th Avenue E only serve a local function and are not included in the screen line assessment. Both extension projects would create the opportunity for regional use and would therefore become included in this screen line analysis. They are both projected to provide a volume to capacity ratio benefit of approximately 0.025, which would improve the LOS of this screen line to within the city's standard.

Each improvement option had a current cost estimate prepared. The 192nd Avenue E extension is expected to cost $9,300,000, versus $3,900,000 for the extensions of 100th Street E and 211th Avenue E.

Each roadway extension option provides comparable benefits. However, only one extension project is needed to achieve an acceptable LOS for screen line C1 in the projected 2049 horizon. Based on the anticipated costs and right-of-way complications to construct the 192nd Avenue E extension (Option 1), the 101st Street E and 211th Avenue E extensions (Option 2) is the preferred solution to be incorporated into the 2024 Mobility Element.

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Appendix M: 2049 Projected Intersection Level of Service (ILOS) Worksheets With Improvements

September 2025

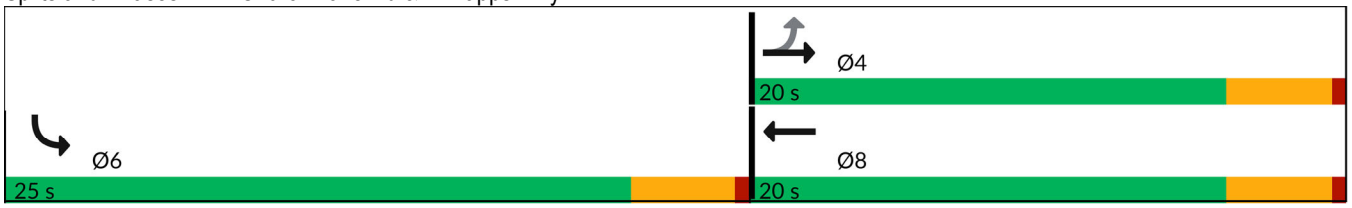
BONNEY Lake

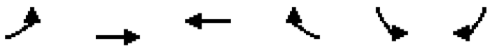
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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	85	90	235	365	150
Future Volume (vph)	100	85	90	235	365	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Right Turn on Red				No		No
Link Speed (mph)		30	30		30	
Link Distance (ft)		1117	1181		1295	
Travel Time (s)		25.4	26.8		29.4	
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0		20.0	
Total Split (s)	20.0	20.0	20.0		25.0	
Total Split (%)	44.4%	44.4%	44.4%		55.6%	
Maximum Green (s)	16.0	16.0	16.0		21.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	0.5	0.5	0.5		0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		Min	
Walk Time (s)	5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 37.4	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Church Lake Rd & W Tapps Hwy





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	85	90	235	365	150
Future Volume (veh/h)	100	85	90	235	365	150
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	105	89	95	247	384	158
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	296	194	147	381	488	201
Arrive On Green	0.32	0.32	0.32	0.32	0.40	0.40
Sat Flow, veh/h	315	613	463	1205	1216	500
Grp Volume(v), veh/h	194	0	0	342	543	0
Grp Sat Flow(s),veh/h/ln	928	0	0	1668	1720	0
Q Serve(g_s), s	1.5	0.0	0.0	5.0	7.8	0.0
Cycle Q Clear(g_c), s	6.4	0.0	0.0	5.0	7.8	0.0
Prop In Lane	0.54			0.72	0.71	0.29
Lane Grp Cap(c), veh/h	490	0	0	528	690	0
V/C Ratio(X)	0.40	0.00	0.00	0.65	0.79	0.00
Avail Cap(c_a), veh/h	816	0	0	942	1275	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.3	0.0	0.0	8.3	7.4	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.3	2.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.3	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	8.9	0.0	0.0	9.7	9.5	0.0
LnGrp LOS	A			A	A	
Approach Vol, veh/h		194	342		543	
Approach Delay, s/veh		8.9	9.7		9.5	
Approach LOS		A	A		A	

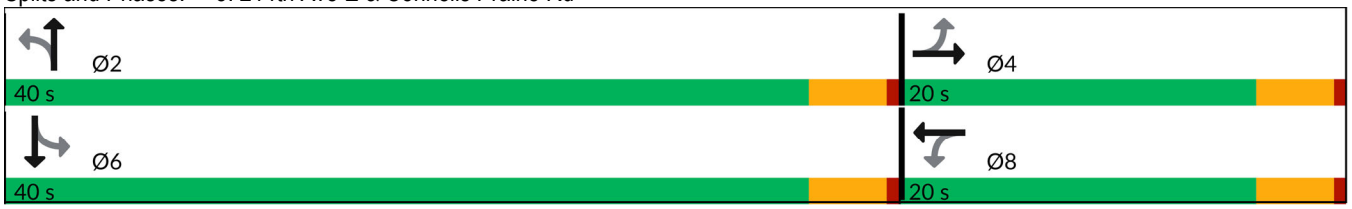
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			13.0		15.4	13.0
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			16.0		21.0	16.0
Max Q Clear Time (g_c+I1), s			8.4		9.8	7.0
Green Ext Time (p_c), s			0.7		1.5	1.4

Intersection Summary		
HCM 7th Control Delay, s/veh	9.4	
HCM 7th LOS	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	5	60	1	55	20	510	95	160	970	5
Future Volume (vph)	5	5	5	60	1	55	20	510	95	160	970	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No			No			No
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		767			1113			1630			1270	
Travel Time (s)		17.4			21.7			31.8			24.7	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		66.7%	66.7%		66.7%	66.7%	
Maximum Green (s)	16.0	16.0		16.0	16.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 55	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: 214th Ave E & Connells Prairie Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	1	55	20	510	95	160	970	5
Future Volume (veh/h)	5	5	5	60	1	55	20	510	95	160	970	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	5	5	5	62	1	57	21	531	99	167	1010	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	3	3	3	1	1	1	1	1	1
Cap, veh/h	179	75	57	241	1	74	360	1023	191	600	1240	6
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	374	726	550	776	13	714	560	1545	288	803	1874	9
Grp Volume(v), veh/h	15	0	0	120	0	0	21	0	630	167	0	1015
Grp Sat Flow(s),veh/h/ln	1650	0	0	1503	0	0	560	0	1833	803	0	1884
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	1.0	0.0	6.0	4.6	0.0	13.5
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.6	0.0	0.0	14.5	0.0	6.0	10.7	0.0	13.5
Prop In Lane	0.33		0.33	0.52		0.47	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	312	0	0	316	0	0	360	0	1213	600	0	1247
V/C Ratio(X)	0.05	0.00	0.00	0.38	0.00	0.00	0.06	0.00	0.52	0.28	0.00	0.81
Avail Cap(c_a), veh/h	853	0	0	854	0	0	580	0	1933	915	0	1986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	14.9	0.0	0.0	9.5	0.0	3.0	5.7	0.0	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.3	0.2	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.2	0.4	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.9	0.0	0.0	15.6	0.0	0.0	9.6	0.0	3.3	6.0	0.0	5.7
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		15			120			651			1182	
Approach Delay, s/veh		13.9			15.6			3.5			5.7	
Approach LOS		B			B			A			A	

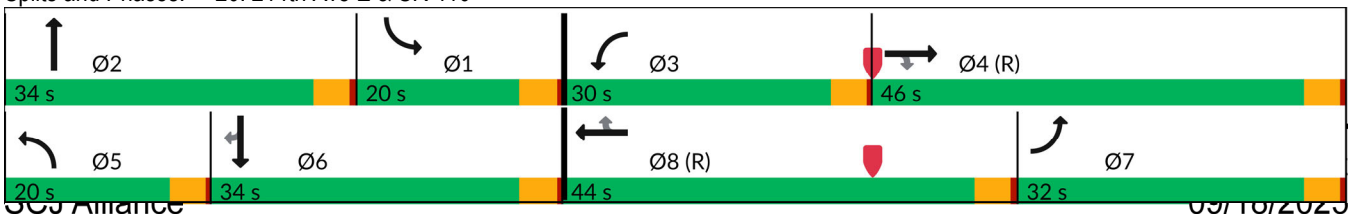
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.6		7.5		26.6		7.5				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		36.0		16.0		36.0		16.0				
Max Q Clear Time (g_c+I1), s		16.5		2.3		15.5		4.6				
Green Ext Time (p_c), s		3.0		0.0		7.1		0.3				

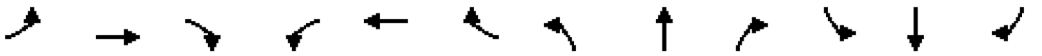
Intersection Summary												
HCM 7th Control Delay, s/veh			5.7									
HCM 7th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (vph)	310	895	360	260	720	90	175	180	125	145	460	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	200		0	200		100	100		100	100		100
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99			0.98				1.00		
Frt			0.850			0.850		0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	3467	1766	0	1796	3592	1607
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1785	3574	1576	1787	3574	1561	3467	1766	0	1793	3592	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1084			6362			3394			981	
Travel Time (s)		16.4			96.4			66.1			19.1	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	32.0	46.0	46.0	30.0	44.0	44.0	20.0	34.0		20.0	34.0	34.0
Total Split (%)	24.6%	35.4%	35.4%	23.1%	33.8%	33.8%	15.4%	26.2%		15.4%	26.2%	26.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 105 (81%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 20: 214th Ave E & SR 410





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Future Volume (veh/h)	310	895	360	260	720	90	175	180	125	145	460	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1924	1924	1924
Adj Flow Rate, veh/h	323	932	375	271	750	94	182	188	130	151	479	255
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	493	1488	663	299	1102	491	243	205	142	179	823	367
Arrive On Green	0.27	0.42	0.42	0.17	0.31	0.31	0.07	0.20	0.20	0.10	0.23	0.23
Sat Flow, veh/h	1795	3582	1596	1795	3582	1595	3483	1038	718	1833	3656	1629
Grp Volume(v), veh/h	323	932	375	271	750	94	182	0	318	151	479	255
Grp Sat Flow(s),veh/h/ln	1795	1791	1596	1795	1791	1595	1742	0	1756	1833	1828	1629
Q Serve(g_s), s	20.7	26.7	23.3	19.3	23.8	5.6	6.7	0.0	23.1	10.5	15.2	10.6
Cycle Q Clear(g_c), s	20.7	26.7	23.3	19.3	23.8	5.6	6.7	0.0	23.1	10.5	15.2	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	493	1488	663	299	1102	491	243	0	346	179	823	367
V/C Ratio(X)	0.66	0.63	0.57	0.91	0.68	0.19	0.75	0.00	0.92	0.84	0.58	0.70
Avail Cap(c_a), veh/h	493	1488	663	359	1102	491	429	0	405	226	844	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	0.78	0.78	0.78	0.62	0.00	0.62	0.85	0.85	0.85
Uniform Delay (d), s/veh	41.7	30.0	29.0	53.2	39.4	33.1	59.4	0.0	51.1	57.7	44.9	14.8
Incr Delay (d2), s/veh	2.7	1.7	3.0	19.1	2.7	0.7	2.9	0.0	16.5	17.9	0.8	4.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	11.4	9.2	10.0	10.6	2.2	3.0	0.0	11.6	5.7	7.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.4	31.8	32.0	72.2	42.1	33.8	62.3	0.0	67.6	75.5	45.7	19.4
LnGrp LOS	D	C	C	E	D	C	E		E	E	D	B
Approach Vol, veh/h		1630			1115			500			885	
Approach Delay, s/veh		34.3			48.7			65.7			43.2	
Approach LOS		C			D			E			D	

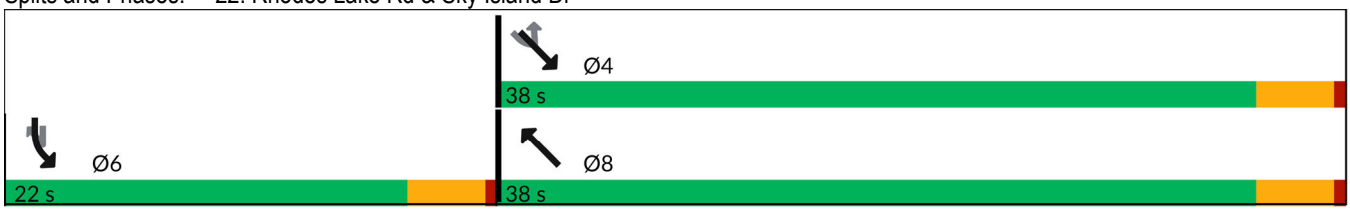
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	29.6	25.7	58.0	13.1	33.3	39.7	44.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	30.0	26.0	42.0	16.0	30.0	28.0	40.0
Max Q Clear Time (g_c+I1), s	12.5	25.1	21.3	28.7	8.7	17.2	22.7	25.8
Green Ext Time (p_c), s	0.1	0.6	0.4	5.2	0.4	2.8	0.6	3.3

Intersection Summary	
HCM 7th Control Delay, s/veh	43.9
HCM 7th LOS	D

Lane Group	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	105	110	135	580	245	105
Future Volume (vph)	105	110	135	580	245	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Right Turn on Red		No				No
Link Speed (mph)	25			25	25	
Link Distance (ft)	1284			1775	1677	
Travel Time (s)	35.0			48.4	45.7	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	6			4	8	
Permitted Phases		6	4			
Detector Phase	6	6	4	4	8	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	
Maximum Green (s)	18.0	18.0	34.0	34.0	34.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	None	None	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 35	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 22: Rhodes Lake Rd & Sky Island Dr





Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	105	110	135	580	245	105
Future Volume (veh/h)	105	110	135	580	245	105
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	108	113	139	598	253	108
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	297	264	692	974	647	276
Arrive On Green	0.17	0.17	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1795	1598	1029	1885	1254	535
Grp Volume(v), veh/h	108	113	139	598	0	361
Grp Sat Flow(s),veh/h/ln	1795	1598	1029	1885	0	1789
Q Serve(g_s), s	1.3	1.6	2.4	5.6	0.0	3.1
Cycle Q Clear(g_c), s	1.3	1.6	5.5	5.6	0.0	3.1
Prop In Lane	1.00	1.00	1.00			0.30
Lane Grp Cap(c), veh/h	297	264	692	974	0	924
V/C Ratio(X)	0.36	0.43	0.20	0.61	0.00	0.39
Avail Cap(c_a), veh/h	1286	1144	1553	2551	0	2420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	9.4	5.3	4.3	0.0	3.7
Incr Delay (d2), s/veh	0.7	1.1	0.1	0.6	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.3	0.8	0.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.1	10.5	5.5	4.9	0.0	4.0
LnGrp LOS	B	B	A	A		A
Approach Vol, veh/h	221			737	361	
Approach Delay, s/veh	10.3			5.0	4.0	
Approach LOS	B			A	A	

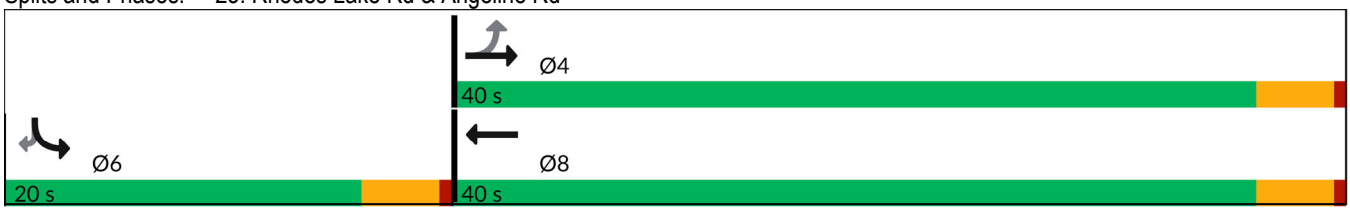
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				17.0		8.2	17.0
Change Period (Y+Rc), s				4.0		4.0	4.0
Max Green Setting (Gmax), s				34.0		18.0	34.0
Max Q Clear Time (g_c+I1), s				7.6		3.6	5.1
Green Ext Time (p_c), s				5.3		0.6	2.6

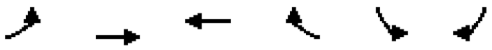
Intersection Summary	
HCM 7th Control Delay, s/veh	5.6
HCM 7th LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	545	290	70	65	80
Future Volume (vph)	120	545	290	70	65	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	100
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Right Turn on Red				No		No
Link Speed (mph)		30	30		30	
Link Distance (ft)		1905	1636		4315	
Travel Time (s)		43.3	37.2		98.1	
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	40.0	40.0	40.0		20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	36.0	36.0	36.0		16.0	16.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		Min	Min
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 38.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 23: Rhodes Lake Rd & Angeline Rd





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	545	290	70	65	80
Future Volume (veh/h)	120	545	290	70	65	80
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	125	568	302	73	68	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	270	844	822	199	263	234
Arrive On Green	0.56	0.56	0.56	0.56	0.15	0.15
Sat Flow, veh/h	205	1505	1467	355	1795	1598
Grp Volume(v), veh/h	693	0	0	375	68	83
Grp Sat Flow(s),veh/h/ln	1710	0	0	1821	1795	1598
Q Serve(g_s), s	2.9	0.0	0.0	3.1	0.9	1.3
Cycle Q Clear(g_c), s	7.6	0.0	0.0	3.1	0.9	1.3
Prop In Lane	0.18			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	1114	0	0	1021	263	234
V/C Ratio(X)	0.62	0.00	0.00	0.37	0.26	0.35
Avail Cap(c_a), veh/h	2351	0	0	2401	1052	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	0.0	3.3	10.3	10.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.5	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.3	0.3	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	4.8	0.0	0.0	3.5	10.9	11.4
LnGrp LOS	A			A	B	B
Approach Vol, veh/h		693	375		151	
Approach Delay, s/veh		4.8	3.5		11.2	
Approach LOS		A	A		B	

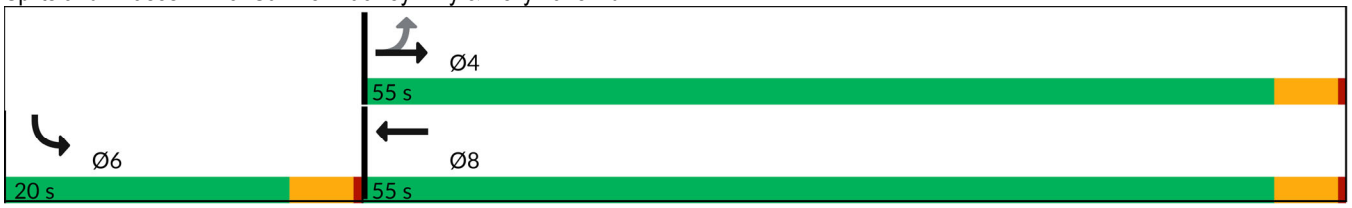
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			19.3		8.0	19.3
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			36.0		16.0	36.0
Max Q Clear Time (g_c+I1), s			9.6		3.3	5.1
Green Ext Time (p_c), s			5.7		0.3	2.5

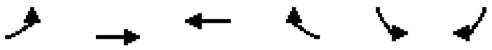
Intersection Summary	
HCM 7th Control Delay, s/veh	5.2
HCM 7th LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	185	605	450	40	45	190
Future Volume (vph)	185	605	450	40	45	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Right Turn on Red				No		No
Link Speed (mph)		45	45		30	
Link Distance (ft)		3028	2632		1453	
Travel Time (s)		45.9	39.9		33.0	
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	20.0	20.0	20.0		20.0	
Total Split (s)	55.0	55.0	55.0		20.0	
Total Split (%)	73.3%	73.3%	73.3%		26.7%	
Maximum Green (s)	51.0	51.0	51.0		16.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	0.5	0.5	0.5		0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	Min	Min	None		None	
Walk Time (s)	5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 70.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 29: Sumner Buckley Hwy & Kelly Lake Rd





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	605	450	40	45	190
Future Volume (veh/h)	185	605	450	40	45	190
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	637	474	42	47	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	269	764	1110	98	58	246
Arrive On Green	0.66	0.66	0.66	0.66	0.19	0.19
Sat Flow, veh/h	279	1166	1693	150	307	1306
Grp Volume(v), veh/h	832	0	0	516	248	0
Grp Sat Flow(s),veh/h/ln	1445	0	0	1843	1620	0
Q Serve(g_s), s	17.8	0.0	0.0	6.9	7.5	0.0
Cycle Q Clear(g_c), s	24.7	0.0	0.0	6.9	7.5	0.0
Prop In Lane	0.23			0.08	0.19	0.81
Lane Grp Cap(c), veh/h	1034	0	0	1208	305	0
V/C Ratio(X)	0.80	0.00	0.00	0.43	0.81	0.00
Avail Cap(c_a), veh/h	1544	0	0	1837	506	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	4.2	19.9	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.2	5.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	1.1	3.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	9.4	0.0	0.0	4.5	25.1	0.0
LnGrp LOS	A			A	C	
Approach Vol, veh/h		832	516		248	
Approach Delay, s/veh		9.4	4.5		25.1	
Approach LOS		A	A		C	

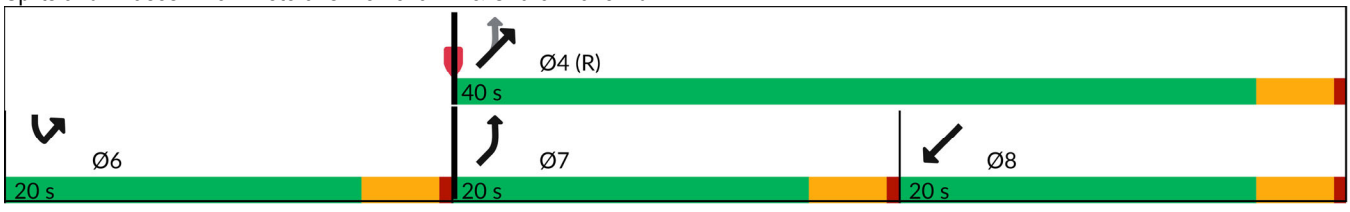
Timer - Assigned Phs			4		6	8
Phs Duration (G+Y+Rc), s			37.5		13.6	37.5
Change Period (Y+Rc), s			4.0		4.0	4.0
Max Green Setting (Gmax), s			51.0		16.0	51.0
Max Q Clear Time (g_c+I1), s			26.7		9.5	8.9
Green Ext Time (p_c), s			6.9		0.4	3.3

Intersection Summary		
HCM 7th Control Delay, s/veh	10.2	
HCM 7th LOS	B	

Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	60	175	155	785	55	510
Future Volume (vph)	60	175	155	785	55	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			25	25	
Link Distance (ft)	340			412	452	
Travel Time (s)	7.7			11.2	12.3	
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	6		7	4	8	
Permitted Phases			4			
Detector Phase	6		7	4	8	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	20.0		20.0	40.0	20.0	
Total Split (%)	33.3%		33.3%	66.7%	33.3%	
Maximum Green (s)	16.0		16.0	36.0	16.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Min	C-Min	None	
Walk Time (s)	5.0		5.0	5.0	5.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 4:NETL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 37: Veterans Memorial Dr & Church Lake Rd E



Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	60	175	155	785	55	510
Future Volume (veh/h)	60	175	155	785	55	510
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1862	1862
Adj Flow Rate, veh/h	62	20	160	809	57	310
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	80	26	828	1518	169	917
Arrive On Green	0.06	0.06	0.07	0.81	0.67	0.67
Sat Flow, veh/h	1303	420	1795	1885	251	1365
Grp Volume(v), veh/h	83	0	160	809	0	367
Grp Sat Flow(s),veh/h/ln	1744	0	1795	1885	0	1616
Q Serve(g_s), s	2.8	0.0	1.3	8.8	0.0	5.8
Cycle Q Clear(g_c), s	2.8	0.0	1.3	8.8	0.0	5.8
Prop In Lane	0.75	0.24	1.00			0.84
Lane Grp Cap(c), veh/h	108	0	828	1518	0	1085
V/C Ratio(X)	0.77	0.00	0.19	0.53	0.00	0.34
Avail Cap(c_a), veh/h	465	0	1187	1518	0	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.62	0.62	0.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	2.3	2.0	0.0	4.2
Incr Delay (d2), s/veh	11.1	0.0	0.1	0.8	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	1.2	0.0	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	38.8	0.0	2.4	2.8	0.0	4.4
LnGrp LOS	D		A	A		A
Approach Vol, veh/h	83			969	367	
Approach Delay, s/veh	38.8			2.8	4.4	
Approach LOS	D			A	A	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			52.3		7.7	8.0	44.3
Change Period (Y+Rc), s			4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s			36.0		16.0	16.0	16.0
Max Q Clear Time (g_c+I1), s			10.8		4.8	3.3	7.8
Green Ext Time (p_c), s			7.0		0.1	0.3	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	5.3
HCM 7th LOS	A

MOVEMENT SUMMARY

Site: 1 [Projected 2049 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Allan Yorke Park Roadway Realignment
PM Peak Hour

Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NB W Tapps Hwy															
3	L2	All MCs	42	1.0	42	1.0	0.175	9.9	LOS A	0.9	22.4	0.14	0.48	0.14	35.0
8	T1	All MCs	5	1.0	5	1.0	0.175	3.9	LOS A	0.9	22.4	0.14	0.48	0.14	35.8
18	R2	All MCs	200	1.0	200	1.0	0.175	4.0	LOS A	0.9	22.4	0.14	0.48	0.14	35.5
Approach			247	1.0	247	1.0	0.175	5.0	LOS A	0.9	22.4	0.14	0.48	0.14	35.4
East: WB Bonney Lake Blvd															
1u	U	All MCs	5	2.0	5	2.0	0.361	12.5	LOS B	2.1	53.2	0.20	0.59	0.20	33.0
1	L2	All MCs	421	2.0	421	2.0	0.361	10.0	LOS B	2.1	53.2	0.20	0.59	0.20	33.0
6	T1	All MCs	68	2.0	68	2.0	0.361	4.1	LOS A	2.1	53.2	0.20	0.59	0.20	33.7
16	R2	All MCs	5	2.0	5	2.0	0.361	4.1	LOS A	2.1	53.2	0.20	0.59	0.20	33.4
Approach			500	2.0	500	2.0	0.361	9.2	LOS A	2.1	53.2	0.20	0.59	0.20	33.1
North: SB Parking Lot															
7	L2	All MCs	5	1.0	5	1.0	0.016	11.8	LOS B	0.1	1.9	0.52	0.58	0.52	33.6
4	T1	All MCs	5	1.0	5	1.0	0.016	5.8	LOS A	0.1	1.9	0.52	0.58	0.52	34.3
14	R2	All MCs	5	1.0	5	1.0	0.016	5.9	LOS A	0.1	1.9	0.52	0.58	0.52	34.0
Approach			16	1.0	16	1.0	0.016	7.8	LOS A	0.1	1.9	0.52	0.58	0.52	34.0
West: EB Bonney Lake Blvd															
5	L2	All MCs	5	1.0	5	1.0	0.063	11.4	LOS B	0.3	7.7	0.48	0.56	0.48	34.4
2	T1	All MCs	21	1.0	21	1.0	0.063	5.5	LOS A	0.3	7.7	0.48	0.56	0.48	35.2
12	R2	All MCs	42	1.0	42	1.0	0.063	5.5	LOS A	0.3	7.7	0.48	0.56	0.48	34.8
Approach			68	1.0	68	1.0	0.063	6.0	LOS A	0.3	7.7	0.48	0.56	0.48	34.9
All Vehicles			832	1.6	832	1.6	0.361	7.6	LOS A	2.1	53.2	0.21	0.56	0.21	33.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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printing purposes.

Attachment E

Department of Commerce

Periodic Update Checklist for Fully-Planning Cities – Section I

Expanded Housing Element Checklist – Section I

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printing purposes.

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

Periodic Update Checklist for Fully-Planning Cities

City of Bonney Lake
City

Lauren Balisky, Development Services Manager

253-447-4347, baliskyl@bonneylake.gov
Staff contact, phone + email

Notice: This checklist has been updated with the new 2024 GMA legislation. *Rows* that include new 2023 and 2024 legislative changes or updated Commerce guidance are shown in light orange , and all statutory changes adopted since 2015 are emphasized in highlighted *text* to help identify new GMA requirements that may not have been addressed during the last periodic update or through other amendments outside of the required periodic update process. Additionally, amendments to the GMA are summarized in this document on Commerce's GMA Laws and Rules webpage.

Overview: This checklist is intended to help cities that are fully planning under the Growth Management Act (GMA) conduct the "periodic review and update" of ***comprehensive plans*** and ***development regulations*** required under RCW 36.70A.130 (5). This checklist identifies components of comprehensive plans and development regulations that may need updating to reflect the latest local conditions or to comply with GMA changes since the last periodic update cycle (2015-2018).

Local governments should review local comprehensive plan policies, countywide planning policies and multicounty planning policies (where applicable) to be consistent with the new requirements.

Checklist Instructions

Please use the most recent versions of your comprehensive plan and development regulations to fill out each item in the checklist and answer the following questions:

Is this item addressed in your current plan or development regulations? If YES, fill in the form with citation(s) to where in the plan or regulation the item is addressed. Where possible, we recommend citing policy or goal numbers by element rather than page numbers, since these can change. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Periodic Update webpage or contact the Commerce planner assigned to your region.

Is amendment needed to meet current statute? Check YES to indicate a change to your plan will be needed. Check NO to indicate that the GMA requirement has already been met. Local updates may not be needed if the statute hasn't changed since your previous update, if your jurisdiction has kept current with required inventories, or if there haven't been many changes in local circumstances.

Use the "Notes" column to add additional information to note where your city may elect to work on or amend sections of your plan or development regulations, to call out sections that are not strictly required by the GMA, or to indicate if the item is not applicable to your jurisdiction.

Submit your checklist! This will be the first deliverable under your periodic update grant.

PlanView system and instructions: Completed checklists can be submitted through Commerce's PlanView portal. The PlanView system allows cities and counties to submit and track amendments to comprehensive plans or development regulations online, with or without a user account. You can also submit via email: reviewteam@commerce.wa.gov Fill out and attach a cover sheet, a copy of your submittal and this checklist. *Please be advised that Commerce is no longer accepting paper submittals.*

For further information about the submittal process, please visit Commerce's Growth Management Act Laws and Rules webpage.

Need help?

Please visit Commerce's periodic update webpage for additional resources.

Or contact:

Suzanne Austin, AICP
Senior Planner
Growth Management Services
WA Department of Commerce
509.407.7955
Suzanne.Austin@commerce.wa.gov

Or, your assigned regional planner

Checklist Navigation

Section I: Comprehensive Plan	Section II: Development Regulations	Appendices
LAND USE	CRITICAL AREAS	APPENDIX A: HOUSING UNIT MINIMUMS PER POPULATION
HOUSING	ZONING CODE	APPENDIX B: ELEMENT UPDATES UNDER HB 1181
CAPITAL FACILITIES	SHORELINE MASTER PROGRAM	
UTILITIES	RESOURCE LANDS	
TRANSPORTATION	ESSENTIAL PUBLIC FACILITIES	
SHORELINE	SUBDIVISION CODE	
ESSENTIAL PUBLIC FACILITIES	STORMWATER	
TRIBAL PLANNING	ORGANIC MATERIALS MANAGEMENT	
CLIMATE CHANGE & RESILIENCY	IMPACT FEES	
ECONOMIC DEVELOPMENT	CONCURRENCY & TDM	
PARKS & RECREATION	TRIBAL PARTICIPATION	
OPTIONAL ELEMENTS	REGULATIONS FOR OPTIONAL ELEMENTS	
CONSISTENCY	PROJECT REVIEW PROCEDURES	
PUBLIC PARTICIPATION	PLAN & REGULATION AMENDMENTS	

Section I: Comprehensive Plan

Land Use Element

Consistent with countywide planning policies (CWPPs) and RCW 36.70A.070(1), amended in 2023

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Notice: 2021-2022 legislation ESSB 5593: includes changes to RCW 36.70A.130 regarding UGA size, patterns of development, suitabil ty and infrastructure. Coorcinate these efforts with your county.				Completed: ☐ Date:
a. The element integrates relevant county-wide planning policies into the local planning process, and ensures local goals and policies are consistent. For jurisdictions in the central Puget Sound region, the plan is consistent with applicable multicounty planning policies. RCW 36.70A.210 WAC 365-196-305 Coordinate these efforts with your county.	Yes.	Yes.	The City prepared a Gap Analysis analyzing the draft Bonney Lake Comprehensive Plan with the MPPs and CPPs, and has evaluated each element for consistency with the MPPs, CPPs, and state law.	Completed: ☐ Date:
b. A future land use map showing city limits and UGA boundaries. RCW 36.70A.070(1) amended in 2023 and RCW 36.70A.110(6), WAC 365-196-400(2)(d), WAC 365-196-405(2)(i)(i)	Yes. Chapter 2; Section 6.7.	Yes.	Chapter 2; Section 6.7: The Future Land Use Map has been updated based on the Land Capacity Analysis and Countywide Growth and Housing Targets.	Completed: ☐ Date:
c. Consideration of urban planning approaches that increase physical activity and reduce per capita vehicle miles traveled within the jurisdiction, but without increasing greenhouse gas emissions elsewhere in the state. RCW 36.70A.070(1) (amended in 2023) and WAC 365-196-405(2)(j). Additional resources: Commerce's Climate guidance, Transportation Efficient Communities' guidance, and the WA Department of Health Washington State Plan for Healthy Communities and Active Community Environment Toolkit	No.	N/A	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:

Section I: Comprehensive Plan

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
d. A consistent population projection throughout the plan which should be consistent with the jurisdiction's allocation of countywide population and housing needs. RCW 36.70A.115, RCW 43.62.035 and WAC 365-196-405(f)	Yes. Appendix B: Land Capacity Analysis and Chapter 2; Section 3.3.	Yes.		Completed: ☐ Date:
e. Estimates of population densities and building intensities based on future land uses and housing needs. RCW 36.70A.070(1) (amended in 2023), WAC 365-196-405(2)(i) • For cities required to plan under the Buildable Lands Program, RCW 36.70A.215 amended in 2017, some jurisdictions may need to identify reasonable measures to reconcile inconsistencies. See Commerce's Buildable Lands Program page.	Yes. Appendix B: Land Capacity Analysis and Chapter 2; Section 3.3.	Yes.		Completed: ☐ Date:
f. Provisions for protection of the quality and quantity of groundwater used for public water supplies. RCW 36.70A.070(1) (amended in 2023), WAC 365-196-405(1)(c); WAC 365-196-485(1)(d)	Yes. Chapter 5; Section 2.7	No.		Completed: ☐ Date:
g. Identification of lands useful for public purposes such as utility corridors, transportation corridors, landfills, sewage treatment facilities, storm water management facilities, recreation, schools and other public uses. RCW 36.70A.150 and WAC 365-196-340	Yes. Chapter 2; Section 6.7 and Chapter 4; Section 5.6.	Yes.	Chapter 2; Section 6.7: The Future Land Use Map (Exhibit 55) shows lands that are identified as Public Facilities, which are or will be used for public purposes. Chapter 5; Section 6.7: The Recommended Transportation Improvements Map (Chapter 4, Exhibit 41) shows the proposed future transportation corridors.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
h. Identification of open space corridors and green spaces within and between urban growth areas, including lands useful for recreation, wildlife habitat, trails and connection of critical areas, and urban and community forests within the UGA. RCW 36.70A.070(1) amended in 2023, RCW 36.70A.160 and WAC 365-196-335	No.	N/A	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:
i. If there is an airport within or adjacent to the city: policies, land use designations (and zoning) to discourage the siting of incompatible uses adjacent to general aviation airports. RCW 36.70A.510, RCW 36.70.547 Note: The plan (and associated regulations) must be filed with the Aviation Division of WSDOT. WAC 365-196-455	No.	N/A	This does not apply to the City of Bonney Lake. There are no airports within or adjacent to the City.	Completed: ☐ Date:
j. Where applicable, a review of drainage, flooding and stormwater run-off in the area and nearby jurisdictions and provide guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state. RCW 36.70A.070(1) (amended in 2023) and WAC 365-196-405(2)(e) Note: RCW 90.56.010(27) defines waters of the state. Additional resources: Commerce's climate guidance, Protect Puget Sound Watersheds, Building Cities in the Rain, Ecology Stormwater Manuals, Puget Sound Partnership Action Agenda	Yes. The City's NPDES Phase II Permit and Stormwater Comprehensive Plan; Shoreline Restoration Plan adopted as part of the Bonney Lake Shoreline Master Program in 2014; and Chapter 6; Section 2.7.	Yes.		Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
k. Policies to designate and protect critical areas including wetlands, fish and wildlife habitat protection areas, frequently flooded areas, critical aquifer recharge areas and geologically hazardous areas. In developing these policies, the city must have included the best available science (BAS) to protect the functions and values of critical areas, and give "special consideration" to conservation or protection measures necessary to preserve or enhance anadromous fisheries. RCW 36.70A.030(6), RCW 36.70A.172, WAC 365-190-080. Best Available Science: see WAC 365-195-900 through -925	Yes. Chapter 7; Section 3	Yes.	Below are goals and policies that support the criterion: • Policy ES-5.2 • Policy ES-5.3 • Goal ES-6 • Policy ES-6.1 • Policy ES-6.2 • Policy ES-6.7 • Policy ES-7.3 • Policy ES-7.6 • Policy ES-7.7	Completed: ☐ Date:
l. If forest or agricultural lands of long-term commercial significance are designated inside a city: a program authorizing Transfer (or Purchase) of Development Rights. RCW 36.70A.060(4), RCW 36.70A.170	No.	N/A	This does not apply to the City of Bonney Lake. There are no forest or agricultural lands of long-term commercial significance within the City.	Completed: ☐ Date:
m. If there is a Military Base within or adjacent to the jurisdiction employing 100 or more personnel: policies, land use designations, (and consistent zoning) to discourage the siting of incompatible uses adjacent to military bases. RCW 36.70A.530(3), WAC 365-196-475	No.	N/A	This does not apply to the City of Bonney Lake. There are no military bases within or adjacent to the City.	Completed: ☐ Date:
n. New section RCW 36.70A.142 (2022), HB 1799: Development regulations newly developed, updated, or amended *after January 1, 2025* allow for the siting of organic materials (OM) management facilities as identified in local solid waste management plans (SWMP) to meet OM reduction and diversion goals. Siting must meet criteria described in RCW 70A.205.040(3). See also RCW 35.70.330. For applicability, see RCW 70A.205.540.	No.	N/A	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10). New solid waste handling facilities may be sited as an Essential Public Facility.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
o. Give special consideration to achieving environmental justice in goals and policies, including efforts to avoid creating or worsening environmental health disparities. RCW 36.70A.070(1) amended in 2023.	No.	N/A	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:
p. The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools and through wildfire preparedness and fire adaptation measures. RCW 36.70A.070(1) amended in 2023. See also: International Wildland-Urban Interface Code	No.	N/A	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:

Housing Element

New legislation substantially amended the housing-related provisions of the Growth Management Act (GMA), RCW 36.70A.070 (2). Local governments should review local comprehensive plan policies and countywide planning policies to be consistent with the updated requirements. Please refer to Commerce's housing webpage for further information. See also Appendix A of this checklist for the new 2023 minimum housing unit requirements per city population.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Notice: For more information about what these housing element requirements involve and what Commerce staff will be reviewing for, please see the Expanded Housing Checklist located on the Updating GMA Housing Elements webpage.				
a. Goals, policies and objectives for: • the preservation, improvement and development of housing RCW 36.70A.070(2)(b); • moderate density housing options including, but not limited to, duplexes, triplexes, and townhomes, within an urban growth area boundary, RCW 36.70A.070(2)(b) and WAC 365-196-410(2)(a); and • Consideration of housing locations in relation to employment locations and the role of ADUs. RCW 36.70A.070(2)(d) new in 2021 Notice: *These items were separately listed in the previous version of the checklist. No content was changed.*	Yes. Chapter 2; Section 3.4.	Yes.	Below are goals and policies that support each of the criteria: • Preservation, improvement, and development: ○ Goal CD-H-2; ○ Goal CD-H-6; ○ Goal CD-H-11. • Moderate density housing options: ○ Goal CD-H-1; ○ Goal CD-H-6. • Housing locations: ○ Goal CD-H-1; ○ Goal CD-H-12.	Completed: ☐ Date:
b. An inventory and analysis of existing and projected housing needs over the planning period, by income band, consistent with the jurisdiction's share of countywide housing need, as provided by Commerce. RCW 36.70A.070(2)(a) amended in 2021, WAC 365-196-410(2)(b) and (c)	Yes. Chapter 2; Section 3.2 and 3.3.	Yes.	Chapter 2; Section 3.2 identifies the inventory of existing housing. Chapter 2; Section 3.3 analyzes the projected housing needs consistent with the City of Bonney Lake's countywide housing needs.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Identification of capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters and permanent supportive housing. RCW 36.70A.070(2)(c) amended in 2021, WAC 365-196-410(e) and (f)	Yes. Appendix B: Land Capacity Analysis.	Yes.		Completed: ☐ Date:
d. Adequate provisions for existing and projected housing needs for all economic segments of the community, including documenting barriers and actions needed to achieve housing availability. RCW 36.70A.070(2)(d) amended in 2021, WAC 365-196-010(g)(ii), WAC 365-196-300(f), WAC 365-196-410 and see Commerce's Housing Action Plan (HAP) guidance: Guidance for Developing a Housing Action Plan.	Yes. Chapter 2; Section 3.2 and the adopted Housing Action Plan (Ord. 1654).	Yes.		Completed: ☐ Date:
e. Identify local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing, including: • Zoning that may have a discriminatory effect; • Disinvestment; and • Infrastructure availability RCW 36.70A.070 (2)(e) new in 2021	Yes. Appendix A: Housing Equity Report.	Yes.		Completed: ☐ Date:
f. Establish policies and regulations to address and begin to unco racially disparate impacts, displacement, and exclusion in housing caused by local policies, plans, and actions. RCW 36.70A.070(2)(f) new in 2021	Yes. Chapter 2; Section 3.4.	Yes.	Below are goals and policies that support the criterion: • Goal CD-H-4; • Goal CD-H-13.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
g. Identification of areas that may be at higher risk of displacement from market forces that occur with changes to zoning development regulations and capital investments. RCW 36.70A.070(2)(g) new in 2021 Establish anti-displacement policies, with consideration given to the preservation of historical and cultural communities as well as investments in low, very low, extremely low, and moderate-income housing; equitable development initiatives; inclusionary zoning; community planning requirements; tenant protections; land disposition policies; and consideration of land that may be used for affordable housing. RCW 36.70A.070(2)(h) new in 2021 See also: Support Materials for Racially Disparate Impacts, Exclusion and Displacement Work	Yes. Appendix A: Housing Equity Report and Chapter 2; Section 3.2 and 3.4.	Yes.	Below are goals and policies that support the criterion: • Goal CD-H-4; • Goal CD-H-13.	Completed: ☐ Date:

Capital Facilities Plan (CFP) Element

To serve as a check on the practicality of achieving other elements of the plan, covering all capital facilities planned, provided and paid for by public entities including local government and special districts, etc. including water systems, sanitary sewer systems, storm water facilities, schools, parks and recreational facilities, police and fire protection facilities. Capital expenditures from park and recreation elements, if separate, should be included in the CFP Element. The CFP Element must be consistent with CWPPs, and RCW 36.70A.070(3) amended in 2023. Changes made to this element through HB 1181 (climate change and resiliency) are not required, although jurisdictions should make a good faith effort to incorporate these items to be consistent with the new legislation.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Policies or procedures to ensure capital budget decisions are in conformity with the comprehensive plan. RCW 36.70A.120	Yes. Chapter 5; Section 5.	Yes.		Completed: ☐ Date:
b. An inventory of existing capital facilities owned by public entities, including green infrastructure. RCW 36.70A.070(3)(a) amended in 2023 and WAC 365-196-415(1)(a)	Yes. Chapter 5; Section 2.1 and Section 3.1.	Yes.		Completed: ☐ Date:
c. A forecast of needed capital facilities. RCW 36.70A.070(3)(b) and WAC 365-196-415(1)(b) Note: The forecast of future need should be based on projected population and adopted levels of service (LOS) over the planning period.	Yes. Chapter 5; Section 2.	Yes.	Proposed locations and capacities of expanded or new capital facilities are within the incorporated referenced plans: • General Sewer System Plan (2019) • Stormwater Management Action Plan (2023) • Water System Plan (2020) • Watershed Protection Plan (2018)	Completed: ☐ Date:
d. Proposed locations and capacities of expanded or new capital facilities. RCW 36.70A.070(3)(c) and WAC 365-196-415 (1)(c) and (3)(c) Infrastructure investments should consider equity and plan for any potential displacement impacts.	Yes. Chapter 5; Section 2.	Yes.	Proposed locations and capacities of expanded or new capital facilities are within the incorporated referenced plans: ➢ General Sewer System Plan (2019) ➢ Stormwater Management Action Plan (2023) ➢ Water System Plan (2020) ➢ Watershed Protection Plan (2018)	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. A six-year plan (at minimum) that will finance such capital facilities within projected funding capacities and identify sources of public money to finance planned capital facilities. RCW 36.70A.070(3)(d), RCW 36.70A.120, WAC 365-196-415(1)(d)	Yes. Chapter 5; Section 5.	Yes.		Completed: ☐ Date:
f. A policy or procedure to reassess the land use element if probable funding falls short of meeting existing needs. RCW 36.70A.070(3)(e), WAC 365-196-415(2)(c) Note: park and recreation facilities shall be included in the capital facilities plan element.	Yes. Chapter 5; Section 5.3.	Yes.		Completed: ☐ Date:
g. If impact fees are collected: identification of public facilities on which money is to be spent. RCW 82.02.050(5) and WAC 365-196-850(3)	Yes. Chapter 5; Section 2.4, Section 2.8, and Section 3.5.	No.		Completed: ☐ Date:
h. Identify and include information about all public entities, including special purpose districts that own capital facilities. RCW 36.70A.070 (3) amended in 2023	Yes. Chapter 5; Section 3.	Yes.		Completed: ☐ Date:

Utilities Element

Consistent with relevant CWPPs and RCW 36.70A.070 (4) amended in 2023. Utilities include, but are not limited to: sanitary sewer systems, water lines, fire suppression, electrical lines, telecommunication lines, and natural gas lines. Changes mace to this element through HB 1181 (climate change and resiliency) are not required, although jurisdictions should make a good faith effort to incorporate these items to be consistent with the new legislation.

	In Current Plan? Yes/Nc If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. The general location, proposed location and capacity of all existing and proposed utilities, to include telecommunications. RCW 36.70A.070(4)(a) amended ir 2023 and WAC 365-196-420	Yes. Chapter 5; Sections 2 and 3	Yes.		Completed: ☐ Date:
b. Identify and include information and contact information about all public entities, including special purpose districts that own utility systems. RCW 36.70A.070 (4)(b) new in 2023	Yes. Chapter 5; Section 3.	Yes.		Completed: ☐ Date:

Transportation Element

Consistent with relevant CWPPs and RCW 36.70A.070 (6) amended in 2023 by HB 1181. See also the new climate element below for jurisdictional requirements.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. An inventory of air, water and ground transportation facilities and services, including transit alignments, active transportation facilities, state-owned transportation facilities and general aviation airports. RCW 36.70A.070(6)(a)(iii)(A) amended in 2023 and WAC 365-196-430(2)(c)	Yes. Chapter 4; Section 2.	Yes.	The City of Bonney Lake does not have any air or water transportation facilities.	Completed: ☐ Date:
b. Adopted multimodal levels of service standards for all locally owned arterials, locally and regionally operated transit routes that serve UGAs, state-owned or operated transit routes that serve urban areas if the department of transportation has prepared such standards, and active transportation facilities to serve as a gauge to judge performance of the system and success in helping to achieve environmental justice. RCW 36.70A.070(6)(a)(iii)(B) and (C) amended in 2023, WAC 365-196-430	Yes. Chapter 4; Section 3.2.	Yes.		Completed: ☐ Date:
c. Identification of specific actions to bring transportation facilities and services to established multimodal LOS. RCW 36.70A.070(6)(a)(iii)(D) amended in 2023, WAC 365-196-430	Yes. Chapter 4; Section 5.6.	Yes.		Completed: ☐ Date:
d. A forecast of multimodal transportation for a minimum of 10 years including land use assumptions used in estimating travel. RCW 36.70A.070(6)(a)(i), RCW 36.70A.070 (6)(a)(iii)(E) amended in 2023, WAC 365-196-430(2)(f)	Yes. Chapter 4; Section 5.1- 5.4.	Yes.		Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. A projection of state and local system needs to equitably meet current and future demand and equitably implement the multimodal network. RCW 36.70A.070(6)(a)(iii)(F) amended in 2023, WAC 365-196-430(1)(c)(vi) and RCW 47.06	Yes. Chapter 4; Section 5.5.	Yes.		Completed: ☐ Date:
f. A transition plan for transportation as required in Title II of ADA. Perform self-evaluations of current facilities and develop a program access plan to address deficiencies and achieve the identification of physical obstacles, establish methods, perform modifications and identify leadership roles. RCW 36.70A.070(6)(a)(iii)(G) new in 2023.	Yes. Chapter 4; Section 4.3	Yes.		Completed: ☐ Date:
g. An active transportation component to include collaborative efforts to identify and designate planned improvements for active transportation facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles. RCW 36.70A.070(6)(a)(vii) amended in 2023, WAC 365-196-430(2)(j)	Yes. Chapter 4; Section 5.3.	Yes.	Below are goals and policies to support the criterion: • Goal CM-2 • Goal CM-5 • Policy CM-5.1 • Policy CM-5.4	Completed: ☐ Date:
h. A description of any existing and planned transportation demand management (TDM) strategies, such as HOV lanes or subsidy programs, parking policies, etc. RCW 36.70A.070(6)(a)(vi) and WAC 365-196-430(2)(i)(i)	Yes. Chapter 4; Section 5.	Yes.		Completed: ☐ Date:
i. An analysis of future funding capability to judge needs against probable funding resources. RCW 36.70A.070(6)(a)(iv)(A), WAC 365.196-430(2)(k)(iv)	Yes. Chapter 4; Section 5.6; and the incorporated reference 6-year Transportation Improvement Plan.	Yes.		Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
j. A multi-year financing plan based on needs identified in the comprehensive plan, the appropriate parts of which serve as the basis for the 6-year street, road or transit program. RCW 36.70A.070(6)(a)(iv)(B) and RCW 35.77.010, WAC 365-196-430(2)(k)(ii)	Yes. Chapter 4; Section 5.6; and the incorporated reference 6-year Transportation Improvement Plan.	Yes.		Completed: ☐ Date:
k. If probable funding falls short of meeting identified needs of the transportation system, including state transportation facilities, a discussion of how additional funds will be raised, or how land use assumptions will be reassessed to ensure that LOS standards will be met. RCW 36.70A.070(6)(a)(iv)(C) amended in 2023, WAC 365-196-430(2)(l)(iii)	Yes. Chapter 5; Section 5.3	Yes.		Completed: ☐ Date:
l. A description of intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions and how it is consistent with the regional transportation plan. RCW 36.70A.070(6)(a)(v); WAC 365-196-430(1)(e) anc 430(2)(a)(iii)	Yes. Chapter 4; Section 5.1.	Yes.		Completed: ☐ Date:

Shoreline

For shorelines of the state, the goals and policies of the shoreline management act as set forth in RCW 90.58.020 are added as one of the goals of the Growth Management Act (GMA) as set forth in RCW 36.70A.480. The goals and policies of a shoreline master program for a county or city approved under RCW 90.58 shall be considered an element of the county or city's comprehensive plan.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. The policies, goals, and provisions of RCW 90.58 and applicable guidelines shall be the sole basis for determining compliance of a shoreline master program with this chapter except as the shoreline master program is required to comply with the internal consistency provisions of RCW 36.70A.070, 36.70A.040(4), 35.63.125, 35A.63.105, 36.70A.480	Yes. Chapter 8.	No.	The City of Bonney Lake's Shoreline Master Program (SMP) consists of the shoreline goals and policies contained in Shoreline Element of the Bonney Lake Comprehensive Plan, the shoreline regulations contained in the Shoreline Code (Chapters 16.34 – 16.58 of the Bonney Lake Municipal Code (BLMC)), and the City of Bonney Lake Shoreline Restoration Plan.	Completed: ☐ Date:
b. Shoreline master programs shall provide a level of protection to critical areas located within shorelines of the state that assures no net loss of shoreline ecological functions necessary to sustain shoreline natural resources as defined by department of ecology guidelines adopted pursuant to RCW 90.58.060. See Ecology's Shoreline planners' toolbox for the SMP Checklist and other resources.	Yes. Chapter 8; Section 3.2.	No.		Completed: ☐ Date:
c. Shorelines of the state shall not be considered critical areas under this chapter except to the extent that specific areas located within shorelines of the state qualify for critical area designation based on the definition of critical areas provided by RCW 36.70A.030(5) and have been designated as such by a local government pursuant to RCW 36.70A.060(2)	Yes. Chapter 8; Section 6.	No.		Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
d. If a local jurisdiction's master program does not include land necessary for buffers for critical areas that occur within shorelines of the state, as authorized by RCW 90.58.030(2)(f), then the local jurisdiction shall continue to regulate those critical areas and their required buffers pursuant to RCW 36.70A.060(2).	Yes.	No.	The City of Bonney Lake applies the CAO up the ordinance adopted in the shoreline regulations to those areas within the Shoreline jurisdiction and are equal to the protections outside of the shorel ne jurisdiction.	Completed: ☐ Date:
Provisions for siting essential public facilities (EPFs) Consistent with CWPPs and RCW 36.70A.200, amended in 2021. This section can be included in the Capital Facilities Element, Land Use Element or in its own element. Sometimes the identification and siting process for EPFs is part of the CWPPs.				
a. A process or criteria for identifying and siting essential public facilities (EPFs). RCW 36.70A.200 and WAC 365-196-550(1) Notes: RCW 36.70A.200, amendec 2021 regarding reentry and rehabilitation facilities. EPFs are defined in RCW 36.70A.200. Regional transit authority facilities are included in the list of essential public facilities.	Yes. Appendix B: Land Capacity Analysis.	Yes.		Completed: ☐ Date:
b. Policies or procedures that ensure the comprehensive plan does not preclude the siting of EPFs. RCW 36.70A.200(5) Note: If the EPF siting process is in the CWPPs, this policy may be contained in the comprehensive plan as well. WAC 365-196-550(3)	Yes. Chapter 5; Section 4.	Yes.		Completed: ☐ Date:

Tribal Participation in Planning new in 2022 (see HB 1717)

A federally recognized Indian tribe may voluntarily choose (opt-in) to participate in the local and regional planning processes. See Commerce's new Tribal Planning Coordination for GMA webpage for guidance and staff contacts.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Mutually agreeable memorandum of agreement between local governments and tr bes in regard to collaboration and participation in the planning process unless otherwise agreed at the end of a mediation period. RCW 36.70A.040(8)(a) new in 2022, RCW 36.70A.190 new in 2022	No.	N/A	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:
b. *Port elements*, if adopted, are developed collaboratively between the city, the applicable port and the applicable tribe(s), which shall comply with RCW 36.70A.040(8). RCW 36.70A.085 amended in 2022	No.	N/A	This does not apply to the City of Bonney Lake. There are no ports within the City.	Completed: ☐ Date:
c. *Urban Growth Areas:* counties and cities coordinate planning efforts for any areas planned for urban growth with applicable tribe(s). RCW 36.70A.110(1) amended 2022, RCW 36.70A.040(8)	No.	N/A	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:

Climate Change and Resiliency

New in 2023, see HB 1181. WAC updates are forthcoming.

A new required element for comprehensive plans and new goal of the GMA. Designed to reduce greenhouse gas (GHG) emissions, plan for resilience and support environmental justice. Climate elements must maximize economic, environmental and social co-benefits and prioritize environmental justice in order to avoid worsening environmental health disparities. A climate element can take the form of a single comprehensive plan chapter or be integrated into several chapters/elements such as housing, transportation and land use. Visit Commerce's Climate Program webpage for further guidance, grants, tools and staff contacts. Per HB 1181, GHG reduction goals, policies, and programs not specifically identified in the guidelines must be based on scientifically credible projections and scenarios likely to result in equivalent harm avoidance, GHG emission reductions and/or per capita vehicle miles traveled (VMT) reductions.

All fully planning jurisdictions must have a resilience sub-element as part of their broader climate element. The following counties and their cities with a population greater than 6,000 as of April 1, 2021 must also have a greenhouse gas emissions reduction sub-element. Please also review the Appendix for requirements due in the upcoming periodic update.

- December 31, 2025 Deadline: Clark, Skagit, Thurston, Whatcom
- June 30, 2026 Deadline: Benton, Franklin, Spokane
- June 30, 2029 Deadline: These jurisdictions are only required to update two elements this cycle — the transportation and climate elements.

Jurisdictions may submit their greenhouse gas emissions reduction sub-element to Commerce for approval per RCW 36.70A.096. Please contact Commerce for submittal requirements if you think your jurisdiction will request approval.

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Resiliency sub-element: items a through d are required for all fully planning jurisdictions				
a. Specific goals, policies and programs that identify, protect and enhance natural areas to foster resiliency to climate impacts, as well as areas of vital habitat for safe passage and species migration. RCW 36.70A.070(9) new in 2023	No.	N/A	Climate Change and Resiliency Element will be completed at a later date.	Completed: ☐ Date:
b. Specific goals, policies and programs that identify, protect and enhance community resiliency to climate change impacts, including social, economic and built environment factors that support adaptation to climate impacts consistent with environmental justice. RCW 36.70A.070(9) new in 2023	No.	N/A	Climate Change and Resiliency Element will be completed at a later date.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Specific goals, policies and programs that address natural hazards created or aggravated by climate change, including sea level rise, landslides, flooding, drought, heat, smoke, wildfire and other effects of changes to temperature and precipitation patterns. RCW 36.70A.070(9) new in 2023 Note: include a goal and supportive policy for each climate-exacerbated hazard that is relevant to your jurisdiction.	No.	N/A	Climate Change and Resiliency Element will be completed at a later date. The City does have a separate Hazard Mitigation Plan for addressing natural hazards.	Completed: ☐ Date:
d. Prioritize actions (pursuant to a-c) that benefit overburdened communities that will disproportionately suffer from compounding environmental impacts and will be most impacted by natural hazards due to climate change. RCW 36.70A.070(9) new in 2023	No.	N/A	Actions will be prioritized as part of the future Climate Change and Resiliency Element. The Housing Equity Report did not find evidence of overburdened communities in Bonney Lake.	Completed: ☐ Date:
Greenhouse Gas (GHG) Emissions Reduction sub-element: items e through i are only required for jurisdictions identified above				
e. Greenhouse gas emissions reduction sub-elements must include goals and policies to reduce emissions and per capita vehicle miles traveled. RCW 36.70A.070(9) new in 2023 Note: Commerce recommends that jurisdictions use 2022 as a baseline year for their GHG inventories and set incremental targets that lead to achieving Washington's economy-wide target of net zero emissions in 2050 set forth in RCW 70A.45.020(1). Commerce also recommends that jurisdictions should, at a minimum, include goals and policies within the following sectors: Transportation; Buildings & Energy; and, Zoning & Development. The rulemaking process is underway.	No.	N/A	Updates to the Community Mobility and/or Environmental Stewardship Elements will be completed at a later date.	Completed: ☐ Date:

	In Current Plan? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
f. Identified actions that the jurisdiction will take during the planning cycle that will result in reductions in overall GHG emissions generated by transportation within the jurisdiction. RCW 36.70A.070(9) new in 2023	No.	N/A	Updates to the Community Mobility and/or Environmental Stewardship Elements will be completed at a later date.	Completed: ☐ Date:
g. Identified actions that the jurisdiction will take during the planning cycle that will result in reductions in overall GHG emissions generated by land use within the jurisdiction. RCW 36.70A.070(9) new in 2023	No.	N/A	Updates to the Community Mobility and/or Environmental Stewardship Elements will be completed at a later date.	Completed: ☐ Date:
h. Identified actions that the jurisdiction will take during the planning cycle that will result in reductions in per capita vehicle miles traveled (VMT) within the jurisdiction. RCW 36.70A.070(9) new in 2023	No.	N/A	Updates to the Community Mobility and/or Environmental Stewardship Elements will be completed at a later date.	Completed: ☐ Date:
i. Prioritize GHG and VMT reductions that benefit overburdened communities in order to maximize the co-benefits of reduced air pollution and environmental justice. RCW 36.70A.070(9) new in 2023	No.	N/A	Updates to the Community Mobility and/or Environmental Stewardship Elements will be completed at a later date.	Completed: ☐ Date:

Future required elements: pending state funding

As of 2022, these elements have not received state funding to aid local jurisdictions in implementation. Therefore, these elements are not required to be added to comprehensive plans at this time. Commerce encourages jurisdictions to begin planning for these elements, pending the future mandate.

	In Current Plan? Yes/No If yes, cite section	Notes	
Economic Development Although included in RCW 36.70A.070 "mandatory elements" an economic development element is not currently required because funding was not provided to assist in developing local elements when this element was added to the GMA. However, provisions for economic growth, vitality, and a high quality of life are important, and supporting strategies should be integrated with the land use, housing, utilities, and transportation elements. RCW 36.70A.070(7) amended in 2017	Yes; see Chapter 2, Section 4.	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:
Parks and Recreation Implements and is consistent with the capital facilities plan. Include a ten-year demand estimate, evaluation of service and facilities needs and evaluation of tree canopy coverage within UGAs. RCW 36.70A.070(8) amended in 2023 Although included in RCW 36.70A.070 "mandatory elements" a parks and recreation element is not currently required because the state did not provide funding to assist in developing local elements when this provision was added to the GMA. However, parks, recreation and open space planning are GMA goals, and it is important to plan for and fund these facilities.	Incorporated by reference. See Parks, Trails, Recreation & Open Space Plan (2024)	This does not apply to the Comprehensive Plan under RCW 36.70A.070(10).	Completed: ☐ Date:

Optional Elements

Pursuant to RCW 36.70A.080, a comprehensive plan may include additional elements, items, or studies dealing with other subjects relating to the physical development within its jurisdiction, including, but not limited to:

	In Current Plan? Yes/No If yes, cite section	Notes	
Sub-Area Plans	No.	The City has existing, adopted subarea plans (Centers Plan and the Eastown Subarea Plan) that are referenced in the Comprehensive Plan Update.	Completed: ☐ Date:
Conservation	No.		Completed: ☐ Date:
Recreation	No.	The City has adopted a Parks, Trails, Recreation and Open Space (PTROS) Plan separately from the Comprehensive Plan that is referenced in the Comprehensive Plan Update.	Completed: ☐ Date:
Solar Energy	No.		Completed: ☐ Date:

Consistency is required by the GMA				
	In Current Plan? Yes/Nc If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. A l plan elements must be consistent with relevant county-wide planning policies (CWPPs) and, where applicable, multi-county planning policies (MPPs), and the GMA. RCW 36.70A.100 and 210, WAC 365-196-305; 400(2)(c); 510 and 520	Yes. Chapter 1 and Section 1 of all chapters.	Yes.		Completed: ☐ Date:
b. All plan elements must be consistent with each other. RCW 36.70A.070 (preamble) and WAC 365-197-040	Yes.	Yes.		Completed: ☐ Date:
c. The plan must be coordinated with the plans of adjacent jurisdictions. RCW 36.70A.100 and WAC 365-196-520	Yes.	Yes.	The adjacent jurisdiction is Pierce County, who has been provided with comment ability during the Comprehensive Plan process, and coordination with Pierce County is Comprehensive Plan should	Completed: ☐ Date:
Public Participation				
a. Plan ensures public participation in the comprehensive planning process. RCW 36.70A.020(11), .035, and .140, WAC 365-196-600(3) provide possible public participation choices.	Yes.	Yes.	See Attachment: Public Participation Plan.	Completed: ☐ Date:
b. If the process for making amendments is included in the comprehensive plan: • The plan provides that amendments are to be considered no more often than once a year, not including the exceptions described in RCW 36.70A.130(2), WAC365-196-640 • The plan sets out a procedure for adopting emergency amendments and defines emergency. RCW 36.70A.130(2)(b) and RCW 36.70A.390 new in 2021, (HB 1220 sections 3-5), WAC 365-196-650(4)	Not applicable.		Comprehensive Plan Amendment procedures are not within the Comprehensive Plan and are codified within Chapter 14.140 of the Bonney Lake Municipal Code (BLMC).	Completed: ☐ Date:

Consistency is required by the GMA				
	In Current Plan? Yes/Nc If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Plan or program for monitoring how well comprehensive plan policies, development regulations, and other implementation techniques are achieving the comp plan's goals and the goals of the GMA. WAC 365-196-660 discusses a potential review of growth management implementation on a systematic basis. New 2021-2022 legislation HB 1241 provides that those jurisdictions with a periodic update due in 2024 have until December 31, 2024 to submit. This legislation also changed the update cycle to every ten years after the 2024-2027 cycle. Jurisdictions that meet the new criteria described in RCW 36 70A.130(9) will be required to submit an implementation progress report five years after the review and revision of their comprehensive plan.	No.	No.	City of Bonney Lake will be submitting the Implementation Plan at a later date within the allowed timeframe.	Completed: ☐ Date:
d. Considerations for preserving property rights. Local governments must evaluate proposed regulatory or administrative actions to assure that such actions do not result in an unconstitutional taking of private property. RCW 36.70A.370. For further guidance see the 2018 Advisory Memo on the Unconstitutional Taking of Private Property	Yes. Chapter 2; Section 5.	No.		Completed: ☐ Date:
e. Encourage the involvement of citizens in the planning process, *including the participation of vulnerable populations and overburdened communities*, and ensure coordination between communities and jurisdictions to reconcile conflicts. HB 1181 (2023) revised RCW 36.70A.020 *Planning Goals* for inclusion of	Yes.	Yes.	See Attachment: Public Participation Plan.	Completed: ☐ Date:

Consistency is required by the GMA				
vulnerable populations and overburdened communities. RCW 36.70A.035 *Public Participation* was not amended under HB 1181.				

Appendix A: Housing unit minimums per population

See Commerce's Middle Housing webpage for more information and the Middle Housing Fact Sheet for the list of cities that must comply with the following requirements.

Cities with a population less than 25,000 but within the Contiguous UGA with the largest city in a county with a population greater than 275,000				
	In Current zoning? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Zoning and development regulations allow at least two residential units per lot on all lots zoned predominantly for residential use, unless the lot is smaller than 1,000 square feet. RCW 35.70A.635 (1) and (6) HB 1110	No.	N/A	The City does not have a population of 25,000 and is not within the Contiguous UGA with the largest city in the county.	Completed: ☐ Date:

Cities with a population between 25,000 and 75,000				
	In Current zoning? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Zoning and development regulations allow at least: • two residential units on each lot, • four residential units on each lot if at least one unit is affordable, unless the lot is smaller than 1,000 square feet.	No.	N/A	The City does not have a population of 25,000.	Completed: ☐ Date:
b. Zoning and development regulations allow at least four residential units on each lot, within ¼ mile walking distance of a major transit stop.	No.	N/A	The City does not have a population of 25,000.	Completed: ☐ Date:

Cities with a population greater than 75,000				
	In Current zoning? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Zoning and development regulations allow at least: • four residential units on each lot, • six residential units on each lot if at least two units are affordable, unless the lot is smaller than 1,000 square feet.	No.	N/A	The City does not have a population of 75,000.	Completed: ☐ Date:
b. Zoning and development regulations allow at least six residential units on each lot, within ¼ mile walking distance of a major transit stop.	No.	N/A	The City does not have a population of 75,000.	Completed: ☐ Date:

Appendix B: Element updates per HB 1181– Climate Change and Resiliency

	Required Updates to GMA Elements per HB 1181						
GMA Periodic Update Due Dates	Greenhouse Gas Reduction Sub-element	Climate Resilience Sub-element	Transportation Element	Land Use Element	Capital Facilities Element*	Utilities Element*	Parks & Recreation Element*
For jurisdictions with a 2024 deadline and subject to GHG Emissions Reduction [Sec. 15 (10)]	Due 2029	Due 2029	Due 2029	Due in 2034			
For jurisdictions with a 2025 & 2026 deadline and subject to GHG Emissions Reduction [Sec. 4 (1) and (2)]	X	X	X	X	X*	X*	X*
Jurisdictions not subject to GHG Emissions Reduction (all years) [Sec. 4 (3) and 9(e)(i)]	Optional	X See RCW 36.70A.070(9)(e)	**	Only counties over 20k pop.	X*	X*	X*

Table notes: "X" indicates a GMA update requirement. One asterisk (*) indicates jurisdictions should make a good faith effort to update their elements to be consistent; refer to HB 1181 (Chapter 228, Laws of 2023) for specifics. Two asterisks (**) indicates 22 cities that need to update their transportation element based on population, not whether or not their county is among those that must develop a GHG emissions element.

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

EXPANDED HOUSING CHECKLIST

Periodic Update Checklist for Fully-Planning Cities and Counties[1] with additional checklist items for housing element review.[2]

This checklist provides the framework Commerce regional planners will use to review periodic update submissions. **This checklist is NOT required to be completed by each jurisdiction;** it is an additional tool to help local planners meet the intent of the statute.

- Jurisdictions may submit draft housing elements to Laura Hodgson for initial review prior to 60-day review. Jurisdictions in the PSRC region are encouraged to submit draft housing elements to Commerce when it is submitted to PSRC and/or King County, as the requirements from the state are slightly different from the local or regional requirements.
- **Housing element submissions should include a land capacity analysis (LCA) reflecting updated policies.** This LCA may be included as a supporting document such as a Housing Needs Assessment (HNA) or simply a separate land capacity analysis document. If the LCA is missing from the submission, it will be requested by Commerce staff.
- Regional planners will review draft comprehensive plans and development regulations for the items **IN BOLD CAPITALIZED TEXT BELOW EACH ITEM**. If these materials are not included in the housing submission, Commerce staff will request them. More information on these requirements are included in parenthesis if additional information is needed. (Land use element review items are included for reference to ensure consistency between elements.)
- Commerce will also be tracking that zoning changes are consistent with comprehensive plan changes and the LCA (RCW 36.70A.115). These zoning changes implement the policies in the comprehensive plan to plan for and accommodate housing affordable to all income brackets.
- **Questions?** Contact Laura Hodgson at Laura.Hodgson@commerce.wa.gov or 360-764-3143.

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[1] The checklist items in this document are applicable to cities and counties, unless otherwise noted, but the headings in the checklist may be slightly different from the county checklist.

[2] The May 2024 checklist includes the following updates: (1) Under Section I: Comprehensive Plan Elements, Housing Element, item (e) – clarified that a land capacity analysis is needed for emergency housing. (2) Under Section II: Development Regulations, item (b) and (c) – corrected state statute references which were incorrect.

Section I: Comprehensive Plan Elements

Land Use Element

Consistent with countywide planning policies (CWPPs) and RCW 36.70A.070(1)

	Consistent? Yes/No	Changes needed?
b. A future land use map showing land uses, city limits and UGA boundaries. RCW 36.70A.070(1) and RCW 36.70A.110(6), WAC 365-196-400(2)(d), WAC 365-196-405(2)(i)(ii) THE LAND USES MUST REFLECT PROJECTED GROWTH INCLUDING FUTURE HOUSING NEEDS.	**Yes.** ➢ Chapter 2; Section 6.8; Exhibit 34.	
d. A consistent population projection throughout the plan which should be consistent with the jurisdiction's allocation of projected countywide population and housing needs. RCW 36.70A.115, RCW 43.62.035 and WAC 365-196-405(f) TABLE OR OTHER DOCUMENTION OF LOCAL ALLOCATION OF POPULATION AND HOUSING NEEDS BY INCOME BRACKET FROM THE COUNTYWIDE PROCESS.	**Yes.** ➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3. ➢ Chapter 2; Section 6.8; Exhibit 34.	
e. Estimates of population densities and building intensities based on future land uses and housing needs. RCW 36.70A.070(1), WAC 365-196-405(2)(i) ESTIMATES SHOULD INCLUDE ASSUMED DENSITIES TO ACCOMMODATE HOUSING NEEDS. (See WAC 365-196-210(6), and Housing Element Book 2: Step C and footnote 30 on page 24.)	**Yes.** ➢ Appendix B: Land Capacity Analysis. ➢ Chapter 2; Section 3.3.	

Housing Element

In the 2021 legislative session, HB 1220 substantially amended the housing-related provisions of the Growth Management Act (GMA), RCW 36.70A.070(2). Local governments should review local comprehensive plan policies and countywide planning policies to be consistent with the updated requirements. Please refer to Commerce's housing webpages for further information about the new requirements: Updating GMA Housing Elements and Planning for Housing.

	Consistent? Yes/No	Changes needed?
a. Goals, policies and objectives for: • the preservation, improvement and development of housing, RCW 36.70A.070(2)(b), and • moderate density housing options including, but not limited to, duplexes, triplexes, and townhomes, within an urban growth area boundary. RCW 36.70A.070(2)(b) amended in 2021, and WAC 365-196-410(2)(a) ENSURE THERE ARE POLICY(IES) ON A VARIETY OF MODERATE DENSITY HOUSING TYPES, SUCH AS DUPLEXES, TRIPLEXES, AND TOWNHOMES IN URBAN GROWTH AREAS. b. Consideration of housing locations in relation to employment locations. RCW 36.70A.070(2)(d) amended in 2021 LAND USE MAP SHOULD SHOW HIGHER DENSITY HOUSING LOCATED NEAR EMPLOYMENT (COMMERCIAL) AND/OR ADJACENT TO HIGH QUALITY TRANSIT IF APPLICABLE. (Housing Element Book 2: see pages 67-68.)	**Yes. Chapter 2; Section 3.4.** ➢ Preservation, improvement, and development: Goal CD-PR-1; Goal CD-PR-2; Goal CD-PR-5; Goal CD-PR-6. ➢ Moderate density housing options: Goal CD-PR-1; Goal CD-PR-3; Goal CD-PR-6. **Yes.** ➢ Chapter 2; Section 3.4 and Section 7.3; Exhibit 34. ➢ Housing locations: Goal CD-PR-7.	
c. Consideration of the role of accessory dwelling units (ADUs) in meeting housing needs. RCW 36.70A.070(2)(d) amended in 2021 TO SHOW CONSIDERATION OF ADUS, DO ONE OR BOTH OF THE FOLLOWING: (1) THE HOUSING NEEDS ASSESSMENT OR HOUSING ELEMENT MUST INCLUDE TEXT AND/OR POLICIES THAT ADDRESSES THE POTENTIAL FOR ADUS TO MEET HOUSING NEEDS, OR (2) INCLUDE ADU CAPACITY IN LAND CAPACITY ANALYSIS. 20-year ADU capacity should not exceed 10% of eligible lots. (See Housing Element Book 2 - ADU narrative guidance: pages 68-69; ADU capacity: see Step 1.6 on pages 27-28.)	**Yes.** ➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3; Exhibit 31 ➢ Policy: CD-PR-6.3	

Housing Element

In the 2021 legislative session, HB 1220 substantially amended the housing-related provisions of the Growth Management Act (GMA), RCW 36.70A.070(2). Local governments should review local comprehensive plan policies and countywide planning policies to be consistent with the updated requirements. Please refer to Commerce's housing webpages for further information about the new requirements: Updating GMA Housing Elements and Planning for Housing.

	Consistent? Yes/No	Changes needed?
d. An inventory and analysis of existing and projected housing needs over the planning period, by income band, consistent with the jurisdiction's share of countywide housing need, as provided by Commerce. RCW 36.70A.070(2)(a) amended in 2021, WAC 365-196-410(2)(b) and (c) TABLE OR OTHER DOCUMENTATION OF LOCAL ALLOCATION OF HOUSING NEEDS BY INCOME BRACKET. (Housing Element Book 1: see #6 of "Minimum standards for identifying and allocating projected housing needs" on page 60.)	**Yes.** ➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3. ➢ Chapter 2; Section 6.8; Exhibit 34.	
e. Identification of capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, permanent supportive housing. RCW 36.70A.070(2)(c) amended in 2021, WAC 365-196-410(e) and (f) STATEMENT SHOWING THERE IS SUFFICIENT CAPACITY OF LAND FOR ALL INCOME HOUSING NEEDS, INCLUDING EMERGENCY HOUSING. INCLUDE A TABLE SHOWING THE BREAKDOWN OF CAPACITY IN ZONES WHICH ADDS UP TO HOUSING NEEDS FOR ALL INCOME LEVELS, INCLUDING EMERGENCY HOUSING. (Supporting documentation of land capacity analysis is encouraged.) (Housing Element Book 2: see bottom table of Exhibit 17 on page 40 and Exhibit 20 on page 48.) ANY LIMITATIONS ON SUPPORTIVE HOUSING TYPES (EMERGENCY HOUSING (EH), EMERGENCY SHELTER (ES), PERMANENT SUPPORTIVE HOUSING (PSH), AND TRANSITIONAL HOUSING (TH)) MUST ALLOW THE SITING OF A SUFFICENT NUMBER OF UNITS AND BEDS NECESSARY TO MEET PROJECTED NEEDS. (Housing Element Book 2: see pages 41-48.) THE ZONING MAP MUST BE CONSISTENT WITH AND IMPLEMENT THE LAND USE MAP AND LAND CAPACITY FINDINGS. (See RCW 36.70A.115(1), WAC 365-196-800)	**Yes.** ➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3; ➢ Chapter 2; Section 3.3; Exhibit 28 ➢ Policy: CD-PR-1.2	

	Consistent? Yes/No	Changes needed?
f. Adequate provisions for existing and projected housing needs for all economic segments of the community. RCW 36.70A.070(2)(c) amended in 2021, WAC 365-196-010(c)(ii), WAC 365-196-300(f), WAC 365-196-410 and see Commerce's Housing Action Plan (HAP) guidance: Guidance for Developing a Housing Action Plan INCLUDE A LIST OF BARRIERS TO AFFORDABLE HOUSING NEEDS, INCLUDING BARRIERS TO EMERGENCY HOUSING AND PERMANENT SUPPORTIVE HOUSING. (Housing Element Book 2: see page 50 and Appendix B.) INCLUDE A LIST OF ACTIONS NEEDED TO REMOVE BARRIERS TO AFFORDABLE HOUSING. (Housing Element Book 2: see page 61 and Appendix B.) Note: Identification of barriers to affordable housing and actions to remove barriers do not need to be in table format, but both items need to be present in the housing element.	**Yes.** ➢ Chapter 2; Section 3.1: Page CD-2-31.	
g. Identify local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing, including: • Zoning that may have a discriminatory effect; • Disinvestment; and • Infrastructure availability RCW 36.70A.070(e) new in 2021 INCLUDE A STATEMENT OF WHETHER DATA SHOWS IF THERE ARE DISPARATE IMPACTS. NOTE: COMMERCE HAS DATA AVAILABLE FOR ALL JURISDICTIONS ON OUR EZVIEW SITE. (Housing Element Book 3: see pages 19-20.) REVIEW OF HOUSING ELEMENT POLICIES AND REGULATIONS THAT HAVE LED TO THESE IMPACTS. This may be in the housing element, housing needs assessment or the staff report. (Housing Element Book 3: see pages 33-36; this specific evaluation framework is not required.)	**Yes.** ➢ Appendix A: Housing Equity Report; ➢ Chapter 2, Section 3.2; page CD-2-33. ➢ Goal CD-PR-13 ➢ Policy CD-PR-13.1 ➢ Policy CD-PR-13.2 ➢ Policy CD-PR-13.3	

	Consistent? Yes/No	Changes needed?
h. Establish policies and regulations to address and begin to undo racially disparate impacts, displacement, and exclusion in housing caused by local policies, plans, and actions. RCW 36.70A.070(2)(f) new in 2021 INCLUDE POLICIES TO ADDRESS THESE IMPACTS, OR THAT ADDRESS DEVELOPMENT OF MORE AFFORDABLE HOUSING, PRESERVATION OF EXISTING AFFORDABLE HOUSING, AND PROTECTION OF EXISTING HOUSEHOLDS. (Policies: Housing Element Book 3, see pages 36-39 and Appendix C of Housing Element Book 2; Regulations: Housing Element Book 3, pages 43-44.)	**Yes.** ➢ Goal CD-PR-1 ➢ Policy CD-PR-1.2 ➢ Goal CD-PR-2 ➢ Policy CD-PR-2.1 ➢ Policy CD-PR-2.2 ➢ Policy CD-PR-2.3 ➢ Policy CD-PR-2.4 ➢ Policy CD-PR-3.1 ➢ Policy CD-PR-10.3 ➢ Policy CD-PR-14.1	
i. Identification of areas that may be at higher risk of displacement from market forces that occur with changes to zoning development regulations and capital investments. RCW 36.70A.070(2)(g) new in 2021 DISCUSSION AND/OR MAP OF AREAS THAT MAY BE AT RISK OF DISPLACEMENT. (COMMERCE AND PSRC HAVE MAPS AVAILABLE, AND INCLUSION OF ONE WOULD MEET THIS REQUIREMENT.) (Housing Element Book 3: see pages 27-31.) Establish anti-displacement policies, with consideration given to the preservation of historical and cultural communities as well as investments in low, very low, extremely low, and moderate-income housing; equitable development initiatives; inclusionary zoning; community planning requirements; tenant protections; land disposition policies; and consideration of land that may be used for affordable housing. RCW 36.70A.070(2)(h) new in 2021 SEE H ABOVE.	**Yes.** ➢ Appendix A: Housing Equity Report; ➢ Chapter 2, Section 3.2; page CD-2-33.	

Consistency is required by the GMA	Consistent? Yes/No	Changes needed?
o. All plan elements must be consistent with each other. RCW 36.70A.070 (preamble) and WAC 365-196-500 ENSURE CAPITAL FACILITIES, TRANSPORTATION AND UTILITIES ELEMENTS INCLUDE IMPROVEMENTS TO SUPPORT ADDED HOUSING DENSITY AND CONSIDER UNDERSERVED AREAS. LIKELY CONSIDERATIONS WILL INCLUDE SYSTEM IMPROVEMENTS AND PRIORITIZING AND FUNDING THIS WORK. (Housing Element Book 2: see LCA Step 1.3 "Identify gaps in utility infrastructure and services" on page 22, and "Identify related infrastructure and service needs" on page 77.)	**Yes.** ➢ Chapter 4 ➢ Chapter 5 ➢ Appendix A: Housing Equity Report ➢ Appendix G: Transportation Analysis of Growth Alternatives	
Public Participation		
a. Plan ensures public participation in the comprehensive planning process. RCW 36.70A.020(11), .035, and .140, WAC 365-196-600(3) provide possible public participation choices. THE PUBLIC PARTICIPATION PLAN SHOULD SHOW EFFORTS TO ENGAGE VULNERABLE POPULATIONS, OVERBURDEDED COMMUNITIES, AND THOSE WHO MAY HAVE BEEN DISPARATELY IMPACTED BY HOUSING POLICIES. (Housing Element Book 3: see pages 15-19.)	**Yes.** ➢ Resolution No. 3151	

Attachment F

Puget Sound Regional Council

Consistency Tool for Local Comprehensive Plans

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printing purposes.

VISION Consistency Tool for Local Comprehensive Plans

Note: The tool shown here is for illustrative purposes. To fill out the tool, visit www.psrc.org/our-work/plan-review.

This tool is intended to help cities and counties integrate VISION 2050 into their local comprehensive plans. VISION 2050's multicounty planning policies serve as the adopted regional guidelines and principles required in state law to guide both regional and local planning. The tool also identifies transportation planning requirements of the Growth Management Act (GMA). The tool may be used at various times in the local planning process:

Plan Update Scoping: Use checklist items as guidance for scoping the extent of plan element updates. New or expanded issue areas in VISION 2050 are identified to support this process.

Draft Plan Review: Submit draft plans to PSRC prior to Planning Commission and Council review. Completing and submitting this tool and providing early drafts to PSRC help identify potential consistency issues early in the process.

Certification Review: Along with the adopted plan, the tool will assist in PSRC's review of the plan. Demonstrating inclusion of the necessary information in the checklist helps facilitate certification. *Note: The PSRC Executive Board is the final decision-making body for plan certification.*

Regional Collaboration: The tool provides cities and counties an opportunity to highlight innovative policies and programs. This supports sharing of best practices across the region and benefits jurisdictions as they apply for planning grants and awards.

Updates made in September 2022 integrate the GMA requirements of HB 1220 and countywide housing needs into PSRC's plan review process, including housing for all income levels and addressing racially disparate impacts.

Resources

- Regional Plans: VISION 2050, Regional Transportation Plan, and Regional Economic Strategy
- VISION 2040 to VISION 2050 – summary of what changed in VISION 2050
- VISION 2050 Policy Matrix – a comparison of multicounty planning policies and actions from VISION 2040 to VISION 2050
- Plan Review webpage – access more information about the review and certification process and find PSRC guidance and other resources by policy area. See previous certification reports for areas for future work.

Discussion Questions | Innovation, Engagement, and Racial Equity

Questions provide an opportunity to highlight the most noteworthy aspects of the plan and the planning process. Responses help tell PSRC boards how the plan is working to implement VISION 2050 and how the plan meets certification requirements.

- What aspects of the updated plan would you like to highlight? What was especially innovative, challenging, or noteworthy?
- What innovative public engagement strategies were used in the update process? Did you use strategies to reach communities that have not typically been engaged in planning? How were other agencies and governments, such as tribes, ports, and special purpose districts, engaged through this process? (MPP-RC-1, DP-8)
- Racial equity and access to opportunity have been elevated as critical regional issues in VISION 2050. How has your community addressed racial equity in the comprehensive plan update? Do you have lessons learned from your experience about how to advance racial equity? (MPP-RC-3)

Checklist at a Glance

Support regional collaboration	Page/Policy Reference
✓ Include a statem… policies, VISION 2050, and plann…	
Coordinate with other jurisdictions, agencies, tribes, ports, military installations, special purpose districts, and adjacent regions (RCW 36.70A.070(6)(a)(v), MPP-RC-1, RC-4-5)	
Prioritize services and access to opportunity for people of color, people with low incomes, and his… ple can attain the resources and opportunities to improve quality of life and address past inequities (MPP-RC-2)	

Indicates new or expanded emphasis in VISION 2050

Provides relevant VISION 2050 policies or actions

Indicate where to find the best or most complete example. It is not necessary to list all relevant policies.

Regional Collaboration

The plan supports **collaboration for a healthy environment, thriving communities, and opportunities for all**, including coordination with other jurisdictions and agencies, tribes, ports, military installations, and adjacent regions.

Policies and programs should:

Support regional collaboration	Page/Policy Reference
✓ Include a statement about how the plan relates to countywide planning policies, VISION 2050, and planning requirements of the Growth Management Act	➢ Chapter 1; Sections 1 -4 ➢ Page I-1-3
NEW Coordinate with other jurisdictions, agencies, tribes, ports, military installations, special purpose districts, and adjacent regions (RCW 36.70A.070(6)(a)(v), MPP-RC-1, RC-4-5)	➢ Goal CD-LU-10 ➢ Policy CD-LU-10.2 ➢ Policy CD-LU-10.3
NEW Prioritize services and access to opportunity for people of color, people with low incomes, and historically underserved communities to ensure all people can attain the resources and opportunities to improve quality of life and address past inequities (MPP-RC-2)	➢ Appendix A: Housing Equity Report ➢ Policy CD-H-12.1 ➢ Goal CD-H-13
NEW Address land use, transportation, and housing opportunities and challenges related to military installations, when applicable (MPP-RC-6)	Not applicable.
➢ Prioritize investments in centers, including regional centers, countywide centers, high-capacity transit areas with a station area plan, and other local centers (MPP-RC-8-9)	➢ Goal CD-LU-1 ➢ Policy CD-LU-1.1 through Policy CD-LU-1.7
➢ Explore funding sources, changes to regulatory, pricing, taxing, and expenditure practices, and other fiscal tools to meet infrastructure and other needs (MPP-RC-10-11, RC-Action-7, RC-Action-9)	➢ Policy CD-H-14.2 (page CD-02-44) ➢ Policy CM-4.3 (page CM-04-108) ➢ Goal CM-9 (page CM-04-112) ➢ Policy CM-9.1 – CM-9.5 (page CM-04-112)

Additional comments on Regional Collaboration or additional documents to share [optional]: _____

Regional Growth Strategy

The plan **focuses growth in designated centers and near transit stations** to create healthy, equitable, vibrant communities well-served by infrastructure and services. The plan **supports rural and resource lands** as vital parts of the region that retain important cultural, economic, environmental, and rural lifestyle opportunities over the long term.

The plan should:

Implement the Regional Growth Strategy	Page/Policy Reference
➢ Incorporate housing and employment targets (MPP-RGS-1-2)	➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3 (page CD-2-35) ➢ Policy CD-H-1.1 (page CD-2-39)
➢ Use land use assumptions substantially consistent with countywide growth targets (RCW 36.70A.070, WAC 365-196-430, VISION 2050 Regional Growth Strategy)	➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3 (page CD-2-35) ➢ Policy CD-H-1.1 (page CD-2-39)
➢ Demonstrate sufficient zoned development capacity to accommodate targets (RCW 36.70A.115)	➢ Appendix B: Land Capacity Analysis ➢ Chapter 2; Section 3.3 (page CD-2-35) ➢ Policy CD-H-1.1 (page CD-2-39)
➢ Use consistent land use assumptions throughout plan (RCW 36.70A.070, WAC 365-196-430)[1]	➢ Appendix B: Land Capacity Analysis

[1] The Transportation Element must be based on the land use assumptions in the Comprehensive Plan - A problem sometimes encountered in the certification of transportation-related provisions in local comprehensive plans is the use of different planning assumptions in the transportation element from the land use

	➢ Chapter 2; Section 3.3 (page CD-2-35)

Note: see Growth Target Guidance for additional information.

Population, Employment, and Housing Growth

(add information from local plan and insert/delete rows as needed, based on regional centers or county regional geographies)

	Adopted Growth Target*	Land Use Assumptions for Travel Demand Modeling (numbers/notes, as applicable)	Zoned Development Capacity (can be greater than target)	Page Reference
County or citywide**				
Population	3,591	See Appendix G: Transportation Evaluation of Land Use Alternatives.	3,880	Growth Target, page CD-2-35; TDM, Appendix G: Transportation Evaluation of Land Use Alternatives; Zoned Capacity, CD-2-35
Employment	1,717	See Appendix G: Transportation Evaluation of Land Use Alternatives.	2,423	Growth Target, page CD-2-58; TDM, Appendix G: Transportation Evaluation of Land Use Alternatives; Zoned Capacity, page CD-2-58
Housing	1,451	See Appendix G: Transportation Evaluation of Land Use Alternatives.	1,498	Growth Target, page CD-2-36; TDM, Appendix G: Transportation Evaluation of Land Use Alternatives;

element. Comprehensive plans are to be internally consistent, which means that the same land use assumptions must be used for planning for housing, transportation, and other provisions in the plan.

				Zoned Capacity, page CD-2-37
Centers ***(as applicable)***				
Population				
Employment				
Housing				

*Include targets as applicable. Some counties adopt only housing and employment targets, and not population targets. If more explanation would be helpful, provide additional information about land use assumptions for modeling in space provided below.

**Counties: Attach additional tables or add rows to address multiple regional geographies.

Policies and programs should:

Maintain a stable urban growth area with densities and capacity that support the Regional Growth Strategy	Page/Policy Reference
✓ Encourage infill development and increased density in locations consistent with the Regional Growth Strategy (MPP-RGS-6)	➢ Policy CD-LU-1.2 ➢ Policy CD-LU-2.2 ➢ Goal CD-LU-10 ➢ Page CD-02-88
NEW Avoid increasing development capacity inconsistent with the Regional Growth Strategy in regional geographies not served by high-capacity transit (MPP-RGS-12)	➢ Goal CD-LU-10 ➢ Policy CD-LU-10.1 ➢ Policy CD-LU-10.2 ➢ Policy CD-LU-10.3 ➢ Policy CD-LU-10.4 ➢ Page CD-02-96
NEW **Metropolitan Cities:** Provide additional housing capacity in response to rapid employment growth, particularly through increased zoning for middle density housing (MPP-RGS-7)	Not applicable.
✓ **Counties:** Accommodate the region's growth first and foremost in the urban growth area (MPP-RGS-4)	Not applicable.
✓ **Counties:** Ensure long-term stability and sustainability of the urban growth area (MPP-RGS-5)	Not applicable.
Support growth in designated centers and near high-capacity transit	**Page/Policy Reference**

Where applicable, focus a significant share of growth in designated regional growth centers, high-capacity transit station areas, manufacturing/industrial centers, and countywide centers (MPP-RGS-8-11)[2]	➢ Referenced Centers Plan and Eastown Subarea plan ➢ Policy CD-H-7.1 (page CD-2-41) ➢ Policy CD-H-7.2 (page CD-2-41) ➢ Goal CD-LU-1 (page CD-2-88) ➢ Policy CD-LU-1.1 (page CD-2-88) ➢ Policy CD-LU-1.2 (page CD-2-88)
✓ Include growth targets for designated regional growth centers and manufacturing/industrial centers (MPP-RGS-2)	➢ Appendix B: Land Capacity Analysis
Manage and reduce rural growth and protect resource lands	**Page/Policy Reference**
✓ **Counties:** Identify steps to reduce rural growth over time to maintain rural landscapes and lifestyles and protect resource lands and the environment (MPP-DP-40-43)	Not applicable.
✓ **Counties:** Include a full range of strategies, including zoning and development standards, incentives, infrastructure investments, funding for conservation easements, housing tools, and economic development to reduce rural growth rates and protect natural resource lands over time (MPP-RGS-14-15, RGS-4, RGS-Action-7)	Not applicable.
✓ **Counties:** Locate commercial, retail, and community services that serve rural residents in neighboring cities and existing activity areas (MPP-RGS-13, DP-37)	Not applicable.
Counties: Avoid growth that cannot be sufficiently served by roads, utilities, and services at rural levels of service (MPP-DP-45)	Not applicable.
✓ **Counties:** Address vested development that conflicts with regional and local growth management objectives (MPP-DP-36)	Not applicable.

[2] The region has a goal to attract 65% of new residential growth and 75% of employment growth to regional growth centers and high-capacity transit station areas.

Additional comments on the Regional Growth Strategy or additional documents to share [optional]: _____

Environment

Local plans support the natural environment through policies on **protecting and restoring natural systems, conserving habitat, improving water quality, and reducing air pollutants**. The health of all residents and the economy is connected to the health of the environment. Planning at all levels should consider the impacts of land use, development, and transportation on the ecosystem and use the best environmental information available.

Policies and programs should:

Protect and restore the environment	Page/Policy Reference
✓ Protect critical areas, habitat, and water quality and coordinate planning with adjacent jurisdictions, tribes, countywide planning groups, and watershed groups (MPP-En-1, En-6, En-11-12, En-14, En-16, En-Action-3)	➢ Goal ES-1 ➢ Policy ES-1.1 ➢ Policy ES-1.2 ➢ Policy ES-1.4 ➢ Page ES-7-54
✓ Advance integrated and interdisciplinary approaches for environmental planning and assessments (MPP-En-2)	➢ Goal ES-1 ➢ Policy ES-1.1 ➢ Policy ES-1.2 ➢ Policy ES-1.4 ➢ Page ES-7-54
✓ Promote innovative and environmentally sensitive development practices in siting, design, materials selection, construction, and maintenance (MPP-En-5)	➢ Policy ES-10.5 ➢ Policy ES-10.9 ➢ Page ES-7-60
NEW Support programs to ensure that all residents, regardless of race, social, or economic status, have clean air, clean water, and other elements of a healthy environment and prioritize the reduction of impacts to vulnerable populations that have been disproportionately affected (MPP-En-3-4, En-7-8, En-21)	The Housing Equity Report did not find a correlation between a lack of clean water, air and other elements of a healthy environment and race, social, or economic status. As a result, the City has determined that

	the requirement of support programs is unnecessary. See note below.
NEW Support and incentivize environmental stewardship on private and public lands (MPP-En-10)	➢ Policy ES-5.6 (page ES-7-57) ➢ Policy ES-7.2 (page ES-7-58) ➢ Policy ES-7.3 (page ES-7-58) ➢ Policy ES-10.7 (page ES-7-60) ➢ Policy ES-10.9 (page ES-7-60) ➢ See note below.
NEW Identify open space, trail, and park resources and needs, and develop programs for protecting and enhancing these areas (MPP-En-11-12, En-15, En-Action-4)	➢ Referenced Parks, Trails, Recreation, and Open Spaces (PTROS) Plan ➢ See note below.
➢ Protect and restore native vegetation and tree canopy (MPP-En-9, En-13)	➢ Policy ES-2.6 (page ES-7-55) ➢ Goal ES-8 ➢ Policy ES-8.3 ➢ Policy ES-8.4 ➢ Policy ES-8.5 ➢ Policy ES-8.6 ➢ Policy ES-8.7 ➢ Policy ES-8.8 ➢ Page ES-7-59
NEW Protect and restore hydrological functions and water quality, including restoring shorelines and estuaries, removing fish-blocking culverts, reducing use of toxic products, and retrofitting basins to manage stormwater (MPP-En-16-20)	➢ Policy ES-3.4 (page ES-7-55) ➢ Policy ES-3.7 (page ES-7-56) ➢ Referenced Shoreline Restoration Plan

	➢ See note below.
✓ Ensure all federal and state air quality standards are met and reduce emissions of air toxics and greenhouse gases (WAC 173-420-080, MPP-En-22)	➢ Goal ES-10 ➢ Policy ES-10.1 ➢ Policy ES-10.2 ➢ Policy ES-10.3 ➢ Policy ES-10.4 ➢ Policy ES-10.5 ➢ Policy ES-10.6 ➢ Policy ES-10.7 ➢ Policy ES-10.8 ➢ Policy ES-10.9 ➢ Page ES-7-60

Additional comments on Environment or additional documents to share [optional]: The City of Bonney Lake will adopt a Climate Resiliency Element addressing climate change and resiliency by June 30, 2029, if funding has been provided.

Climate Change

The plan supports substantially **reducing emissions of greenhouse gases** that contribute to climate change in accordance with the goals of the Puget Sound Clean Air Agency and **preparing for climate change impacts**.

Policies and programs should:

Reduce greenhouse gas emissions in support of state, regional, and local reduction goals	Page/Policy Reference
NEW Support achieving regional greenhouse gas emission reduction goals by: NEW Electrifying the transportation system, • Reducing vehicle miles traveled through increasing alternatives to driving alone and using land use strategies that reduce trips and trip length, and • Expanding the use of conservation, alternative energy sources, and energy management technology (MPP-CC-1, CC-3, CC-5, CC-11-12, CC-Action-3)	➢ Goal ES-10 ➢ Policy ES-10.1 ➢ Policy ES-10.2 ➢ Policy ES-10.3 ➢ Policy ES-10.4 ➢ Policy ES-10.5 ➢ Policy ES-10.6 ➢ Policy ES-10.7 ➢ Policy ES-10.8

	➢ Policy ES-10.9 ➢ Page ES-7-60 ➢ See note below.
✓ Reduce building energy use through green building and retrofit of existing buildings (MPP-CC-2, CC-Action-3, DP-46)	➢ Policy ES-10.5 ➢ Policy ES-10.6 ➢ Policy ES-10.7 ➢ Page ES-7-60
NEW Protect and restore natural resources that sequester and store carbon (MPP-CC-4)	Not applicable. See note below.
NEW Address impacts to vulnerable populations and areas that have been or will be disproportionately affected by climate change (MPP-CC-6, CC-8, CC-Action-3, CC-Action-4)	The Housing Equity Report did not find a correlation between a lack of clean water, air and other elements of a healthy environment and race, social, or economic status. As a result, the City has determined that the requirement of support programs is unnecessary.
NEW Identify and address the impacts of climate change and natural hazards on the region to increase resilience (MPP-CC-7-10, CC-Action-4)	Not applicable. See note below.
NEW Address rising sea water by siting and planning for relocation of hazardous industries and essential public services away from the 500-year floodplain (MPP-CC-10)	Not applicable. See note below.

Additional comments on Climate Change or additional documents to share [optional]: The City of Bonney Lake will adopt a Climate Resiliency Element addressing climate change and resiliency by June 30, 2029, if funding has been provided.

Land Use/Development Patterns

The plan supports the further development of **healthy, walkable, compact, and equitable transit-oriented communities** that maintain unique character and local culture. The plan supports **conserving rural areas and creating and preserving open space and natural areas**.

Policies and programs should:

Build thriving urban communities	Page/Policy Reference
NEW Support inclusive community planning (MPP-DP-2, MPP-DP-8)	➢ Goal CD-H-10 (page CD-2-42) ➢ Goal CD-H-13 ➢ Policy CD-H-13.3 ➢ Page CD-2-43
✓ Support the development of compact urban communities and central places with densities that support the Regional Growth Strategy, transit, and walking (MPP-RGS-6, DP-1, DP-3)	➢ Goal CD-LU-1 (page CD-2-88) ➢ Policy CD-LU-1.1 ➢ Policy CD-LU-1.3 ➢ Policy CD-LU-1.4 ➢ Policy CD-LU-1.6 ➢ Policy CD-LU-1.7 ➢ Goal CD-LU-3 (page CD-2-89) ➢ Policy CD-LU-3.5 ➢ Goal CD-LU-6 (page CD-2-92) ➢ Policy CD-LU-9.2 (page CD-2-96)
NEW Reduce disparities in access to opportunity and expand employment opportunities to improve the region's shared economic future (MPP-DP-2, Ec-8, Ec-13)	➢ Goal CD-EV-1 (page CD-2-61) ➢ Policy CD-EV-1.3 (page CD-2-61) ➢ Goal CD-EV-3 (page CD-2-62)
✓ Coordinate with local, state, and federal agencies to identify underused lands such as surplus public lands or environmentally contaminated lands and: ✓ Promote infill or redevelopment in growth centers and existing neighborhoods in a manner that supports the Regional Growth Strategy (MPP-DP-4) ✓ Develop strategies for cleaning up brownfield and contaminated sites (DP-Action-7)	➢ Goal CD-LU-2.2 (page CD-2-89) ➢ Policy ES-3.1 (page ES-7-55) ➢ Policy ES-3.2 (page ES-7-55) ➢ Policy ES-4.1 (page ES-7-56)

	➢ Policy ES-10.2 (page ES-7-60)
NEW Preserve historic, visual, and cultural resources and consider potential impacts to culturally significant sites and tribal treaty fishing, hunting, and gathering grounds (MPP-DP-5-7)	➢ Goal HP-2 (page HP-3-23) ➢ Policy HP-2.1 ➢ Policy HP-2.6 ➢ Goal ES-1 (page ES-7-54) ➢ Policy ES-1.1 ➢ Policy ES-1.2 ➢ Policy ES-7.4 (page ES-7-58) ➢ Policy ES-7.7 (page ES-7-58) ➢ Policy ES-11.10 (page ES-7-62)
NEW Support inclusive engagement to ensure land use decisions do not negatively impact historically marginalized communities (MPP-DP-8)	➢ Goal CD-H-13 (page CD-2-43) ➢ Policy CD-H-13.1 ➢ Policy CD-H-13.2 ➢ Policy CD-H-13.3
✓ Support the design of transportation and infrastructure projects that achieve community development objectives and improve communities (MPP-DP-12-15, DP-17)	➢ Goal CD-EV-7 (page CD-2-64) ➢ Policy CD-EV-7.2 ➢ Policy CD-EV-7.3 ➢ Goal CD-LU-6 (page Cd-2-92) ➢ Policy CD-LU-6.1 ➢ Goal CM-4 (page CM-4-108) ➢ Policy CM-4.1 ➢ Policy CM-4.2 ➢ Policy CM-4.3 ➢ Policy CM-4.4 ➢ Policy CM-4.5

	➢ Goal CM-7 9page CM-4-110) ➢ Policy CM-7.3 ➢ Policy CM-7.4
Promote healthy communities	**Page/Policy Reference**
NEW Reduce health disparities and improve health outcomes (MPP-RC-3, DP-18)	➢ Goal CD-LU-9 (page CD-2-96) ➢ Policy CD-LU-9.1 ➢ Policy CD-LU-9.2 ➢ Policy CD-LU-9.3
Support centers as connections to opportunity	**Page/Policy Reference**
✓ Identify one or more central places as locations for more compact, mixed-use development (MPP-DP-22, DP-25)	➢ Policy CD-H-7.1 (page CD-2-41) ➢ Policy CD-H-7.2 (page CD-2-41) ➢ Goal CD-LU-1 (page CD-2-88) ➢ Policy CD-LU-1.1 (page CD-2-88) ➢ Policy CD-LU-1.2 (page CD-2-88)
NEW **Jurisdictions with or planning for high-capacity transit stations:** Identify high-capacity station areas and plan for densities[3] that maximize benefits of transit investments (MPP-DP-22, DP-Action-8)	Not applicable.
NEW **Jurisdictions with or planning for light rail stations:** Support the adoption of subarea plans for light rail station areas (DP-Action-8)	Not applicable.
✓ **Jurisdictions with regional centers**: Support the update of regional center subarea plans to be consistent with the revised Center Plan Tools (DP-Action-8)	Not applicable.
NEW Evaluate planning in areas for potential residential and commercial displacement and use a range of strategies to mitigate displacement impacts (MPP-DP-23, Ec-12)	➢ Appendix A: Housing Equity Report

[3] VISION 2050 calls for transit-oriented development near stations located in or near manufacturing/industrial centers to function differently with different uses than other centers to maintain a focus on protecting industrial zoning, jobs, and the region's overall economic vitality.

Support annexation and incorporation	Page/Policy Reference
✓ Work towards annexation and the orderly transition of unincorporated urban areas by: • Joint planning and urban development standards for urban unincorporated areas • Affiliating all unincorporated urban growth areas with adjacent cities NEW Planning for phased growth of communities to be economically viable, supported by planned urban infrastructure, and served by public transit (MPP-RGS-16, DP-27-30)	➢ Goal CD-LU-10 (page CD-2-96) ➢ Policy CD-LU-10.1 ➢ Policy CD-LU-10.2 ➢ Policy CM-4.3 (page CM-4-109)
Preserve rural areas and natural resource lands	**Page/Policy Reference**
✓ **Counties**: Work to ensure that development in rural areas is rural in character (MPP-DP-32-35, DP-37-38)	Not applicable.
✓ **Counties:** Work to ensure the sustainability of designated resource lands through programs that support economic vitality, encourage conservation, and avoid incompatible adjacent land uses (MPP-DP-39, DP-41-43)	Not applicable.
Conserve and enhance important uses	**Page/Policy Reference**
✓ **As applicable,** limit incompatible uses adjacent to: • Military lands (MPP-DP-49) • Manufacturing/industrial centers (MICs) and industrial zoning (MPP-DP-50) NEW Tribal reservation lands (MPP-DP-51)	Manufacturing/industrial centers and industrial zoning are applicable to the City of Bonney Lake. However, military lands and tribal reservation lands are not applicable to the City of Bonney Lake. ➢ Goal CD-LU-2 (page CD-2-89) ➢ Policy CD-LU-2.1 ➢ Policy CD-LU-2.3

Additional comments on Land Use/Development Patterns or additional documents to share [optional]: _____

Housing

The plan guides the **preservation, improvement, and expansion of the housing stock** to provide a range of **affordable, accessible, healthy, and safe housing choices** to every resident. It continues to **promote fair and equal access to housing for all people**.

Policies and programs should:

Assess housing needs	Page/Policy Reference
NEW Address affordable housing needs by developing a housing needs assessment and evaluating the effectiveness of existing housing policies, and documenting strategies to achieve housing targets and affordability goals. This includes documenting programs and actions needed to achieve housing availability including gaps in local funding, barriers such as development regulations, and other limitations (H-Action-4)	➢ Referenced Housing Action Plan ➢ Appendix A: Housing Equity Report ➢ Appendix B: Land Capacity Analysis
Increase housing supply and choices	**Page/Policy Reference**
➢ Increase housing supply and densities to meet the region's current and projected needs at all income levels consistent with the Regional Growth Strategy (MPP-H-1)	➢ Chapter 2, Section 3.3, (page CD-2-36)
➢ Expand the diversity of housing types for all income levels and demographic groups, including low, very low, extremely low, and moderate-income households (MPP-H-2-6, H-9)	➢ Goal CD-H-1 ➢ Policy CD-H-1.1 ➢ Page CD-2-39
NEW Expand housing capacity for moderate density housing, i.e., "missing middle" (MPP-H-9)	➢ Goal CD-H-1 ➢ Policy CD-H-1.2 ➢ Goal CD-H-3 ➢ Policy CD-H-3.2 ➢ Goal CD-H-6 ➢ Policy CD-H-6.2 ➢ Policy CD-H-6.3 ➢ Page CD-2-39
NEW Promote jobs-housing balance by providing housing choices that are accessible and attainable to workers. Include jobs-housing balance in housing needs assessments to better support job centers with the needed housing supply (MPP-H-1, H-6, H-Action-4)	➢ Goal CD-H-7 ➢ Policy CD-H-7.1 ➢ Policy CD-H-7.2 ➢ Page CD-2-41

➢ Expand housing choices in centers and near transit (MPP-H-7-8)	➢ Goal CD-H-7 ➢ Policy CD-H-7.1 ➢ Policy CD-H-7.2 ➢ Page CD-2-41
➢ Promote flexible standards and innovative techniques to encourage housing productions that keeps pace with growth and need (MPP-H-10)	➢ Policy CD-H-6.2 (page CD-2-41) ➢ Policy CD-H-6.3 ➢ Policy CD-H-6.4 ➢ Policy CD-H-6.5 ➢ Policy CD-H-6.6 ➢ Goal CD-H-10 (Page CD-2-42) ➢ Policy CD-H-10.1 ➢ Policy CD-H-10.3 ➢ Policy CD-H-10.4 ➢ Policy CD-H-10.5 ➢ Policy CD-H-14.2
Support the development and preservation of affordable housing	**Page/Policy Reference**
NEW Use inclusionary and incentive zoning to provide more affordable housing when creating additional housing capacity (H-Action-5)	➢ Policy CD-H-6.3 ➢ Policy CD-H-6.6 ➢ Page CD-2-41
NEW **Jurisdictions planning for high-capacity transit stations**: Create and preserve affordable housing near high-capacity transit[4] (MPP-H-8, H-Action-1)	Not Applicable.
Address inequities in access to housing	**Page/Policy Reference**
NEW Identify potential physical, economic, and cultural displacement of low-income households and marginalized populations and work with communities to develop anti-displacement strategies in when planning for growth (MPP-H-12, H-Action-6)	➢ Appendix A: Housing Equity Report
NEW Promote homeownership opportunities while recognizing historic inequities in access to homeownership opportunities for communities of color (MPP-H-5)	➢ Goal CD-H-8 (page CD-2-41) ➢ Policy CD-H-8.1

[4] Transit-oriented development near stations located in or near manufacturing/industrial centers need to function differently with different uses than other centers to maintain a focus on protecting industrial zoning, jobs, and the region's overall economic vitality.

	➢ Policy CD-H-8.2 ➢ Goal CD-H-13 (Page CD-2-44) ➢ Policy CD-H-13.1
NEW Identify and begin to undo local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing, including zoning that may have a discriminatory effect and areas of disinvestment and infrastructure availability	➢ Appendix A: Housing Equity Report ➢ Goal CD-H-13 ➢ Policy CD-H-13.1 ➢ Policy CD-H-13.2 ➢ Policy CD-H-13.3 ➢ Page CD-2-44

Additional comments on Housing or additional documents to share [optional]: _____

Economy

The plan includes an **economic development element (Ec-Action-5)** that promotes a **prospering and sustainable economy** by supporting **businesses and job creation and investing in all people**.

Policies and programs should:

Promote a prosperous and sustainable economy for all people	Page/Policy Reference
✓ Identify and enhance industry clusters, including those recognized in the Regional Economic Strategy that provide goods and services for export (MPP-Ec-3, Ec-4)	➢ Goal CD-EV-2 (page CD-2-61) ➢ Goal CD-EV-3 (page CD-2-62) ➢ Policy CD-EV-3.1
✓ Focus retention and recruitment efforts and activities to foster a positive business climate and diversify employment opportunities by specifically targeting: • Businesses that provide living wage jobs NEW Locally, women-, and minority-owned small businesses and start-up companies	➢ Goal CD-EV-1(page CD-2-61) ➢ Policy CD-EV-1.1 ➢ Policy CD-EV-1.6 ➢ Goal CD-EV-5 (page CD-2-62)

Established and emerging industries, technologies, and services that promote environmental sustainability, especially those addressing climate change and resilience (MPP-Ec-1, Ec-3, Ec-4, Ec-7, Ec-9, Ec-16)	
Promote strategies and policies that expand access to opportunity and remove barriers for economically disconnected communities (MPP-Ec-13-14)	The Housing Equity Report did not find barriers for economically disconnected communities. In addition, the Economic Development Element is not a required element until proper funding has been provided pursuant to RCW 36.70A.070(10). As a result, the City has determined that this requirement is not applicable.
Address and prevent potential physical, economic, and cultural displacement of existing businesses that may result from redevelopment and market pressure (MPP-Ec-12)	The Housing Equity Report did not find potential physical, economic, and cultural displacement of existing businesses. In addition, the Economic Development Element is not a required element until proper funding has been provided pursuant to RCW 36.70A.070(10). As a result, the City has determined that this requirement is not applicable.
✓ Develop a range of employment opportunities to create a closer balance between jobs and housing (MPP-Ec-18)	➢ Goal CD-EV-2 (page CD-2-61)
Promote environmental and socially responsible business practices, especially those addressing climate change, resilience, and improved health outcomes (MPP-Ec-8, Ec-16)	The Climate Resiliency Element is not a required element until proper funding has been provided pursuant to

	RCW 36.70A.070(10). As a result, the City has determined that this requirement is not applicable.
NEW Support, recognize, and empower the contributions of the region's culturally and ethnically diverse communities, institutions, and Native Tribes (MPP-Ec-15, Ec-17, Ec-20)	The Economic Development Element is not a required element until proper funding has been provided pursuant to RCW 36.70A.070(10). As a result, the City has determined that this requirement is not applicable.

Additional comments on Economic Development or additional documents to share [optional]: _____

Transportation

The plan promotes a **sustainable, equitable, affordable, safe, and efficient multimodal transportation system**, with specific emphasis on an **integrated regional transit network that supports the Regional Growth Strategy** and promotes vitality of the economy, environment, and health.

Policies and programs should:

Implement the Regional Transportation Plan	Page/Policy Reference
✓ Promote the development of an efficient, multimodal transportation system that supports the Regional Growth Strategy in collaboration with other jurisdictions and agencies (MPP-T-7)	➢ Goal CM-4 (page CM-4-108) ➢ Policy CM-4.1 ➢ Policy CM-4.3 ➢ Goal CM-7(Page-CM-110) ➢ Policy CM-7.4 ➢ Goal CM-8 (page CM-4-111) ➢ Policy CM-8.1 ➢ Policy CM-8.2 ➢ Policy CM-8.3

	➢ Policy CM-8.4 ➢ Policy CM-8.5 ➢ Goal CM-9 (page CM-4-112) ➢ Policy CM-9.3
✓ Work to develop and operate a safe and convenient system for all users and the movement of freight and goods (MPP-T-11)	➢ Policy CM-10.3 (page CM-4-113)
✓ Reduce the need for new capital improvements through investments in operations, pricing programs, demand management strategies, and system management activities that improve the efficiency of the current system (RCW 36.70A.070(6)(a)(vi), MPP-T-3)	➢ Goal CM-5 (page CM-109) ➢ Policy CM-5.1 ➢ Goal CM-9 (page CM-4-112) ➢ Policy CM-9.1 ➢ Policy CM-9.2 ➢ Policy CM-9.3 ➢ Policy CM-9.4 ➢ Policy CM-9.5
✓ Emphasize transportation investments that provide alternatives to single occupancy vehicle travel, increase travel options, especially to and within centers, and support compact, pedestrian- and transit-oriented densities and development (MPP-T-12-13, T-15)	➢ Policy CM-1.2 (page CM-4-107) ➢ Policy CM-5.4 (page CM-4-109) ➢ Policy CM-8.1 (page CM-4-11)
NEW Increase the resilience of the transportation system and support security and emergency management (MPP-T-31)	➢ Policy CM-8.5 (page CM-4-112)
NEW Prepare for changes in transportation technologies and mobility patterns (MPP-T-33-34)	➢ Goal CM-3 (page CM-4-108) ➢ Goal CM-4 (page CM-4-108) ➢ Policy CM-4.1
Support the Regional Growth Strategy	**Page/Policy Reference**
✓ Focus system improvements to connect centers and support existing and planned development as allocated by the Regional Growth Strategy (MPP-RC-7-9, T-7-8, T-15)	➢ Policy CM-5.7 (page CM-4-110)

	➢ Goal CM-7 (page CM-4-110) ➢ Policy CM-7.3 ➢ Policy CM-7.4
NEW Prioritize multimodal investments in centers and high-capacity station areas (MPP-RC-7-10, T-12-13, T-19)	➢ Goal CM-1 (page CM-4-107) ➢ Policy CM-1.3
✓ Promote the design of transportation facilities that support local and regional growth centers and high-capacity transit station areas and fit the community in which they are located (MPP-T-19-21)	➢ Goal CM-1 (page CM-4-107) ➢ Policy CM-1.1 ➢ Policy CM-1.3
✓ Support a safe and welcoming environment for walking and bicycling (MPP-DP-15): • Include a pedestrian and bicycle component and collaborative efforts to identify planned improvements for pedestrian and bicycle facilities and corridors (RCW 36.70A.070(6)(a)(vii)) • Improve local street patterns and design to promote walking and biking (MPP-T-16-17)	➢ Goal CM-2 (page CM-4-107) ➢ Policy CM-2.1 ➢ Policy CM-2.2 ➢ Policy CM-2.3 ➢ Policy CM-2.4 ➢ Policy CM-2.5 ➢ Policy CM-2.6
✓ Support alternatives to driving alone, including walking, biking, and transit use, through design of local streets, land use development tools, and other practices (MPP-T-16-18)	➢ Goal CM-1 (page CM-4-107) ➢ Policy CM-1.1 ➢ Policy CM-1.2 ➢ Policy CM-1.3
✓ **Counties**: Avoid construction of major roads or capacity expansion on existing facilities in rural and resource areas (MPP-T-22, DP-38)	Not applicable.
Support people	**Page/Policy Reference**
NEW Identify racial and social equity as a core objective when planning and implementing transportation improvements, programs, and services (MPP-T-9)	➢ Policy CM-2.6 (page CM-4-108)
✓ Ensure mobility choices for people with special needs (MPP-T-10)	➢ Goal CM-2 (page CM-4-107)
Support the economy	**Page/Policy Reference**
✓ Recognize the critical role of safe, reliable, and efficient movement of people and goods (MPP-Ec-6, T-1, T-23)	➢ Goal CM-3 (page CM-4-108)

	➢ Policy CM-3.1 ➢ Policy CM-3.2 ➢ Policy CM-3.3
✓ Identify and support key facilities and improvements that connect the region to major transportation hubs such as ports, airports, and designated freight routes (MPP-T-24-25)	➢ Goal CM-7 (page CM-4-110) ➢ Policy CM-7.4
✓ Promote coordination with providers of major regional infrastructure, such as freight rail and commercial aviation (MPP-Ec-4-5, T-27-28)	➢ Goal CM-7 (page CM-4-110) ➢ Policy CM-7.4
Protect the environment	**Page/Policy Reference**
NEW Promote clean transportation programs and facilities, including actions to reduce air pollution and greenhouse gas emissions from transportation (MPP-CC-3, CC-12, T-29-30)	➢ Goal CM-5 (page CM-4-109) ➢ Policy CM-5.1 ➢ Goal ES-10 (page ES-7-60) ➢ Policy ES-10.1 ➢ Policy ES-10.2 ➢ Policy ES-10.3 ➢ Policy ES-10.8 ➢ Policy ES-10.9
NEW Reduce stormwater pollution from transportation facilities and improve fish passage (MPP-T-32)	➢ Goal ES-7 (page ES-7-58) ➢ Policy ES-7.6 ➢ Policy ES-7.7 ➢ Goal CM-5 (page CM-4-109) ➢ Policy CM-5.1 ➢ Policy CM-5.3
✓ Incorporate environmental factors into transportation decision-making, including attention to human health and safety (MPP-DP-44, T-4-5, T-29-32)	➢ Policy CM-3.1 (page CM-4-108) ➢ Goal CM-5 (page CM-4-109) ➢ Policy CM-5.1

The plan should:

Provide facilities inventories and identify service needs	Page/Policy Reference
✓ Include mapped inventories for each element of the transportation system, including roadways, transit, cycling, walking, freight, airports, and ferries (RCW 36.70A.070, RCW 36.70A.108, MPP-T-7, T-15-17)	➢ Roadways: Chapter 4; Section 2.1; page CM-4-12 ➢ Transit: Chapter 4; Section 2.5; page CM-4-40 ➢ Cycling: Chapter 4; Section 3.4; page CM-4-55 ➢ Walking: Chapter 4; Section 3.3; page CM-4-48 ➢ Freight: Chapter 4; Section 2.4; page CM-4-36 ➢ Airport: Chapter 4; Section 2.4; page CM-4-35 ➢ Ferries: Not applicable
✓ Include state facilities and reflect related (regional/state) level-of-service standards (RCW 36.70A.070, RCW 36.70A.108)	➢ Chapter 4; Section 2.1; page CM-4-12
✓ Develop a comprehensive concurrency program that addresses level-of-service standards for multimodal types of transportation and include implementation strategies (RCW 36.70A.070, RCW 36.70A.108, MPP-DP-52-54)	➢ Chapter 4; Section 2.2; page CM-4-17 ➢ Chapter 4; Section 4.1; page CM-4-59
✓ Provide travel demand forecasts and identify state and local system projects, programs, and management necessary to meet current and future demands and to improve safety and human health (RCW 36.70A.070, MPP-T-4-5)	➢ Chapter 4; Section 5; page CM-4-68
✓ Identify maintenance and system preservation projects and programs necessary to maintain the ability of the transportation system to provide safe, efficient, and reliable movement of people, goods, and services (RCW 36.70A.070, MPP-T-1-2, T-4)	➢ Chapter 4; Section 5.6; page CM-4-89
Finance transportation investments	**Page/Policy Reference**

✓ Identify stable and predictable funding sources for maintaining and preserving existing transportation facilities and services (MPP-RC-11-12, T-6)	➢ Chapter 5; Section 5.2; page CF&S-5-66
✓ Pursue alternative transportation financing methods, such as user fees, tolls, and other pricing mechanisms (MPP-T-6)	➢ Chapter 5; Section 5.2; page CF&S-5-66
✓ Include a 20-year financing plan, as well as an analysis of funding capability for all transportation modes (RCW 36.70A.070(3), RCW 36.70A.070(6)(a)(iv), WAC 365-196-415, WAC 365-196-430, MPP-RC-11-12, T-6, T-15)	➢ Chapter 5; Section 5.1; page CF&S-5-58
✓ Include a reassessment strategy to address the event of a funding shortfall (RCW 36.70A.070(3), RCW 36.70A.070(6)(a)(iv), WAC 365-196-415, WAC 365-196-430, MPP-RC-11-12, T-6)	➢ Chapter 5; Section 5.5; page CF&S-5-70
Address land uses adjacent to airports	**Page/Policy Reference**
➢ **Airport-adjacent communities:** Identify and address any airports within or adjacent to the jurisdiction (RCW 36.70.547, 36.70A.070(6)(a)(iii)(A), MPP-DP-48)	➢ Airport: Chapter 4; Section 2.4; page CM-4-35
➢ **Airport-adjacent communities:** Describe existing and planned uses near the airport, as well as policies and regulations that discourage incompatible uses (RCW 36.70.547, 36.70A.070(6)(a)(iii)(A), MPP-DP-48)	➢ Airport: Chapter 4; Section 2.4; page CM-4-35
NEW **Airport-adjacent communities:** Promote coordinated planning and effective management to optimize the region's aviation system in a manner that minimizes health, air quality, and noise impacts to communities, including historically marginalized communities (MPP-T-28)	➢ Airport: Chapter 4; Section 2.4; page CM-4-35

Additional comments on Transportation or additional documents to share [optional]: _____

Public Services

The plan supports development with adequate **public facilities and services in a timely, coordinated, efficient, and cost-effective manner** that **supports local and regional growth planning objectives**.

Policies and programs should:

Provide adequate public facilities and services to support growth	**Page/Policy Reference**

✓ Protect and enhance the environment and public health and safety when providing services and facilities (MPP-PS-1)	➢ Goal ES-3 (page ES-7-55) ➢ Policy ES-3.1 ➢ Policy ES-3.2 ➢ Policy ES-3.4 ➢ Policy ES-3.6 ➢ Goal ES-4 (page ES-7-56) ➢ Policy ES-4.1 ➢ Policy CF&S-1.1 (page CF&S-5-72) ➢ Policy CF&S-12.1 (page CF&S-5-77)
✓ Promote coordinated planning for services and facilities with counties, cities, tribes, and special purpose districts in a manner that supports the Regional Growth Strategy, including addressing long-term needs, supply, and the use of conservation and demand management (MPP-PS-3-4, PS-8-9, PS-13-14, PS-23-25)	➢ Policy CF&S-1.4 (page CF&S-5-72) ➢ Policy CF&S-8.2(page CF&S-5-76) ➢ Policy CF&S-8.7 (page CF&S-5-76) ➢ Policy CF&S-9.1 (CF&S-5-76) ➢ Policy CF&S-10.3 (page CF&S-5-77) ➢ Policy CF&S-10.4 (page CF&S-5-77) ➢ Policy CF&S-11.3 (page CF&S-5-77) ➢ Policy CF&S-11.4 (page CF&S-5-77) ➢ Goal ES-1 (page ES-7-54) ➢ Policy ES-1.1 ➢ Policy ES-1.2 ➢ Policy ES-1.4

✓ Protect water quality by replacing failing septic systems and serving new urban development with sanitary sewer systems (MPP-PS-10-12)	➢ Policy CF&S-9.3 (page CF&S-5-76) ➢ Policy ES-3.6 (page ES-7-55)
NEW Consider the potential impacts of climate change on public facilities and support the necessary investments to move to low-carbon energy sources (MPP-PS-13-15, PS-20-21)	➢ Goal ES-3 (page ES-7-55) ➢ Policy ES-3.1 ➢ Policy ES-3.2 ➢ Policy ES-3.3 ➢ Policy ES-3.4 ➢ Goal ES-11 (page ES-7-61) ➢ Policy ES-11.1 ➢ Policy ES-11.2 ➢ Policy ES-11.3 ➢ Policy ES-11.4 ➢ Policy ES-11.5 ➢ Policy ES-11.6 ➢ Policy ES-11.7 ➢ Policy ES-11.8 ➢ Policy ES-11.9 ➢ Policy ES-11.10 ➢ Policy ES-11.11
NEW Promote affordable and equitable access of public services, including drinking water and telecommunication infrastructure, to provide access to all communities, especially underserved communities (MPP-PS-2, PS-16, PS-22)	➢ Goal CF&S-1 (page CF&S-5-72) ➢ Goal CF&S-8 (page CF&S-5-75) ➢ Goal CF&S-9 (page CF&S-5-76) ➢ Policy CF&S-10.3 (page CF&S-5-77) ➢ Policy CF&S-11.3 (page CF&S-5-77)

✓ Encourage planning and coordination of emergency management and public safety programs (MPP-PS-17, T-31)	➢ Goal CF&S-3 (page CF&S-5-73) ➢ Policy CF&S-3.3 ➢ Policy CM-8.5 (page CM-4-112) ➢ Goal ES-11 (page ES-7-61) ➢ Policy ES-11.1 ➢ Policy ES-11.2 ➢ Policy ES-11.3 ➢ Policy ES-11.4 ➢ Policy ES-11.5 ➢ Policy ES-11.6 ➢ Policy ES-11.7 ➢ Policy ES-11.8 ➢ Policy ES-11.9 ➢ Policy ES-11.10 ➢ Policy ES-11.11
NEW Locate community facilities and services, including civic places like parks, schools, and other public spaces, in centers and near transit, with consideration for climate change, economic, social and health impacts (MPP-PS-18, PS-20, PS-29, DP-11)	➢ Policy CF&S-1.6 (page CF&S-5-72) ➢ Policy CF&S-4.2 (page CF&S-5-73) ➢ Policy CF&S-4.4 (page CF&S-5-74) ➢ Referenced Parks, Trails, Recreation and Open Space Plan
NEW Promote working with school districts on school siting and design to support safe, walkable access, including strategies to provide adequate urban capacity for new schools and to avoid serving urban students with schools in the rural area (MPP-PS-26-28)	➢ Goal CF&S-5 ➢ Policy CF&S-5.1 ➢ Policy CF&S-5.2 ➢ Page CF&S-5-74
✓ **Counties**: Avoid providing urban services and regional facilities in rural areas. Facilities and utilities in rural areas should be at a size and scale appropriate for rural locations. (MPP-PS-5-7, PS-30)	Not applicable.

Additional comments on Public Services or additional documents to share [optional]: _____

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Attachment G

City of Bonney Lake

Goal-Policy Comparison Tables

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printing purposes.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CD-LU-1	Develop dynamic and vibrant centers accommodating housing, shopping, services, civic activities, entertainment facilities, and recreational opportunities in a manner that harmoniously blends the natural and built environments.	Goal CD-2	Develop dynamic and vibrant centers accommodating housing, shopping, services, civic activities, entertainment facilities, and recreational opportunities in a manner that harmoniously blends the natural and built environments.	Regional Growth Strategies Goal			
CD-LU-1.1	Local centers take a variety of forms. Some may be characterized by predominantly retail uses, while others may contain a more varied mix of activities including commercial, office, residential, parks, community centers, other civic facilities, and education facilities. Bonney Lake will maintain a variety of centers within the City that meet a range of neighborhood, citywide, and regional needs based on the following hierarchy: - Downtown, which will accommodate pedestrian-oriented retail uses, uses that serve residents and employees, and specialty and “niche” activities such as entertainment, outdoor dining, and civic uses. - Midtown, which will accommodate a variety uses including high density residential, offices, restaurants, large regional grocery stores, specialty retail stores, and regional shopping centers.	Policy CD-2.1	Local centers take a variety of forms. Some may be characterized by predominantly retail uses, while others may contain a more varied mix of activities including commercial, office, residential, parks, community centers, other civic facilities, and education facilities. Bonney Lake will maintain a variety of centers within the City that meet a range of neighborhood, citywide, and regional needs based on the following hierarchy: - Downtown, which will accommodate pedestrian-oriented retail uses, uses that serve residents and employees, and specialty and “niche” activities such as entertainment, outdoor dining, and civic uses. - Midtown, which will accommodate a variety uses including high density residential, offices, restaurants, large regional grocery stores, specialty retail stores, and regional shopping centers. - Lake Tapps, which will primarily accommodate recreational and residential uses. Smaller shopping centers and local-serving retail and service uses along major thoroughfares would be supported; however, new large-footprint retail uses are inappropriate in such areas.	MPP-RGS-11 MPP-DP-25	C-7 C-24.7 C-15 C-25		Lakes Tapps was removed as a Center.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-1.2	Encourage the development of mixed-use, senior housing, high-density residential, and public services uses such as education, health care, libraries, child care, governmental facilities in the centers to create vibrant activity nodes, provide a variety of housing choices, advance sustainable development principles, and support transit.	Policy CD-2.2	Encourage the development of mixed-use, senior housing, high density residential, and public services uses such as education, health care, libraries, child care, governmental facilities in the centers to create vibrant activity nodes, provide housing choices, advance sustainable development principles, support transit, and preserve the City's existing residential neighborhoods.	MPP-RC-8 MPP-DP-54	C-23 C-40 C-41 EC-3.7 EC-3.8 TR-6.1.1 TR-6.1.2 TR-15		Removed "...and preserve the City's existing residential neighborhoods."
CD-LU-1.3	In selecting which transportation or infrastructure projects to be funded by the City, the City should give priority to the City's Centers.	Policy CD-2.3	In selecting which transportation or infrastructure projects to be funded by the City, the City should give priority to the City's Centers.	MPP-RC-8	C-23C-40C-41EC-3.7EC-3.8TR-6.1.1TR-6.1.2		
CD-LU-1.4	Support the transformation of auto-oriented shopping centers—currently characterized by retail strips surrounded by large surface parking lots—into more pedestrian-oriented centers to generate foot traffic, create a stronger sense of place, and bring life to outdoor spaces.	Policy CD-2.4	Support the transformation of auto-oriented shopping centers—currently characterized by retail strips surrounded by large surface parking lots—into more pedestrian-oriented centers to generate foot traffic, create a stronger sense of place, and bring life to outdoor spaces.	MPP-RC-8	C-23 C-40 C-41 EC-3.7 EC-3.8 TR-6.1.1 TR-6.1.2	RCW 36.70A.070(1)	
CD-LU-1.5	Encourage the use of shared parking in commercial districts, rather than independent parking lots on each commercial property in order to reduce the total land area dedicated to parking and create a more pedestrian-friendly environment.	Policy CD-2.5	Encourage the use of shared parking in commercial districts, rather than independent parking lots on each commercial property in order to reduce the total land area dedicated to parking and create a more pedestrian-friendly environment.	MPP-RC-8	C-23 C-40 C-41 EC-3.7 EC-3.8 TR-6.1.1 TR-6.1.2		
CD-LU-1.6	Develop the Downtown as Bonney Lake's center with the highest level of land use diversity, architectural interest, pedestrian orientation, and human-scale design. New buildings should have their facades at the sidewalk edge except in certain cases along SR-410, as shown in the Centers Plan.	Policy CD-2.6	Develop the Downtown as Bonney Lake's center with the highest level of land use diversity, architectural interest, pedestrian orientation, and human-scale design. New buildings should have their facades at the sidewalk edge except in certain cases along SR-410, as shown in the Downtown Center Plan.	MPP-RGS-11	C-7 C-24.7 C-15 C-25	RCW 36.70A.070(1)	

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-1.7	Develop the Midtown Center as a mixed-use district with the highest possible level of architectural interest, pedestrian orientation, and human-scale design consistent with the facts that 1) much of it is already built and 2) pedestrian traffic alongside and across the highway will suffer due to high vehicular traffic. Wherever possible, developments should reach deeply into the adjoining commercial land, provide local access streets as dictated by the Mobility Element, and place their building facades at the edge of the sidewalk adjoining said local access streets.	Policy CD-2.7	Develop the Midtown Center as a mixed-use district with the highest possible level of architectural interest, pedestrian orientation, and human-scale design consistent with the facts that 1) much of it is already built and 2) pedestrian traffic alongside and across the highway will suffer due to high vehicular traffic. Wherever possible, developments should reach deeply into the adjoining commercial land, provide local access streets as dictated by the Mobility Element, and place their building facades at the edge of the sidewalk adjoining said local access streets.	MPP-RGS-11	C-7 C-24.7 C-15 C-25	RCW 36.70A.070(1)	
Goal CD-LU-2	Develop Eastown as a light-industrial area to increase the number and diversity of jobs available to the citizens of Bonney Lake and to diversify the City's tax base.	Goal CD-3	Develop Eastown as a light-industrial area to increase the number and diversity of jobs available to the citizens of Bonney Lake and to diversify the City's tax base.	MPP-RGS-4	EC-2 - EC-2.12 ENV-10.7 RUR-2 UGA-7 - UGA-7.3		
CD-LU-2.1	Develop Eastown with 1) architectural detail suitable for automobile orientation along SR-410, 2) internal and, if possible external pedestrian connections, and 3) preference for business park or campus-scale development.	Policy CD-3.1	Develop Eastown with 1) architectural detail suitable for automobile orientation along SR-410, 2) internal and, if possible external pedestrian connections, and 3) preference for business park or campus-scale development.	MPP-DP-50MPP-EC-9	EC-1.8EC-2.1EC-2.6EC-4.9		
CD-LU-2.2	Encourage parcel consolidation to provide infill sites for redevelopment and expansion opportunities.	Policy CD-3.2	Encourage parcel consolidation to provide infill sites for redevelopment and expansion opportunities.	MPP-RGS-4	EC-2 - EC-2.12 ENV-10.7 RUR-2 UGA-7 - UGA-7.3		
CD-LU-2.3	Encourage best management practices for site planning and design related to, but not limited to, building placement and orientation, vehicular and pedestrian circulation patterns, open space, landscaping, lighting, stormwater management, interfacings with adjacent neighborhoods and developments, and appropriate accommodation of the site's natural features.	Policy CD-3.3	Encourage best management practices for site planning and design related to, but not limited to, building placement and orientation, vehicular and pedestrian circulation patterns, open space, landscaping, lighting, stormwater management, interfacings with adjacent neighborhoods and developments, and appropriate accommodation of the site's natural features.	MPP-EC-16	EC-1.7		

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-2.4	Improve services to the area to support redevelopment opportunities primarily the development of sanitary sewer.	Policy CD-3.4	Improve services to the area to support redevelopment opportunities primarily the development of sanitary sewer.	MPP-RGS-4	EC-2 - EC-2.12 ENV-10.7 RUR-2 UGA-7 - UGA-7.3		
Goal CD-LU-3	Provide healthy, livable, well maintained, walkable, and safe residential neighborhoods that provide opportunities for social interaction in a manner that harmoniously blends the natural and built environments.	Goal CD-4	Provide healthy, livable, well maintained, walkable, and safe residential neighborhoods that provide opportunities for social interaction in a manner that harmoniously blends the natural and built environments.	Development Patterns Goal MPP-PS-26		RCW 36.70A.070(1)	
CD-LU-3.1	Planning and land use decisions should recognize residents as the foundation of the community, by promoting compatibility between existing and new housing units, protecting residential uses from adverse impacts and uses, and maintaining a range of residential zones to support the identified housing needs.	Policy CD-4.1	Planning and land use decisions should recognize residential neighborhoods as the basic "building blocks" of the community, ensure compatibility with existing detached homes, protect neighborhoods from incompatible uses, and maintain a range of residential zones corresponding to the prevailing neighborhood densities.	MPP-DP-16 MPP-DP-26		RCW 36.70A.070(1)	
CD-LU-3.2	Allow home occupations in Bonney Lake's residences when all applicable regulations can be satisfied.	Policy CD-4.2	Allow home occupations in Bonney Lake's residences, if impacts are mitigated and the business does not alter the residential character of the neighborhood.			RCW 36.70A.070(1)	
		Policy CD-4.3	Allow schools, day care centers, senior centers, group homes, public and semi-public facilities (e.g., churches), and nursing care facilities in residential areas, subject to conditions which limit the impacts of these uses on nearby properties. To the extent permitted by state and federal law, conditions of approval may be placed on such uses to ensure that they are operated in a manner that is sensitive to neighborhood concerns, and that maintains residents' quality of life. In addition, such uses should be sited in a way that minimizes the exposure of future occupants to noise, localized air pollution sources, and other environmental hazards.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-3.3	Support healthy and safe neighborhoods by developing and implementing programs to address nuisances and environmental hazards (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.).	Policy CD-4.3	Provide healthy and safe neighborhoods free of nuisances, environmental hazards, and visual blight (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.) that disrupt and impact Bonney Lake residents' quality of life.	MPP-RC-3 MPP-EN-3	H-3 TR-9 EPF-6.10		Language updated.
CD-LU-3.4	Conserve and protect the unique ecological characteristics of the City and utilize urban forestry to integrate open space, parks, green belts, street trees, landscaping, and natural features into future development in order to maintain Bonney Lake's livability, improve access to nature, and to address climate change by utilizing trees to sequester carbon from the atmosphere.	Policy CD-4.4	Conserve and protect the unique ecological characteristics of the City and utilize urban forestry to integrate open space, parks, green belts, street trees, landscaping, and natural features into future development in order to maintain Bonney Lake's livability, improve access to nature, and to address climate change by utilizing trees to sequester carbon from the atmosphere.	MPP-EN-9 MPP-EN-11 MPP-EN-12 MPP-EN-13 EN-ACTION-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-16.8 ENV-17 ENV-22.3 ENV-23.3 ENV-44.2		
CD-LU-3.5	Utilize capital improvement projects, design guidelines, and land use decisions to improve the walkability of neighborhoods, enhance the ability to travel by bicycle or public transportation, and minimize the distance a resident must travel to reach basic services, shopping, parks, schools, and other civic amenities.	Policy CD-4.5	Utilize capital improvement projects, design guidelines, and land use decisions to improve the walkability of neighborhoods, enhance the ability to travel by bicycle or public transportation, and minimize the distance a resident must travel to reach basic services, shopping, parks, schools, and other civic amenities.			RCW 36.70A.070(1)	
CD-LU-3.6	Create standards for clustering developments that conserves natural features and which minimizes the impact of development in environmentally sensitive areas.	Policy CD-4.6	Create standards for clustering developments that conserves natural features and which minimizes the impact of development in environmentally sensitive areas.	MPP-EN-12 EN-ACTION-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-17		
CD-LU-3.7	Encourage subdivision designs in which residential lots are oriented towards, and take access from, the neighborhood of which they are a part.	Policy CD-4.7	Encourage subdivision designs in which residential lots are oriented towards, and take access from, the neighborhood of which they are a part.	EN-ACTION-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-17		
CD-LU-3.8	Residential developments should be sited so individual residential dwelling does not take direct driveway access from an arterial.	Policy CD-4.8	Residential developments should be sited so individual residential dwelling does not take direct driveway access from an arterial.	MPP-EN-3MPP-T-15	ENV-38 ENV-39 TR-1 TR-6.1 TR-9 TR-11 EPF-6.10 H-3		

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CD-LU-4	Provide streets, sidewalks, parks, plazas, civic buildings, and other public spaces that contribute to Bonney Lake's sense of place and visual quality.	Goal CD-6	Provide streets, sidewalks, parks, plazas, civic buildings, and other public spaces that contribute to Bonney Lake's sense of place and visual quality.	Development Patterns Goal			
CD-LU-4.1	Recognize the importance of streets as public space: Landscaping, lighting, streetscape elements, pavement changes, signage improvements, banners, and other public realm improvements can enhance the experience of traveling along a corridor without diminishing its functional capacity.	Policy CD-6.1	Recognize the importance of streets as public space: Landscaping, lighting, streetscape elements, pavement changes, signage improvements, banners, and other public realm improvements can enhance the experience of traveling along a corridor without diminishing its functional capacity	MPP-DP-3 MPP-DP-10 MPP-DP-11	TR-5 CU-2		
CD-LU-4.2	Improvements to corridors should be appropriate to the scale and character of each street, reflecting their traffic volumes and intended functions.	Policy CD-6.2	Improvements to corridors should be appropriate to the scale and character of each street, reflecting their traffic volumes and intended functions.	MPP-DP-12 MPP-DP-53 MPP-T-5 MPP-T-7 MPP-T-12 MPP-T-16 MPP-T-17	TR-1 TR-5 TR-6 TR-6.1.1 TR-6.1.2 TR-9 TR-11 TR-14 TR-15		
CD-LU-4.3	Design guidelines, design review requirements, engineering standards, and capital improvement projects should aim to improve the visual quality of street space.	Policy CD-6.3	Design guidelines, design review requirements, engineering standards, and capital improvement projects should aim to improve the visual quality of street space.	MPP-DP-6	HAC-3		
CD-LU-4.4	Use street furniture (e.g. benches, trash cans, kiosks, bicycle lockers, bus shelters, etc.) to improve the pedestrian experience, create stronger identity and visual cohesion, and contribute to the desired character of an area.	Policy CD-6.4	Use street furniture (e.g. benches, trash cans, kiosks, bicycle lockers, bus shelters, etc.) to improve the pedestrian experience, create stronger identity and visual cohesion, and contribute to the desired character of an area.	MPP-RC-8 MPP-RGS-11 MPP-EN-21	C-7 C-15 C-23 C-24.7 C-25 C-40 C-41 EC-3.7 EC-3.8 TR-6.1.1 TR-6.1.2 TR-9 ENV-39	RCW 36.70A.070(1)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-4.5	Encourage the development of public gathering spaces within new developments that are responsive to a project's scale and expected level of activity, and respectful of surrounding land uses.	Policy CD-6.5	Encourage the development of public gathering spaces within new developments that are responsive to a project's scale and expected level of activity, and respectful of surrounding land uses.	MPP-DP-1 MPP-T-16	TR-5 TR-9.5 ENV-39.5 UGA-7		
CD-LU-4.6	Encourage plazas, pocket parks, and similar spaces to stimulate pedestrian activity, provide community-gathering places, and complement the overall appearance and form of adjoining buildings.	Policy CD-6.6	Encourage plazas, pocket parks, and similar spaces to stimulate pedestrian activity, provide community-gathering places, and complement the overall appearance and form of adjoining buildings.	MPP-RGS-6	C-7 C-24.7 UGA-6.2 UGA-7.2 EC-1.1 ENV-10.7	RCW 36.70A.070(1)	
CD-LU-4.7	While the design of each public space must be sensitive to its context, all public spaces should share several common design characteristics. These include: - Locations in prominent, recognizable and accessible locations where they are likely to receive frequent use and be highly visible. - Seating areas, signage, pedestrian amenities, activity areas and other design features that increase usability and functionality. - A unique identity that enables the space to function independently, while still allowing the space to work in connection with adjacent development. - Accommodation of a variety of users (i.e. arts, cultural, recreational, different ages, abilities, etc.). - Variations in landscaping, pavement, lighting, public art, and other amenities which improve the quality of each space and define its character. - Protection from wind, sun, and noise exposure. - Spaces that utilize a mixture of direct sunlight and shade.	Policy CD-6.7	While the design of each public space must be sensitive to its context, all public spaces should share several common design characteristics. These include: - Locations in prominent, recognizable and accessible locations where they are likely to receive frequent use and be highly visible. - Seating areas, signage, pedestrian amenities, activity areas and other design features that increase usability and functionality. - A unique identity that enables the space to function independently, while still allowing the space to work in connection with adjacent development. - Accommodation of a variety of users (i.e. arts, cultural, recreational, different ages, abilities, etc.). - Variations in landscaping, pavement, lighting, public art, and other amenities which improve the quality of each space and define its character. - Protection from wind, sun, and noise exposure. - Spaces that utilize a mixture of direct sunlight and shade.	MPP-DP-3 MPP-DP-10 MPP-DP-11	TR-5 CU-2	RCW 36.70A.070(1)	

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-4.8	Develop key "multi-modal" corridors that accommodate multiple modes of transportation that connect Bonney Lake's neighborhoods and centers, enhance the City's civic identity, encourage transit use, reduce vehicle miles traveled, provide comfortable walking and bicycling environments, and project a positive image of the city.	Policy CD-6.8	Develop key "multi-modal" corridors that accommodate multiple modes of transportation that connect Bonney Lake's neighborhoods and centers, enhance the City's civic identity, encourage transit use, reduce vehicle miles traveled, provide comfortable walking and bicycling environments, and project a positive image of the city.	MPP-RC-3 MPP-EN-21	H-3 ENV-39 TR-9	RCW 36.70A.070(1)	
Goal CD-LU-5	Improve gateways into Bonney Lake and into its individual neighborhoods and districts to achieve a sense of transition and arrival.	Goal CD-8	Improve gateways into Bonney Lake and into its individual neighborhoods and districts to achieve a sense of transition and arrival.				City Preference
CD-LU-5.1	Develop gateway standards which provide guidance for the design and appearance of primary and secondary gateways into Bonney Lake.	Policy CD-8.1	Develop a Gateway Plan, which provides guidance for the design and appearance of primary and secondary gateways into Bonney Lake.				City Preference
CD-LU-5.2	Private development located within gateway areas should incorporate public improvements that enhance the identity and image of the City.	Policy CD-8.2	Private development located within gateway areas should incorporate public improvements that enhance the identity and image of the City.				City Preference
CD-LU-5.3	Require new development projects to provide gateway features, if their location and context warrant such inclusion.	Policy CD-8.3	Require new development projects to provide gateway features, if their location and context warrant such inclusion.				City Preference
Goal CD-LU-6	Guide growth and development to ensure that it is orderly and efficient; leverage public investment to address the needs of the underserved areas; ensure the continued availability of infrastructure and public services; reduce adverse impacts on adjacent properties; and to protect the natural environment.	Goal CD-9	Guide growth and development to ensure that it is orderly and efficient; leverage public investment to address the needs of the underserved areas; ensure the continued availability of infrastructure and public services; reduce adverse impacts on adjacent properties; and to protect the natural environment.	Development Patterns Goal			

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CD-LU-6.1	Ensure that land use decisions consider the characteristics of the transportation network, including road capacity, the quality of the streetscape, and the availability of public transportation and other modes of travel.	Policy CD-9.1	Ensure that land use decisions consider the characteristics of the transportation network, including road capacity, the quality of the streetscape, and the availability of public transportation and other modes of travel.	MPP-DP-1 MPP-DP-14 MPP-DP-52 MPP-DP-53 DP-ACTION-8	ENV-39.5 TR-9.5 TR-14 TR-15 UGA-7 C-7 C-8 C-9 C-10 C-11 C-12 C-13 C-15 C-16 C-17 C-37 C-45		
CD-LU-6.2	Adopt and routinely update development regulations to direct growth, ensure sufficient opportunities for new development, maintain and improve Bonney Lake's quality of life, preserve and rehabilitate existing housing stock, mitigate nuisances, achieve compatibility between adjacent properties and uses, and protect the health, safety and welfare of residents, workers, and visitors.	Policy CD-9.2	Use development regulations to direct growth, ensure sufficient opportunities for new development, improve Bonney Lake's quality of life, preserve existing neighborhoods, reduce nuisances, achieve compatibility between adjacent properties and uses, address land use conflicts, and protect the health and safety of residents, visitors, and workers.	MPP-RC-3 MPP-RGS-1	H-3 Draft CPPs Intro		
CD-LU-6.3	Utilize urban design guidelines to guide and evaluate remodeling projects, additions, and new construction. Guidelines should: - Address building height, scale, massing, materials, colors, and detailing; - Ensure pedestrian connections; - Encourage interesting features such as varied roof forms, canopies, balconies, window displays, bay windows, vertically and horizontally modulated wall surfaces, trellises with native vines, porches, artwork, planting beds, ornamental trim, modulations and varied textures, colors, and materials; and - Ensure that sites are designed in context and relationship to surrounding uses and landscapes.	Policy CD-9.3	Utilize urban design guidelines to guide and evaluate remodeling projects, additions, and new construction. Guidelines should: - Address building height, scale, massing, materials, colors, and detailing; - Ensure pedestrian connections; - Encourage interesting features such as varied roof forms, canopies, balconies, window displays, bay windows, vertically and horizontally modulated wall surfaces, trellises with native vines, porches, artwork, planting beds, ornamental trim, modulations and varied textures, colors, and materials; and - Ensure that sites are designed in context and relationship to surrounding uses and landscapes.	MPP-RGS-6	C-7 C-24.7 UGA-6.2 UGA-7.2 EC-1.1 ENV-10.7	RCW 36.70A.070(1)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-6.4	Recognize certain areas as having natural constraints that preclude safe or environmentally sound development. These constraints are discussed further in the Environmental Stewardship Element.	Policy CD-9.4	Recognize certain areas as having natural constraints that preclude safe or environmentally sound development. These constraints are discussed in the Environmental Stewardship Element.	MPP-EN-1MPP-EN-4MPP-EN-11MPP-EN-14MPP-EN-16	ENV-1 ENV-3 - ENV-3.1 ENV-4 ENV-5.4 ENV-16 ENV-17 ENV-20 ENV-21 ENV-21.9 ENV-22 ENV-23 ENV-25 ENV-36 ENV-39.2 ENV-40 ENV-42 EPF-6.10 H-3		
CD-LU-6.5	Allow new development to occur only when the public facilities needed to serve that development are available, or when provided for by the development through the payment of impact fees, in-lieu fees, or connection charge; construction of the facility as part of the development; or other mitigation measures.	Policy CD-9.5	Allow new development to occur only when the public facilities needed to serve that development are available, or when provided for by the development through the payment of impact fees, in-lieu fees, or connection charge; construction of the facility as part of the development; or other mitigation measures.	MPP-DP-52 MPP-PS-3 MPP-PS-4	TR-11 TR-14 TR-15 TR-16 TR-17 TR-18 C-13 UGA-13.4.1 UGA-13.5.2		
CD-LU-6.6	Although the Comprehensive Plan provides for development capacity to accommodate growth through the planning period, steps should be taken to retain some of this capacity for after the planning period and guide development towards the Downtown and Midtown Centers.	Policy CD-9.6	Although the Comprehensive Plan provides for development capacity to accommodate growth until 2035, steps should be taken to retain some of this capacity for the post-2035 period and guide development towards the Downtown, Midtown, and Lake Tapps Centers.	MPP-RGS-4 MPP-RGS-6 MPP-RGS-11	EC-2 - EC-2.12 ENV-10.7 RUR-2 UGA-7 - UGA-7.3 C-7 C-15 C-24.7 C-25 UGA-6.2 UGA-7.2 EC-1.1 ENV-10.7		"...and Lake Tapps" was removed.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-6.7	Avoid the creation of "problem" parcels that are not practical to develop, access, or to provide with services. Work to eliminate or merge such parcels where they already exist.	Policy CD-9.7	Avoid the creation of "problem" parcels that are not practical to develop or provide with services. Work to eliminate or merge such parcels where they already exist. A problem parcel is defined as: - Any parcel which, regardless of the minimum area or dimension requirements set forth in the Zoning Ordinance, is not practically developable because of its unusual dimensions, shape, or location relative to other parcels; or - Any parcel which has other land use constraints, such as environmentally critical areas; or - Any parcel with no street access or insufficient street frontage to provide access.		EPF-6.11		Definition of a "problem parcel" was removed.
CD-LU-6.8	Encourage partnerships between the City and the private sector to undertake joint public-private development.	Policy CD-9.8	Encourage partnerships between the City and the private sector to undertake joint public-private development.	MPP-RC-2	AH-7 EC-2.7 ENV-12.2 TR-6.4.2 AH-3 AH-4 TR-4 TR-4.3 TR-4.4 TR-4.1.1		
CD-LU-6.9	Integrate new large-scale development projects into the fabric of the existing community rather than allowing such projects to be self-contained, walled off or physically divided from surrounding uses. New development should be viewed as an opportunity to improve connectivity between neighborhoods. To the extent feasible, circulation systems and open spaces in such developments should tie into existing streets and open spaces on the perimeter. In addition, existing development should be retrofitted over time to reduce unnecessary walls and barriers and improve pedestrian connections between neighborhoods.	Policy CD-9.9	Integrate new large-scale development projects into the fabric of the existing community rather than allowing such projects to be self-contained, walled off or physically divided from surrounding uses. New development should be viewed as an opportunity to improve connectivity between neighborhoods. To the extent feasible, circulation systems and open spaces in such developments should tie into existing streets and open spaces on the perimeter. In addition, existing development should be retrofitted over time to reduce unnecessary walls and barriers and improve pedestrian connections between neighborhoods.	MPP-DP-3	TR-5		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-6.10	Establish development regulations that facilitate the development of a positive regional identity for Bonney Lake as a City with outstanding neighborhoods and vibrant centers that provide gathering places for residents and visitors.	Policy CD-9.10	Establish development regulations that facilitate the development of a positive regional identity for Bonney Lake as a City with outstanding neighborhoods and vibrant centers that provide gathering places for residents and visitors.	MPP-DP-1 MPP-DP-5 MPP-DP-6	ENV-39.5 TR-9.5 UGA-7 HAC-3		
CD-LU-6.11	Redevelop Bonney Lake's under-developed or vacant sites in a manner that balances providing an array of housing, jobs, retail, recreational, and entertainment opportunities, with the need to respect the planned scale and form of surrounding properties and neighborhoods.	Policy CD-9.11	Redevelop Bonney Lake's under-developed or vacant sites in a manner that balances providing an array of housing, jobs, retail, recreational, and entertainment opportunities, with the need to respect the scale and form of surrounding properties and neighborhoods.	MPP-RGS-4	EC-2 - EC-2.12 ENV-10.7 RUR-2 UGA-7 - UGA-7.3		
CD-LU-6.12	Allow for the siting of Essential Public Facilities as required by State law.			MPP-RC-1 MPP-EN-3 MPP-EN-7 RGS-ACTION-7 MPP-RGS-2 MPP-RGS-16	ED-3 TR-3 EC-1 UGA-11 RUR-12		Added to comply with XXXX.
Goal CD-LU-7	Preserve open space, parks, greenbelts, and natural areas, which together protect the Bonney Lake's natural resources, provide opportunities for recreation, enhance visual beauty, and shape Bonney Lake's character.	Goal CD-5	Preserve open space, parks, greenbelts, and natural areas, which together protect the Bonney Lake's natural resources, provide opportunities for recreation, enhance visual beauty, and shape Bonney Lake's character	Environment Goal	ENV-3 - ENV-3.1 ENV-12 ENV-13 ENV-21 ENV-22 ENV-30 - ENV-30.2 ENV-34 ENV-36 ENV-43.4 RUR-9	RCW 36.70A.070(1)	
CD-LU-7.1	Maintain development regulations which distinguish between different types of open space, based on the different types of activities that take place on undeveloped land.	Policy CD-5.1	Maintain development regulations which distinguish between different types of open space, in recognition of the different types of activities that take place on undeveloped land.	MPP-EN-5 MPP-EN-11 MPP-EN-12 MPP-EN-14	ENV-3 - ENV-3.1 ENV-12 ENV-13 ENV-21 ENV-22 ENV-30 - ENV-30.2 ENV-34 ENV-36 ENV-43.4 RUR-9		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-7.2	Maintain and enhance a network of neighborhood, community, and linear parks. Parks should be recognized as fundamental to Bonney Lake's quality of life, and should be carefully managed to create a balance between passive and active open space.	Policy CD-5.2	Maintain and enhance a network of neighborhood, community, and linear parks. Parks should be recognized as fundamental to Bonney Lake's quality of life, and should be carefully managed to create a balance between passive and active open space.	MPP-EN-15	ENV-12 UGA-12		
CD-LU-7.3	Utilize open space, including parks, greenbelts, easements, and other open areas to connect the City, provide car-free corridors for pedestrians and bicyclists, and tie together Bonney Lake's neighborhoods, centers, and employment districts.	Policy CD-5.3	Utilize open space, including parks, greenbelts, easements, and other open areas to connect the City, provide car-free corridors for pedestrians and bicyclists, and tie together Bonney Lake's neighborhoods, centers, and employment districts.	EN-ACTION-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-17	RCW 36.70A.070(1)	
CD-LU-7.4	Encourage private-public partnerships to create on-site open space for public enjoyment in mixed-use areas and commercial areas.	Policy CD-5.4	Encourage private-public partnerships to create on-site open space for public enjoyment in mixed-use areas and commercial areas.	MPP-RC-11	AH-4 TR-19 TR-22		
CD-LU-7.5	Allow community gardening and "urban" agriculture in residentially-zoned areas and open spaces, provided that these uses do not impact the functions and values of environmentally critical areas.	Policy CD-5.5	Allow community gardening and "urban" agriculture in residentially-zoned areas and open spaces, provided that these uses do not impact the functions and values of environmentally critical areas.	MPP-EN-4MPP-EN-15	ENV-12 ENV-40 EPF-6.10 H-3 UGA-12		
CD-LU-7.6	Allow recreational uses on lands designated as environmentally critical areas, provided that these uses do not impact the function and values of environmentally critical areas.	Policy CD-5.6	Allow recreational uses on lands designated as environmentally critical areas, provided that these uses do not impact the function and values of environmentally critical areas.	MPP-EN-12 MPP-EN-15	ENV-12 ENV-13 UGA-12	RCW 36.70A.070(1)	
CD-LU-7.7	Establish zoning standards to mitigate for the presence of infrastructure facilities such as radio and telecommunication towers within designated open space areas.	Policy CD-5.7	Establish zoning standards to mitigate for the presence of infrastructure facilities such as radio and telecommunication towers within designated open space areas.	MPP-EN-3 MPP-EN-4	TR-9 EPF-6.10 H-3 ENV-12 ENV-40		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-7.8	Prevent the encroachment or conversion of common open space areas within planned developments or other residential projects. Shared open space areas in residential subdivisions shall be permanently restricted to open space uses through deed restrictions or other appropriate means.	Policy CD-5.8	Prevent the encroachment or conversion of common open space areas within planned developments or other residential projects. Shared open space areas in residential subdivisions shall be permanently restricted to open space uses through deed restrictions or other appropriate means.	MPP-EN-1	ENV-1 ENV-4 ENV-5.4 ENV-17 ENV-20 ENV-21.9 ENV-23 ENV-25 ENV-16 ENV-36 ENV-39.2 ENV-40 ENV-42		
CD-LU-7.9	Advocate for open space conservation and resource protection in the unincorporated areas east of the Bonney Lake's city limits but within the City's sphere of influence. These areas should remain in agricultural and open space uses for the lifetime of this Comprehensive Plan.	Policy CD-5.9	Advocate for open space conservation and resource protection in the unincorporated areas east of the Bonney Lake's city limits but within the City's sphere of influence. These areas should remain in agricultural and open space uses for the lifetime of this Comprehensive Plan.	MPP-RGS-4MPP-RGS-15RGS-ACTION-7MPP-EN-1MPP-EN-4	EC-2 - EC-2.12 RUR-2 RUR-3 RUR-4 RUR-5 RUR-11 RUR-12 TR-6.2 - TR-6.2.1 UGA-7 - UGA-7.3 ENV-1 ENV-4 ENV-5.4 ENV-10.7 ENV-12 ENV-17 ENV-18 ENV-20 ENV-21.9 ENV-23 ENV-25 ENV-16 ENV-36 ENV-39.2 ENV-40 ENV-42 EPF-6.10 H-3		
CD-LU-7.10	Preserve historic and cultural resources as assets for the future, in consultation with local, Federally-recognized tribes.			MPP-RC-4	HAC-1 TR-4.6		Added to address the policy gap.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CD-LU-8	Protect and enhance Bonney Lake's scenic, natural, and visual character.	Goal CD-7	Protect and enhance Bonney Lake's scenic, natural, and visual character.	Environment Goal			
CD-LU-8.1	Preserve views through sensitive site design, especially along scenic corridors. Prevent new development from blocking important public views.	Policy CD-7.1	Preserve views through sensitive site design, especially along scenic corridors. Prevent new development from blocking important public views.	MPP-DP-6	HAC-3		
CD-LU-8.2	Maintain a network of designated scenic routes through Bonney Lake. A particular road or corridor may be considered scenic by virtue of its design or amenities, the terrain and natural features it traverses, or the views and visual importance it commands. The designation expresses an intent to maintain or improve visual features, which protects public views through land use, transportation, and capital improvement decisions, as well as landscaping, operations, and maintenance activities along these corridors, but does not necessarily limit abutting uses.	Policy CD-7.2	Maintain a network of designated scenic routes through Bonney Lake. A particular road or corridor may be considered scenic by virtue of its design or amenities, the terrain and natural features it traverses, or the views and visual importance it commands. The designation expresses an intent to maintain or improve visual features, which protects public views through land use, transportation, and capital improvement decisions, as well as landscaping, operations, and maintenance activities along these corridors, but does not necessarily limit abutting uses.	MPP-DP-6	HAC-3		
CD-LU-8.3	Acquire lands or view easements if necessary to preserve important public views.	Policy CD-7.3	Acquire lands or view easements if necessary to preserve important public views.	MPP-DP-6	HAC-3		
CD-LU-8.4	Encourage developers to retain mature trees to the extent possible, particularly in residential areas.	Policy CD-7.4	Encourage developers to retain mature trees to the extent possible, particularly in residential areas.	MPP-DP-6	HAC-3		
CD-LU-8.5	Reduce the visual impacts of utility lines and poles along corridors by continuing to underground overhead lines within existing development, and by requiring underground utilities in new developments.	Policy CD-7.5	Reduce the visual impacts of utility lines and poles along corridors by continuing to underground overhead lines within existing development, and by requiring underground utilities in new developments.	MPP-DP-6	HAC-3		
CD-LU-8.6	On the south side of SR-410 near the western city limits, tree cutting shall not extend so far from SR-410 as to remove the solid backdrop of mature trees as viewed horizontally from SR-410.	Policy CD-7.6	On the south side of SR-410 near the western city limits, tree cutting shall not extend so far from SR-410 as to remove the solid backdrop of mature trees as viewed horizontally from SR-410.	MPP-DP-6	HAC-3		
Goal CD-LU-9	Improve access and opportunities to enhance the health of all Bonney Lake residents while reducing the negative factors that reduce their well-being.			RC-Action-3 MPP-DP-16	H-6		Added to address policy gap.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-9.1	Reduce the negative health effects of air, noise and light pollution through regulation and environmental strategies.			RC-Action-3 MPP-DP-16	H-6		Added to address policy gap.
CD-LU-9.2	Improve walkability and promote active, nonmotorized forms of transportation to improve public health and minimize environmental impacts.			RC-Action-3 MPP-DP-15	H-6		Added to address policy gap.
CD-LU-9.3	Increase access to healthy food for all Bonney Lake residents by encouraging and supporting healthy food retail and partnerships with the local food bank.			RC-Action-3 MPP-DP-20	H-6		Added to address policy gap.
Goal CD-LU-10	Ensure that development in the City's potential annexation area is accompanied by adequate urban services and facilities; reduces sprawl; implements the Growth Management Act, Vision 2050's Multi-Countywide Planning Policies for Pierce County and the Bonney Lake Comprehensive Plan.	Goal CD-1	Ensure that development in the City's potential annexation area is accompanied by adequate urban services and facilities; reduces sprawl; implements the Growth Management Act, Vision 2040's Multi-County Planning Policies, Pierce County's Planning Policies, and the Bonney Lake Comprehensive Plan; and protects designated rural areas.	Development Patterns Goal			Removed "...and protects designated rural areas."
CD-LU-10.1	Review proposed annexations for their timeliness, the City's ability to provide them with urban services, and the costs and revenues that the City would likely incur. The City may refuse annexations in which public facilities are below the City's level of service standard.	Policy CD-1.1	Review proposed annexations for their timeliness, the City's ability to provide them with urban services, and the costs and revenues that the City would likely incur. The City may refuse annexations in which public facilities are below the City's level of service standard.	MPP-RGS-16	UGA-4 UGA-5		
CD-LU-10.2	The City shall actively pursue joint planning agreements with Pierce County to ensure that all development within Bonney Lake's PAA is built to mutually agreed upon standards. These agreements should cover a wide range of areas, including, but not limited to, development standards, collection of impact fees, annexations, urban service provision and land use, transportation, parks, and capital facilities planning.	Policy CD-1.2	The City shall actively pursue joint planning agreements with Pierce County to ensure that all development within Bonney Lake's PAA are built to mutually agreed upon standards. These agreements should cover a wide range of areas, including, but not limited to, development standards, collection of impact fees, annexations, urban service provision and land use, transportation, parks and capital facilities planning.	MPP-RC-10MPP-RGS-16	AH-4 TR-22 UGA-5.3.2.2 UGA-11 RUR-5		
CD-LU-10.3	Consult affected residents, cities, special purpose districts, tribes, and other parties prior to final approval of any annexation.	Policy CD-1.3	Consult affected citizens, cities, special purpose districts, and other parties prior to final approval of any annexation.	MPP-RGS-16	UGA-11		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-LU-10.4	Ensure that additional capacity associated with expansion of the BLUGA maintains the current capacity of the Pierce County urban growth area through targeted reductions to the CUGA.	Policy CD-1.4	Ensure that additional capacity associated with expansion of the BLUGA maintains the current capacity of the Pierce County urban growth area through targeted reductions to the CUGA.	MPP-RGS-5 MPP-RGS-14 MPP-RGS-16	TR-11.2 UGA-1.2 - UGA-3.1 UGA-3.3 UGA-3.4 UGA-5.3 UGA-5.3.2 UGA-5.3.3 UGA-5.4 RUR-2		
		Goal CD-10	Provide a variety of housing options that will meet the needs of all Bonney Lake's residents and are affordable to all economic segments of Bonney Lake.				See Envision Bonney Lake "Goal CD-H-1" for reference and modifications.
		Policy CD-10.1	Encourage the development of a diverse and high quality housing stock that provides a range of housing types (including family and larger-sized units) to accommodate the diverse needs of Bonney Lake's residents through changes in age, family size, and various life changes.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.
		Policy CD-10.2	Encourage the development of special-needs housing, especially for seniors, such as independent living facilities, various degrees of assisted living facilities, and skilled nursing care facilities.				See Envision Bonney Lake "CD-H-9.4" for reference and modifications.
		Policy CD-10.3	Actively promote community awareness and education campaigns regarding affordable housing in order to engender acceptance throughout the community.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.
		Policy CD-10.4	Explore methods and partnerships to reduce the costs associated with developing housing.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.
		Policy CD-10.5	Ensure that there is a sufficient supply of housing affordable to all income levels by maintaining a supply of housing that is currently affordable to median-income, low income and very low-income households, and work to increase the supply of housing affordable to households within Bonney Lake that make eighty percent (80%) of the Pierce County Median Income by 702 housing units.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.

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		Policy CD-10.6	Actively participate in regional responses to housing needs and issues				Policy was removed.
		Policy CD-10.7	Allow the use of recreational vehicles (RVs) as a primary residence within mobile home parks when all applicable regulations can be satisfied.				See Envision Bonney Lake "CD-H-3.2" for reference and modifications.
		Policy CD-10.8	Allow manufactured homes in all residential zones that allow single-family residences				See Envision Bonney Lake "CD-H-6.4" for reference and modifications.
		Policy CD-10.9	Regulate residential structures occupied by persons with handicaps no differently than similar residential structures occupied by a family or unrelated individuals.	Not applicable.	Not applicable.	Not applicable.	Policy was removed.
Goal CD-PR-1	Protect the property rights of landowners.	Goal CD-11	Protect the property rights of landowners.			RCW 36.70A.020(6)	GMA Goal
CD-PR-1.1	All private property and private property rights of Bonney Lake residents shall be fully protected under the Fifth and Fourteenth Amendments of the United States Constitution and the United States Civil Rights Act.					RCW 36.70A.020(6)	GMA Goal
CD-PR-1.2	Balance the responsibility to protect the community from the impacts associated with new residential and commercial development with the responsibility to protect property rights.	Policy CD-11.1	Balance the responsibility to protect the community from the impacts associated with new residential and commercial development with the responsibility to protect property rights.			RCW 36.70A.020(6)	GMA Goal
CD-PR-1.3	Build into the regulatory framework procedures for avoiding takings, such as variances or exemptions.	Policy CD-11.2	Build into the regulatory framework procedures for avoiding takings, such as variances or exemptions.			RCW 36.70A.020(6)	GMA Goal
CD-PR-1.4	Continue working to streamline the permitting process utilizing LEAN principals in order to efficiently process permit applications.	Policy CD-11.3	Continue to work to streamline the permitting process utilizing LEAN principals in order to efficiently process permit applications.	MPP-DP-47		RCW 36.70A.020(6)	
CD-PR-1.5	Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.					RCW 36.70A.020(6)	GMA Goal
Goal CD-PR-2	Provide property owners the opportunity to participate in local decision-making when the decisions affect their lives and property.					RCW 36.70A.020(6)	GMA Goal

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-PR-2.1	The following rights shall be considered in decision-making: (1) The right of a property owner to physically possess and control their interests in property, including easements, leases, or mineral rights. (2) The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances. (3) The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property. (4) The right of a property owner to dispose of his or her property through sale or gift.					RCW 36.70A.020(6)	GMA Goal
CD-PR-2.2	Persons within 300-feet of site specific quasi-judicial and legislative action have the right to notice of public hearing(s) and participate in land use and zoning decisions of the City.					RCW 36.70A.020(6)	GMA Goal
CD-PR-2.3	The City will ensure that its land development regulations provide adequate public notice of proposed changes to the comprehensive plan, and zoning changes to afford affected persons with sufficient time to become informed and participate in the decision-making process.					RCW 36.70A.020(6)	GMA Goal
CD-PR-2.4	The City will consider implementing and maintaining processes to better inform the public of proposed changes to the comprehensive plan and zoning regulations.					RCW 36.70A.020(6)	GMA Goal
Goal CD-EV-1	Expand socio-economic opportunity for the citizens of Bonney Lake.	Goal EV-1	Expand socio-economic opportunity for the citizens of Bonney Lake.	Economy Goal			

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-1.1	Recruit business enterprises that will provide residents with employment wages at or above county median income levels.	Policy EV-1.1	Recruit business enterprises that will provide residents with employment wages at or above county median income levels.	MPP-EC-1 MPP-EC-9 MPP-EC-13	EC-1.5 EC-2.1 EC-2.6 EC-2.7 EC-2.10 EC-2.11 EC-2.12 EC-4 EC-4.9 TR-4		
CD-EV-1.2	Encourage institutions of higher education to create online or satellite educational and training programs that are readily available to Bonney Lake citizens, or within reasonable commuting distance.	Policy EV-1.2	Encourage institutions of higher education to create online or satellite educational and training programs that are readily available to Bonney Lake citizens, or within reasonable commuting distance.	MPP-EC-10 MPP-EC-13	EC-1.5 EC-2.1 EC-2.6 EC-2.7 EC-2.10 EC-2.11 EC-2.12 EC-4 EC-4.9 TR-4		
CD-EV-1.3	Work with other public agencies and private interests, including the Tacoma-Pierce County Economic Development Board (EDB), Sumner and White River School Districts, Chamber of Commerce, and others to promote employment and occupational training and advancement programs and job placement skills.	Policy EV-1.3	Work with other public agencies and private interests, including the Tacoma-Pierce County Economic Development Board (EDB), Sumner and White River School Districts, Chamber ofCommerce, and others to promote employment and occupational training and advancement programs and job placement skills.	MPP-EC-11MPP-EC-13	EC-1.5 EC-2.1 EC-2.6 EC-2.7 EC-2.10 EC-2.11 EC-2.12 EC-4 EC-4.9 TR-4		
CD-EV-1.4	Work with other public agencies and private interests to promote daycare services and facilities for pre-school children, before and after school latchkey children, and special populations including elderly and handicapped adults to support working household members.	Policy EV-1.4	Work with other public agencies and private interests to promote daycare services and facilities for pre-school children, before and after school latchkey children, and special populations including elderly and handicapped adults to support working household members.	MPP-RC-2 MPP-EC-13 MPP-EC-14	AH-7 EC-2.7 ENV-12.2 TR-6.4.2 AH-3 AH-4 TR-4 TR-4.3 TR-4.4 TR-4.1.1		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-1.5	Work with other public agencies and private interests to create interactive and linked websites listing employment opportunities.	Policy EV-1.5	Work with other public agencies and private interests to create interactive and linked websites listing employment opportunities.	MPP-EC-2 MPP-EC-13	EC-1.5 EC-2.1 EC-2.6 EC-2.7 EC-2.10 EC-2.11 EC-2.12 EC-4 EC-4.9 TR-4		
CD-EV-1.6	Identify and encourage programs that will reduce the cap between wages paid and the Self Sufficiency Standard.	Policy EV-1.6	Identify and encourage programs that will reduce the cap between wages paid and the Self Sufficiency Standard.	MPP-EC-1 MPP-EC-9 MPP-EC-13	EC-1.5 EC-2.1 EC-2.6 EC-2.7 EC-2.10 EC-2.11 EC-2.12 EC-4 EC-4.9 TR-4		
CD-EV-1.7	Enhance access to quality childcare through programs that are compatible with households' economic resources and supported by public and private resources.			MPP-EC-10			
Goal CD-EV-2	Enhance and maintain Bonney Lake's residential quality of life as an economic development strategy, capitalizing on Bonney Lake's affordability, recreational amenities, and scenic resources to attract people to live and work within the City.	Goal EV-2	Enhance and maintain Bonney Lake's residential quality of life as an economic development strategy, capitalizing on Bonney Lake's affordability, recreational amenities, and scenic resources in order to attract people to live and work within the City.	Economy Goal	EC-1		
CD-EV-2.1	Promote the proximity of Lake Tapps, Crystal Mountain, and Mount Rainier as part of business recruitment and marketing efforts.	Policy EV-2.1	Promote the proximity of Lake Tapps, Crystal Mountain, and Mount Rainier as part of business recruitment and marketing efforts.	Development Patterns Goal			
CD-EV-2.2	Maintain and increase City investment in public amenities that contribute to high quality of life for Bonney Lake residents, including parks, public spaces, civic gathering places, sidewalks and streetscapes.	Policy EV-2.2	Maintain and increase City investment in public amenities that contribute to high quality of life for Bonney Lake residents, including parks, public spaces, civic gathering places, sidewalks and streetscapes.	MPP-DP-3 MPP-DP-10 MPP-DP-11 MPP-DP-12	TR-5 TR-6 CU-2		
CD-EV-2.3	Utilize design guidelines to improve the City's physical environment and make the City an attractive destination.	Policy EV-2.3	Utilize design guidelines to improve the City's physical environment and make the City an attractive destination.	MPP-DP-6 MPP-DP-9 MPP-DPP-10	HAC-3 CU-2		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-2.4	Develop a system of sidewalks, bicycle lanes and trails to provide pedestrian and bicycle connection between residential neighborhoods, parks, civic gathering spaces and centers.	Policy EV-2.4	Develop a system of sidewalks, bicycle lanes and trails to provide pedestrian and bicycle connection between residential neighborhoods, parks, civic gathering spaces and centers.	MPP-EN-21 MPP-DP-3 MP-DP-11 MPP-T-5 MPP-T-15	ENV-39 TR-5 TR-9		
Goal CD-EV-3	Strengthen Bonney Lake's role as a hub for regional retail, personal and professional services, and employment.	Goal EV-3	Strengthen Bonney Lake's role as a hub for regional retail, personal and professional services, and employment.	Economy Goal	EC-1 EC-1.1		
CD-EV-3.1	Promote Bonney Lake's role as a regional retail center and raise awareness of retail development opportunities to build upon or round out the City's economic strengths.	Policy EV-3.1	Promote Bonney Lake's role as a regional retail center and raise awareness of retail development opportunities to build upon or round out the City's economic strengths.	MPP-EC-17	EC-4.8 HAC-1 HAC-2 HAC-3 HAC-4 H-4		
CD-EV-3.2	Ensure that the City maintains sufficient land capacity to support continued expansion of Bonney Lake's retail base, as well as meet demand for professional and medical offices and other target sectors.	Policy EV-3.2	Ensure that the City maintains sufficient land capacity to support continued expansion of Bonney Lake's retail base, as well as meet demand for professional and medical offices and other target sectors.	MPP-EC-1	EC-2.6		
CD-EV-3.3	Actively promote investment and business recruitment to strengthen Bonney Lake's position in sectors that have significant growth potential, such as professional services and medical office.	Policy EV-3.4	Actively promote investment and business recruitment to strengthen Bonney Lake's position in sectors that have significant growth potential, such as professional services and medical office.	MPP-EC-1 MPP-EC-14	EC-2.6 EC-2.11 EC-2.12 EC-4		Note: There was a numbering error in Bonney Lake 2035 and Policy EV 3.3 did not exist.
CD-EV-3.4	Provide flexibility in land use plans and development regulations to allow the local business community to take advantage of new business trends and opportunities that are consistent with the City's economic development vision.	Policy EV-3.5	Provide flexibility in land use plans and development regulations to allow the local business community to take advantage of new business trends and opportunities that are consistent with the City's economic development vision.	MPP-EC-2 MPP-EC-7	EC-2 EC-2.6 EC-4.9		
Goal CD-EV-4	The City will strive to have higher and technical educational opportunities available to all residents within Bonney Lake.	Goal EV-4	The City will strive to have higher and technical educational opportunities available to all residents within Bonney Lake.	Economy Goal	ED-3		
CD-EV-4.1	Build relationships with community colleges and technical colleges in order to develop a long-term strategy to locate a technical college, community college extension, or training programs within Bonney Lake.	Policy EV-4.1	Build relationships community colleges and technical colleges in order to develop a long-term strategy to locate a technical college, community college extension, or training programs within Bonney Lake.	MPP-EC-10	ED-3		
Goal CD-EV-5	Establish a supportive climate that encourages the retention of existing businesses and encourages business investment in the community.	Goal EV-5	Establish a supportive climate that encourages the retention of existing businesses andencourages business investment in the community.	Economy Goal	EC-2.9		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-5.1	Promote economic development as a City priority, tied directly to the City's ability to serve residents and businesses well. Ensure City staff members have appropriate understanding of the City's economic development interests and their individual roles in contributing.	Policy EV-5.1	Promote economic development as a City priority, tied directly to the City's ability to serve residents and businesses well. Ensure City staff members have appropriate understanding of the City's economic development interests and their individual roles in contributing.	MPP-EC-2 MPP-EC-7	EC-2 EC-2.6 EC-4.9		
CD-EV-5.2	Promote a customer-service orientation in development services that facilitates development aligned with the community's vision and land use regulations.	Policy EV-5.2	Promote a customer-service orientation in development services that facilitates development aligned with the community's vision and land use regulations.	MPP-EC-2 MPP-EC-8	EC-2 EC-2.6 EC-4.10		
CD-EV-5.3	Clearly establish and communicate the community's vision for Bonney Lake as a whole, as well as for major sub-geographies, to provide the local business community with clear direction on the appropriateness of various types of development in different parts of the City.	Policy EV-5.3	Clearly establish and communicate the community's vision for Bonney Lake as a whole, as well as for major sub-geographies, to provide the local business community with clear direction on the appropriateness of various types of development in different parts of the City.	MPP-EC-2 MPP-EC-9	EC-2 EC-2.6 EC-4.11		
CD-EV-5.4	Ensure that taxes, fees, and dedications assessed as part of the development review process do not become an undue obstacle to economic growth.	Policy EV-5.4	Ensure that taxes, fees, and dedications assessed as part of the development review process do not become an undue obstacle to economic growth.	MPP-EC-2 MPP-EC-10	EC-2 EC-2.6 EC-4.12		
CD-EV-5.5	Enforce development regulations in a consistent, objective manner, encouraging and facilitating investment that adheres to these policies.	Policy EV-5.5	Enforce development regulations in a consistent, objective manner, encouraging and facilitating investment that adheres to these policies.	MPP-EC-2 MPP-EC-11	EC-2 EC-2.6 EC-4.13		
CD-EV-5.6	Promote public understanding of the City's positive development climate and desire for business investment, both within the local business community and for the public.	Policy EV-5.6	Promote public understanding of the City's positive development climate and desire for business investment, both within the local business community and for the public	MPP-RC-2 MPP-EC-2 MPP-EC-11	AH-7 EC-2 EC-2.6 EC-2.7 ENV-12.2 TR-6.4.2 AH-3 AH-4 TR-4 TR-4.3 TR-4.4 TR-4.1.1 EC-4.13		
CD-EV-5.7	Consider the use of organizational and financial tools to leverage private sector resources in accomplishing the city's economic development and land use vision.	Policy EV-5.7	Consider the use of organizational and financial tools to leverage private sector resources in accomplishing the city's economic development and land use vision.	MPP-EC-2 MPP-EC-11	EC-2 EC-2.6 EC-4.13		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-5.8	Facilitate economic development in commercial areas through public/private partnerships if the activity is consistent with the city's adopted policies, if there is a compelling public benefit, and if there is an acceptable level of risk.	Policy EV-5.8	Facilitate economic development in commercial areas through public/private partnerships if the activity is consistent with the city's adopted policies, if there is a compelling public benefit, and if there is an acceptable level of risk.	MPP-RC-2MPP-EC-2MPP-EC-11	AH-7 EC-2 EC-2.6 EC-2.7 ENV-12.2 TR-6.4.2 AH-3 AH-4 TR-4 TR-4.3 TR-4.4 TR-4.1.1 EC-4.13		
Goal CD-EV-6	Implement subarea plans for the Downtown, Midtown, and Eastown Centers to ensure a balanced mix of jobs and businesses and to enhance Bonney Lake's built environment.	Goal EV-6	Implement subarea plans for the Downtown, Midtown, Eastown, and Lake Tapps centers to ensure a balanced mix of jobs and businesses and to enhance Bonney Lake's built environment.	MPP-RGS-1	C-25		Removed "...and Lake Tapps...".
CD-EV-6.1	Establish a regular review and update cycle for the Centers and Eastown Subarea Plans to keep these plans current with emerging economic trends and changing development conditions in Bonney Lake.	Policy EV-6.1	Establish a regular review and update cycle for the Downtown, Midtown, and Eastown Subarea Plans to keep these plans current with emerging economic trends and changing development conditions in Bonney Lake.	MPP-EC-6 MPP-EC-21	C-26		Consolidated Downtown and Midtown to sat "Centers".
CD-EV-6.2	Ensure the vision statements of the Centers and Eastown Subarea Plans each promote a particular mix of businesses and define land uses that are most appropriate and desirable for each subarea.	Policy EV-6.2	Ensure the vision statements of the Downtown, Midtown, and Eastown Subarea Plans each promote a particular mix of businesses and define land uses that are most appropriate and desirable for each subarea.	MPP-EC-6 MPP-EC-21	C-26		
CD-EV-6.3	Ensure the policies and standards of the Centers and Eastown Subarea Plans establish distinct identities for each subarea and for Bonney Lake as a whole.	Policy EV-6.3	Ensure the policies and standards of the Downtown, Midtown, and Eastown Subarea Plans establish distinct identities for each subarea and for Bonney Lake as a whole.	MPP-EC-6 MPP-EC-21	C-26		
Goal CD-EV-7	Provide well-planned, maintained, and high-quality public infrastructure that supports business and community growth.	Goal EV-7	Provide well-planned, maintained, and high quality public infrastructure that supports business and community growth.	Transportation Goal Public Services Goal	AH-3.2 C-19 CU-3 EC-1.9 EC-3.8 TR-9		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-EV-7.1	Coordinate with the Washington Department of Transportation (WSDOT) and Pierce County to plan for access improvements and infrastructure maintenance in the SR 410 corridor and surrounding area.	Policy EV-7.1	Coordinate with the Washington Department of Transportation (WSDOT) to plan for access improvements and infrastructure maintenance in the SR 410 corridor.	MPP-EC-6	TR-1.3 TR-8 TR-8.3 TR-14 TR-17.6 TR-18.4		
CD-EV-7.2	Partner with local businesses to identify infrastructure conditions that pose obstacles to economic growth.	Policy EV-7.2	Partner with local businesses to identify infrastructure conditions that pose obstacles to economic growth.	MPP-EC-6	EC-1 EC-2		
CD-EV-7.3	Maintain updated plans for water, sewer, stormwater, and transportation infrastructure to ensure that the facilities necessary to serve desired commercial growth are in place.	Policy EV-7.3	Maintain updated plans for water, sewer, stormwater, and transportation infrastructure to ensure that the facilities necessary to serve desired commercial growth are in place.	MPP-EC-6	EC-21.6		
Goal CD-H-1	Provide a variety of housing options that will meet the needs of all Bonney Lake's current and future residents and are affordable to all economic segments of Bonney Lake.	Goal CD-10	Provide a variety of housing options that will meet the needs of all Bonney Lake's residents and are affordable to all economic segments of Bonney Lake.	Housing Goal	CU-1.3 UGA-7.1	RCW 36.70A.070(2)WAC 365-196-410(2)	Added "current and future" before residents. Goal added to comply with HB1220.
CD-H-1.1	Ensure that sufficient acreage and densities are designated on the Future Land Use Map and Zoning Map to enable reaching the City's allocated 20-year housing growth targets.			MPP-H-1 MPP-RC-14 MPP-RGS-1 MPP-RGS-2	AH-2 GT-3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-1.2	Update the City's development regulations to permit a range of housing types that is consistent with the City's growth strategy. This may include attached and detached single-unit dwellings, cottages, townhomes, accessory dwelling units, apartments, mixed-use, permanent supportive housing, income-restricted housing, and emergency shelters.			MPP-DP-1 MPP-H-1 MPP-H-2	AH-2 CU-1.3 UGA-7.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-2	Encourage preservation and rehabilitation of the existing housing stock.			MPP-H-3 MPP-H-4	AH-1 AH-2	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-2.1	Encourage the maintenance, repair, and rehabilitation of the City's existing housing stock by encouraging homeowners to take advantage of existing maintenance, repair, weatherization, and preservation programs, services, and resources.			MPP-H-3 MPP-H-4	AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-2.2	Promote private and public efforts to preserve the existing quality housing stock by maintaining sound units, rehabilitating substandard units, and replacing severely deteriorated units.			MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-2.3	Encourage health-related improvements to older homes, including the removal of lead-based paint, asbestos, and other potentially harmful materials.			MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-2.4	Encourage the rehabilitation and reuse, rather than demolition, of existing housing.			MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-3	Recognize that existing mobile and manufactured home parks provide an affordable housing option for Bonney Lake residents.			MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	
CD-H-3.1	Preserve and maintain existing mobile and manufactured home parks that are in proximity to essential services and multi-modal transportation options.			MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-3.2	Allow the use of recreational vehicles (RVs) as a primary residence within mobile and manufactured home parks when all applicable regulations can be satisfied.	Policy CD-10.7	Allow the use of recreational vehicles (RVs) as a primary residence within mobile home parks when all applicable regulations can be satisfied.	MPP-H-2 MPP-H-6	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Added "... and manufactured home parks" for clarity.
Goal CD-H-4	Take reasonable steps to prevent displacement of existing residents.			MPP-H-12	AH-1 AH-3 AH-8 AH-8.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-4.1	Support ways for older adults and people with disabilities to remain in the community as their housing needs change by encouraging universal design or retrofitting homes for lifetime use.			MPP-H-3MPP-H-11MPP-H-12	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2)WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-4.2	Adopt regulations to require relocation assistance to households that are displaced by new development or capital improvements.			MPP-H-10	AH-1 AH-3 AH-4 AH-4.1 AH-4.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-4.3	Adopt regulations to require owners of apartments or mobile and manufactured home parks to notify tenants and the City in advance of a sale.			MPP-H-12	AH-1 AH-3 AH-4 AH-4.1 AH-4.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-4.4	Adopt regulations that provide residents and other eligible organizations an opportunity to purchase or lease a mobile and manufactured home parks prior to any sale, lease, or transfer.			MPP-H-10	AH-1 AH-3 AH-4 AH-4.1 AH-4.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-4.5	Provide information on Pierce County's tax assistance program to connect seniors and other special needs populations with available County resources.			MPP-H-11	AH-4.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-4.6	Explore the use of existing affordable housing revenue from the State to support a local rental assistance program.				AH-4 AH-4.1 AH-4.2 AH-4.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-5	Establish minimum property maintenance standards to ensure the general health, safety, and welfare of residents.			MPP-DP-19	AH-2	RCW 36.70A.070(2) WAC 365-196-410(2)	
CD-H-5.1	Support healthy and safe housing by developing and implementing programs to address unfit dwellings, nuisances, and environmental hazards (e.g. excessive noise, poor air quality, light pollution, illegal dumping, illegal signage, graffiti, littering, etc.).			MPP-DP-19	AH-2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-6	Encourage the development of a wide variety of high-quality housing types to accommodate the diverse needs of Bonney Lake's community members through changes in age, household size, income, mobility, and housing preferences.			MPP-DP-1 MPP-H-1 MPP-H-2 MPP-H-3 MPP-H-4	CU-1.3 UGA-7.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-6.1	Allow a variety of residential densities and housing types to enable the development of housing to meet the needs of people of all incomes throughout their lifetime.			MPP-DP-1 MPP-H-1 MPP-H-2 MPP-H-3 MPP-H-4	CU-1.3 UGA-7.1 AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-6.2	Allow additional housing types, such as cottages, attached single-unit dwellings, townhouses, and accessory dwelling units (ADUs), in low-density residential zones.			MPP-DP-1 MPP-H-2	AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220 and HB 1337.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-6.3	Promote the development of ADUs within new and existing low-density developments and explore opportunities to promote ADU construction in existing homes. For example, development regulations could provide incentives for new housing developments that include a percentage of ADUs as part of the new construction.			MPP-DP-1MPP-H-2	AH-2.1	RCW 36.70A.070(2)WAC 365-196-410(2)	Policy added to comply with HB1220 and HB 1337.
CD-H-6.4	Allow manufactured homes in all residential zones that allow attached or detached single-unit housing.	Policy CD-10.8	Allow manufactured homes in all residential zones that allow single-family residences	MPP-DP-1 MPP-H-2	AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-6.5	Encourage the fair distribution of housing throughout the City, recognizing that some clustering may be appropriate if in proximity to services and multi-modal housing options.			MPP-H-7 MPP-H-8 MPP-H-9		RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-6.6	Incentivize the development of housing affordable to households earning 30%, 50%, and 80% of median income and promote mixed-use developments through financial tools, such as the adoption and implementation of a Multi-Family Tax Exemption (MFTE) program.			MPP-H-3 MPP-H-9	AH-1 AH-2 AH-2.1 AH-4 AH-4.2 AH-4.3 AH-4.4 AH-4.5 AH-4.6	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-7	Support a range of housing choices for workers at all income levels throughout the City in a manner that promotes accessibility to jobs and provides opportunities to live in proximity to work.			MPP-H-6	AH-4.4 C-36	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-7.1	Allow housing in the Centers for a variety of incomes, age groups, and household types			MPP-H-6 MPP-H-7	CU-1.3 UGA-7.1 AH-1 AH-2 AH-2.1 AH-3.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-7.2	Focus efforts to increase housing in Centers and other areas where jobs, supporting services, and multi-modal transportation choices can be provided.			MPP-H-6 MPP-H-7	AH-3.1 AH-3.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-7.3	Encourage adapting non-residential buildings for housing, consistent with State law.				AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CD-H-8	Support access to homeownership for first-time home buyers.			MPP-H-5	AH-7	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-8.1	Provide information to residents, including underserved populations, on first-time homeownership programs.			MPP-H-5	AH-7	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-8.2	Encourage existing housing providers and private lenders to provide home buyer education seminars for potential first-time homebuyers; include outreach to current renters.			MPP-H-5	AH-7	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-9	Enable the provision of special needs and emergency housing.			MPP-H-11	AH-3 AH-3.1 AH-3.2 AH-3.3	RCW 36.70A.070(2)WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-9.1	Support actions by agencies, private developers and non-profit organizations to secure grants and loans tied to the provision of special needs housing.			MPP-H-11	AH-3 AH-3.1 AH-3.2 AH-3.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-9.2	Support programs that allow people with special needs to independently remain in their own homes for as long as they desire (e.g., home maintenance and repair; home health care; meal programs).			MPP-H-11 MPP-H-12	AH-3 AH-3.1 AH-3.2 AH-3.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-9.3	Allow inter-generational housing for individuals or families who desire to care for members of their household with special needs.			MPP-H-11 MPP-H-12	AH-3 AH-3.1 AH-3.2 AH-3.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-9.4	Encourage a range of housing types for special needs households at a variety of incomes, such as independent living, various degrees of assisted living and skilled nursing care facilities.	Policy CD-10.2	Encourage the development of special-needs housing, especially for seniors, such as independent living facilities, various degrees of assisted living facilities, and skilled nursing care facilities.	MPP-H-3 MPP-H-4 MPP-H-11	AH-3 AH-3.1 AH-3.2 AH-3.3	RCW 36.70A.070(2) WAC 365-196-410(2)	Language updated to comply with HB1220.
CD-H-9.5	Permit group homes as required by state and federal law, including where residents receive supportive services such as counseling, foster care, or medical supervision, within any type of dwelling unit.			MPP-H-3	EPF-1.1 AH-3.3 AH-4	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-9.6	Develop regulations for use of alternative housing forms, such as tiny houses, to help meet allocated emergency housing needs in selected areas of the City.			MPP-H-3	AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-9.7	Permit the development of emergency, transitional and permanent housing with appropriate on-site services for persons with special needs, including but not limited to seniors, persons with disabilities, veterans, at-risk youth, and victims of domestic violence.			MPP-H-3	EPF-1.1 AH-3.3 AH-4	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-10	Take reasonable action to reduce barriers to meeting housing growth targets in development regulations and permit procedures.			MPP-DP-1 MPP-H-1 MPP-H-2	AH-5 AH-5.1 AH-5.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-10.1	Craft regulations and procedures to provide a high degree of certainty and predictability and minimize unnecessary time delays in the review of permit applications, while still maintaining the integrity of the permitting process and adequate opportunities for public involvement and review.				AH-5 AH-5.1 AH-5.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB 1519.
CD-H-10.2	Update development regulations as needed to keep the unit cost of new housing down while providing for a quality living environment for residents.				AH-5 AH-5.1 AH-5.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-10.3	Analyze how amendments to development regulations and procedures may impact the cost to permit, construct, repair, and rehabilitate housing.				AH-5 AH-5.1 AH-5.2	RCW 36.70A.070(2)WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-10.4	Make reasonable accommodations in rules, policies, practices, and services when such accommodations may be necessary to afford persons with disabilities equal opportunity to complete the permit process and use a dwelling.			MPP-H-3 MPP-H-4	AH-3.1 AH-3.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-10.5	Support the development of ADUs through streamlined permitting, education and resources, and regular monitoring of the ADU regulations, as required by State law.			MPP-H-1 MPP-H-2 MPP-H-3 MPP-H-4	AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB 1220 and HB 1337.
Goal CD-H-11	Ensure high-quality housing through clear, objective design and construction standards.			MPP-DP-19	AH-5	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-11.1	Ensure that adequate buffer and building design standards minimize the impacts of more intensive development on adjacent residential uses, by incorporating design guidelines in the development code and enforcing building code requirements. Design guidelines should be clear and objective and should address visual consistency, height transitions, and buffers.			MPP-DP-19\ MPP-EN-5	TR-5 TR-21.2.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-11.2	Provide effective transitions between different uses and intensities, including between new housing and existing housing, through development regulations that address design and scale.			MPP-DP-1 MPP-H-1 MPP-H-2 MPP-H-3 MPP-H-4	AH-1 AH-2 AH-2.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-11.3	Allow "clustering" of housing to preserve and protect environmentally sensitive areas.			MPP-EN-10 MPP-EN-14 MPP-DP-40	AH-2.1 ENV-13.5 ENV-16.1	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-12	Ensure that adequate services and infrastructure are planned to support the allocated housing target.			MPP-DP-37 MPP-PS-6 MPP-PS-19 PS-ACTION-2	RUR-12	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-12.1	Provide physical infrastructure, park, recreational and cultural amenities, and coordinate the provision of educational facilities throughout the City to support the creation of attractive neighborhoods for residents of all ages, incomes, and household types.			MPP-DP-37 MPP-PS-6 MPP-PS-19 PS-ACTION-2	RUR-12	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-12.2	Communicate early with residents served by on-site septic systems or wells when planned utility extensions or rezoning may impact them.			MPP-DP-37 MPP-PS-6 MPP-PS-19 PS-ACTION-2	RUR-12	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-13	Strive to reduce disparate housing impacts, exclusion, and displacement risk in Bonney Lake, by acting within the City's power to update plans, policies, and development regulations.			MPP-H-12	AH-1 AH-8	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-13.1	Monitor and report trends related to disparate housing impacts, exclusion, and displacement risk at times when implementation reports and periodic updates are done for the Comprehensive Plan.			MPP-H-12	AH-8	RCW 36.70A.070(2)WAC 365-196-410(2)	Policy added to comply with HB1220.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-13.2	If trends monitored under Policy CD-H-13.1 are worsening, review City plans, policies and development regulations and update as needed to improve outcomes. Ask for input from the people experiencing the impacts to inform City actions.			MPP-H-12	AH-8	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-13.3	Prevent discrimination and encourage fair and equitable access to housing for all persons in accordance with state and federal law.			Housing Goal	AH-8	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
Goal CD-H-14	Ensure coordination with regional agencies to address regional and City housing needs.			MPP-H-11 MPP-RC-7	AH-4 AH-4.2 AH-4.3 AH-4.4 AH-4.5 AH-4.6	RCW 36.70A.070(2) WAC 365-196-410(2)	Goal added to comply with HB1220.
CD-H-14.1	Identify local housing needs and priorities, and coordinate with community partners to address those needs, including housing rehabilitation.			MPP-H-11 MPP-RGS-2	AH-1 AH-2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-14.2	Actively work with Pierce County and other local governments to investigate and implement regional funding options to support the development and/or maintenance of affordable housing such as a regional housing trust fund, regional housing tax levy, real estate excise tax or other mechanisms.			MPP-RC-12 MPP-H-11	AH-4 TR-19	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-14.3	Support the work of for-profit and non-profit housing developers to facilitate construction or acquisition of housing units for households earning 30%, 50%, and 80% of median income.			MPP-H-11	AH-1 AH-2 AH-2.1 AH-4 AH-4.2 AH-4.3 AH-4.4 AH-4.5 AH-4.6	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.
CD-H-14.4	Work with Pierce County and health and social service organizations to develop a coordinated, regional approach to homelessness.			MPP-H-11	AH-4 AH-4.2 AH-4.3 AH-4.4 AH-4.5 AH-4.6	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.

Chapter 2 Community Development - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
CD-H-14.5	Support housing legislation at the local, regional, state, and federal levels to promote the goals and policies of this Comprehensive Plan.			Housing Goal MPP-RC-7	AH-6 AH-6.1 AH-6.2	RCW 36.70A.070(2) WAC 365-196-410(2)	Policy added to comply with HB1220.

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal HP-1	It is the goal of the City of Bonney Lake to give its residents a better understanding and awareness of the historic sites within the community. This includes enhancing information about, and access to, various Bonney Lake area historic sites, and helping residents and visitors understand and appreciate local heritage.	Goal CAH-7	It is the goal of the City of Bonney Lake to give its residents a better understanding and awareness of the historic sites within the community. This includes enhancing information about, and access to, various Bonney Lake area historic sites, and helping residents and visitors understand and appreciate local heritage.	Development Patterns Goal	CD-4		
HP-1.1	The City recognizes that Bonney Lake's history began before the arrival of settlers to the area and will recognize the significance of Native American sites and artifacts as well as those of the more recent past.	Policy CAH-7.1	The City recognizes that Bonney Lake's history began before the arrival of settlers to the area and will recognize the significance of Native American sites and artifacts as well as those of the more recent past.	MPP-DP-7	TC-5		
HP-1.2	The City will encourage local activities, which promote the community's history.	Policy CAH-7.2	The City will encourage local activities, which promote the community's history.	MPP-DP-6 MPP-DP-9	HAC-4		
HP-1.3	The City will work with the Greater Bonney Lake Historical Society and others to provide access to historic documentation to landowners, citizens, and interested parties.	Policy CAH-7.3	The City will work with the Greater Bonney Lake Historical Society and others to provide access to historic documentation to land owners, citizens, and interested parties.		HAC-4		
HP-1.4	The City will work with organizations and business interests to promote Heritage Tourism opportunities as part of the City's economic development strategy.	Policy CAH-7.4	The City will work with organizations and business interests to promote Heritage Tourism opportunities as part of the City's economic development strategy.				City Preference
HP-1.5	The City will work with the community to provide information to interpret the history of Bonney Lake, including historical displays, programs, and interpretative signage.	Policy CAH-7.5	The City will work with the community to provide information to interpret the history of Bonney Lake, including historical displays, programs, and interpretative signage.		HAC-4		
HP-1.6	The City's historical resources inventory will be maintained and updated as needed.	Policy CAH-7.6	The City's historical resources inventory will be maintained and updated as needed.		HAC-4		
HP-1.7	The City will collaborate with Sumner and White River School Districts on local history education.	Policy CAH-7.7	The City will collaborate with Sumner and White River School Districts on local history education.		HAC-4		
HP-1.8	The City will participate with other local, county, state and national historical organizations to educate the community about the value of local cultural and historical resources.	Policy CAH-7.8	The City will participate with other local, county, state and national historical organizations to educate the community about the value of local cultural and historical resources.		HAC-4		

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
HP-1.9	The City will work closely with the Greater Bonney Lake Historical Society, the Pierce County Heritage League, and other heritage organizations in Pierce County to foster knowledge and appreciation of our historic resources.	Policy CAH-7.9	The City will work closely with the Greater Bonney Lake Historical Society, the Pierce County Heritage League, and other heritage organizations in Pierce County to foster knowledge and appreciation of our historic resources.		HAC-4		
HP-1.10	The City will encourage the Greater Bonney Lake Historical Society to establish a volunteer program similar to Beautify Bonney Lake for volunteers to work on historically significant projects.	Policy CAH-7.10	The City will encourage the Greater Bonney Lake Historical Society to establish a volunteer program similar to Beautify Bonney Lake for volunteers to work on historically significant projects.				City Preference
Goal HP-2	It is the goal of the City to identify, preserve and protect facilities, sites, buildings, structures, trees and artifacts that are deemed by the City or other governmental agency to be historically and culturally significant.	Goal CAH-8	It is the goal of the City to identify, preserve and protect facilities, sites, buildings, structures, trees and artifacts that are deemed by the City or other governmental agency to be historically and culturally significant.	MPP-DP-6 MPP-DP-9	HAC-5		
HP-2.1	The City will continue efforts to inventory historic structures, archeological sites, and other potential historic sites to add to the Inventory of Key Bonney Lake Historic Sites listed in this plan.	Policy CAH-8.1	The City will continue efforts to inventory historic structures, archeological sites, and other potential historic sites to add to the Inventory of Key Bonney Lake Historic Sites listed in this plan.	MPP-DP-6	HAC-4		
HP-2.2	The City will coordinate with community organizations, property owners and local citizens to protect and/or restore key historic sites.	Policy CAH-8.2	The City will coordinate with community organizations, property owners and local citizens to protect and/or restore key historic sites.	MPP-DP-6 MPP-DP-9	HAC-4		
HP-2.3	The City will encourage property owners and tenants to maintain the integrity and character of historic resources, and to restore and reuse historic resources in a manner compatible with their historic character.	Policy CAH-8.3	The City will encourage property owners and tenants to maintain the integrity and character of historic resources, and to restore and reuse historic resources in a manner compatible with their historic character.	MPP-DP-6 MPP-DP-9	HAC-5		
HP-2.4	The City will strive to recognize and preserve architecturally, or historically significant structures built during the 19th Century. Specifically, the City will promote the preservation of the Kelley Farm house as a key Bonney Lake area historic structure.	Policy CAH-8.4	The City will strive to recognize and preserve architecturally or historically significant structures built during the 19th Century. Specifically, the City will promote the preservation of the Kelly Farm house as a key Bonney Lake area historic structure.	MPP-DP-6 MPP-DP-9	HAC-5		

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
HP-2.5	The City will consider the impacts of new development on historical resources as a part of its environmental review process and require appropriate mitigating measures. The City's use of State Environmental Policy Act (SEPA) requirements to evaluate the impacts of proposals on historical resources will include review of transportation projects and plans, utility projects, and other capital improvement projects to determine their impact to significant cultural and historical resources of the City.	Policy CAH-8.5	The City will consider the impacts of new development on historical resources as a part of its environmental review process and require appropriate mitigating measures. The City's use of State Environmental Policy Act (SEPA) requirements to evaluate the impacts of proposals on historical resources will include review of transportation projects and plans, utility projects, and other capital improvement projects to determine their impact to significant cultural and historical resources of the City.	MPP-DP-6 MPP-DP-9	HAC-5		
HP-2.6	The City will coordinate with local tribes and the State Office of Archaeology and Historic Preservation on development issues related to potential archaeological sites.	Policy CAH-8.6	The City will coordinate with local tribes and the State Office of Archaeology and Historic Preservation on development issues related to potential archaeological sites.	MPP-RC-1	ENV-42 H-5 HAC-1 ENV-5 TC-1		
HP-2.7	The City will seek both state/federal and private funding for restoration and enhancement of historical resources.	Policy CAH-8.7	The City will seek both state/federal and private funding for restoration and enhancement of historical resources.	MPP-RC-1	ENV-42 H-5 HAC-1 ENV-5		
HP-2.8	The City will assist in the identification of available spaces for the proper storage, preservation, and display of significant cultural and historical artifacts.	Policy CAH-8.8	The City will assist in the identification of available spaces for the proper storage, preservation and display of significant cultural and historical artifacts.				City Preference
HP-2.9	The City will provide appropriate means to recognize property owners who rehabilitate, restore, retain, or reproduce historical elements of their properties.	Policy CAH-8.9	The City will provide appropriate means to recognize property owners who rehabilitate, restore, retain or reproduce historical elements of their properties.		HAC-4		
HP-2.10	While promoting historic preservation, the City will adopt no policy or regulation which shall limit a site or structure from being used in an economically viable manner.	Policy CAH-8.10	While promoting historic preservation, the City will adopt no policy or regulation which shall limit a site or structure from being used in an economically viable manner.				City Preference
HP-2.11	Efforts to preserve historical sites or structures should include incentives such as utilization of the state special property tax valuation, partial income tax write-off for restoration and relaxation of Zoning Code standards to encourage property owners to rehabilitate, restore, retain, or reproduce historical elements of their properties.	Policy CAH-8.11	Efforts to preserve historical sites or structures should include incentives such as utilization of the state special property tax valuation, partial income tax write-off for restoration and relaxation of Zoning Code standards to encourage property owners to rehabilitate, restore, retain or reproduce historical elements of their properties.	MPP-DP-6 MPP-DP-9	HAC-5		

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
		Goal CAH-1	Enhance and enrich Bonney Lake's community culture by promoting various forms and expressions of cultural arts.				Deleted. This policy concept was incorporated into the Parks, Trails, Recreation, and Open Space (PTROS) Plan.
		Policy CAH-1.1	Educate residents about different ethnic arts and cultural traditions, and for building multicultural understanding.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-1.2	Within the limits of available resources, support, enhance and/or maintain community events through the inclusion of arts related activities.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-1.3	Periodically review and update the Community Culture and Heritage Element.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-1.4	Pursue, where appropriate, county, state, and federal funding opportunities for cultural arts.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-1.5	Incorporate cultural arts as part of its overall economic development program, especially those that attract out-of-town visitors.				Deleted. Incorporated into the PTROS Plan.
		Goal CAH-2	Facilitate partnerships and collaborations with other public agencies, community based groups, and the private sector to expand opportunities for cultural arts. This includes strengthening relationships with the White River and Sumner School Districts, neighboring cities, Pierce County Library System, local artists, businesses, and arts related community based groups				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-2.1	Collaborate with the White River and Sumner School District, other jurisdictions, and the Bonney Lake Library to present quality arts programs and performances to the community.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-2.2	Encourage the Sumner School District to construct a performing arts facility on the grounds that have been set aside for that purpose, and to make the facility available for community use.				Deleted. Incorporated into the PTROS Plan.

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
		Policy CAH-2.3	Promote partnerships among arts organizations, education institutions, and charitable foundations to enhance programming, funding, and facility development for community cultural activities.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-2.4	Encourage partnerships with the private sector and organizations to encourage monetary and non-monetary support for community cultural activities.				Deleted. Incorporated into the PTROS Plan.
		Goal CAH-3	Develop facilities and programs for public art and cultural opportunities that create and enrich a strong sense of community identity and promote a high quality of life.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-3.1	The City will advocate for visual and performing arts facilities to serve the needs of the community.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-3.2					Deleted. Incorporated into the PTROS Plan.
		Policy CAH-3.3	The City will advocate for the development of a community center as central location for community cultural and leisure activities.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-3.4	The City will establish development incentives to facilitate the construction of visual and performing arts facilities.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-3.5	Encourage performance and events in non-traditional venues.				Deleted. Incorporated into the PTROS Plan.
		Goal CAH-4	Increase public awareness of arts, cultural, and heritage organizations to facilitate audience development, community awareness, and public attendance.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-4.1	Use traditional and social media, new technology, City publications, community partnerships to increase awareness and participation in community cultural activities that distinguish Bonney Lake from other regional cities.				Deleted. Incorporated into the PTROS Plan.
		Goal CAH-5	Incorporate public art into infrastructure projects, parks, and gathering spaces to develop a strong community identity and provide places with elements that facilitate the creation a strong sense space.				Deleted. Incorporated into the PTROS Plan.

Chapter 3 Historic Preservation and Cultural Resources - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
		Policy CAH-5.1	The City will encourage participation from the private and business sectors to provide art for display in public places. This includes encouraging citizens and businesses to underwrite through individual donations, the creation of artist-made streetscape furnishings such as benches or flower basket poles.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-5.2	The City will incorporate the arts into its downtown plan to enhance pedestrian connections and highlight cultural assets including public art and community history.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-5.3	Install public art in City-owned facilities, parks, and greenways and incorporate public art into the planning stages of publicly funded projects and projects on City-owned land.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-5.4	Support the temporary re-use of vacant and/or underutilized building facades for art exhibitions and murals.				Deleted. Incorporated into the PTROS Plan.
		Goal CAH-6	Maintain the Bonney Lake's community cultural activities to promoting the arts and enhance the City's reputation for events and festivals.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-6.1	Promote and market events that support and encourage cultural tourism.				Deleted. Incorporated into the PTROS Plan.
		Policy CAH-6.2	Engage the arts community in the planning of City festivals and other cultural activities.				Deleted. Incorporated into the PTROS Plan.

Chapter 4 Community Mobility - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CM-1	Increase mobility and transportation options by encouraging the expansion of public transit, vanpools, and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.	Goal CM-1	Increase mobility and transportation options by encouraging the expansion of public transit, vanpools, and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.	Transportation Goal		WAC 365-196-430(2)(b)(ii)	
Policy CM-1.1	Encourage the expansion of public transit and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.	Policy CM-1.1	Encourage the expansion of public transit and paratransit services to provide convenient and affordable transportation alternatives for all residents and employees.	MPP-CC-12 MPP-T-12 MPP-T-13 MPP-T-34	AH-2 ENV-46.1	WAC 365-196-430(2)(b)(ii)	
Policy CM-1.2	Encourage greater use of vanpools to decrease the number of single-occupancy work commuting trips.	Policy CM -1.2	Encourage greater use of vanpools to decrease the number of single-occupancy work commuting trips.	MPP-CC-12 MPP-T-12 MPP-T-13	TR-3.3 TR-11 TR-11.1	WAC 365-196-430(2)(b)(ii)	
Policy CM-1.3	Encourage land use choices that create areas within Bonney Lake that have sufficient densities to support public transportation and the colocation for public services adjacent to transit routes and centers.	Policy CM-1.3	Encourage land use choices that create areas within Bonney Lake that have sufficient densities to support public transportation and the colocation for public services adjacent to transit routes and centers.	MPP-CC-12 MPP-T-15	C-14 C-15.2	WAC 365-196-430(2)(b)(ii)	
Goal CM-2	Increase mobility and transportation options by constructing a network of non-motorized transportation facilities to provide convenient and affordable transportation alternatives for individuals of all ages and abilities to support healthy lifestyle chooses.	Goal CM-2	Increase mobility and transportation options by constructing a network of nonmotorized transportation facilities to provide convenient and affordable transportation alternatives for individuals of all ages and abilities to support healthy lifestyle chooses.	Transportation Goal	TR-1	WAC 365-196-430(2)(b)(i)	
Policy CM-2.1	Design major streets to balance the needs of automobiles with the needs of pedestrians, bicyclists, and transit users. Over time, key Bonney Lake's corridors should evolve into multi-modal streets that offer safe and attractive choices among different travel modes.	Policy CM-2.1	Design major streets to balance the needs of automobiles with the needs of pedestrians, bicyclists, and transit users. Over time, key Bonney Lake's corridors should evolve into multi-modal streets that offer safe and attractive choices among different travel modes.	MPP-CP-52 MPP-CC-12 MPP-T-1 MPP-T-4 MPP-T-7 MPP-T-11	TR-1 TR-2 TR-6.4 TR-9.1 C-10 C-16	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	
Policy CM-2.2	Recognize the importance of a walkable and bicycle friendly City to overall public health and wellness.	Policy CM-2.2	Recognize the importance of a walkable and bicycle friendly City to overall public health and wellness.	MPP-RC-3 MPP-T-17	TR-1 TR-2 TR-6.4 TR-9.1 C-10 C-16	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-2.3	Provide a multi-modal transportation network to facilitate walking and bicycling as a means of general transportation as well as recreational activity within the City and the region.	Policy CM-2.3	Provide a multi-modal transportation network to facilitate walking and bicycling as a means of general transportation as well as recreational activity within the City and the region.	MPP-CC-12 MPP-T-11 MPP-T-12 MPP-T-15 MPP-T-34	TR-1 TR-2 TR-6.4 TR-9.1 C-10 C-16	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	
Policy CM-2.4	Improve the safety of pedestrians and bicyclists throughout Bonney Lake through design, signage, capital projects, pavement maintenance, street sweeping, pavement striping, and public education.	Policy CM-2.4	Improve the safety of pedestrians and bicyclists throughout Bonney Lake through design, signage, capital projects, pavement maintenance, street sweeping, pavement striping, and public education.	MPP-T-4 MPP-T-5 MPP-T-17	TR-1 TR-2 TR-6.4 TR-9.1 C-10 C-16	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	
Policy CM-2.5	Require the provision of sidewalks in all new development, including infill development and redevelopment, to complete the City's sidewalk network. Sidewalks shall be required on both sides of all public streets, except in hillside areas where a single sidewalk may be adequate. Sidewalks and direct pedestrian connections between uses should also be provided in parking lots.	Policy CM-2.5	Require the provision of sidewalks in all new development, including infill development and redevelopment, to complete the City's sidewalk network. Sidewalks shall be required on both sides of all public streets, except in hillside areas where a single sidewalk may be adequate. Sidewalks and direct pedestrian connections between uses should also be provided in parking lots.	MPP-DP-53 MPP-T-9 MPP-T-11	TR-1 TR-2 TR-6.4 C-10	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	
Policy CM-2.6	Recognize the mobility needs of the underserved populations and work to improve transportation choices in low-income and older neighborhoods .	Policy CM-2.6	Recognize the mobility needs of the underserved populations and work to improve transportation choices in low-income and older neighborhoods .	MPP-RC-2 MPP-T-9 MPP-T-10 MPP-T-23 MPP-T-34	TR-1 TR-4.1 TR-6.4 TR-9.1 C-10	WAC 365-196-430(2)(b)(i) WAC 365-196-430(2)(b)(iii)	
Goal CM-3	Ensure the safe, efficient movement of goods to support the local and the regional economy, with minimal impacts on residential neighborhoods and local traffic patterns.	Goal CM-3	Ensure the safe, efficient movement of goods to support the local and the regional economy, with minimal impacts on residential neighborhoods and local traffic patterns.	Transportation Goal		WAC 365-196-430(2)(b)(v)	
Policy CM-3.1	Support local and regional transportation improvements that facilitate the timely movement and security of goods and meet the needs of local business and industry as long as improvements do not negatively affect the environment.	Policy CM-3.1	Support local and regional transportation improvements that facilitate the timely movement and security of goods and meet the needs of local business and industry as long as improvements do not negatively affect the environment.	MPP-Ec-4 MPP-T-1 MPP-T-8 MPP-T-24 MPP-T-25 MPP-T-26	C-2.2 C-2.5 C-27 C-31 ENV-39.6 TR-1.1 TR-8 TR-9.1 TR-16	WAC 365-196-430(2)(b)(v)	
Policy CM-3.2	Protect residential neighborhoods from intrusion of truck traffic by maintaining and enforcing an efficient system of designated truck routes.	Policy CM-3.2	Protect residential neighborhoods from intrusion of truck traffic by maintaining and enforcing an efficient system of designated truck routes.	MPP-T-11 MPP-T-21	TR-9.1	WAC 365-196-430(2)(b)(v)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-3.3	Generally discourage the location of businesses generating large amounts of truck traffic in areas where residential streets or land uses would be negatively impacted. In mixed-use areas where businesses and residences are in close proximity, ingress and egress for truck traffic should be designed to minimize the potential for impacts on residences and neighborhood streets.	Policy CM-3.3	Generally discourage the location of businesses generating large amounts of truck traffic in areas where residential streets or land uses would be negatively impacted. In mixed-use areas where businesses and residences are in close proximity, ingress and egress for truck traffic should be designed to minimize the potential for impacts on residences and neighborhood streets.	MPP-T-4 MPP-T-5 MPP-T-11	TR-9.1 TR-15.4 TR-16.2	WAC 365-196-430(2)(b)(v)	
Goal CM-4	Maintain and preserve the City's existing transportation system in order to provide a safe multi-modal system, protect the investment in the existing system, and lower overall life-cycle costs.	Goal CM-4	Maintain and preserve the City's existing transportation system in order to provide a safe multi-modal system, protect the investment in the existing system, and lower overall life-cycle costs.			WAC 365-196-430(2)(b)(vii)	
Policy CM-4.1	Provide adequate funding to maintain roads, sidewalks, bike paths, and other transportation facilities in good operating condition.	Policy CM-4.1	Provide adequate funding to maintain roads, bridges, sidewalks, bike paths, and other transportation facilities in good operating condition.	MPP-T-1	ENV-10.6 TR-19	WAC 365-196-430(2)(b)(vii)	"Bridges" removed.
Policy CM-4.2	Utilize the Pavement Condition Index (PCI) to determine maintenance and rehabilitation requirements, conduct long-term planning and, most importantly, establish priorities that maximize the City's limited financial resources.	Policy CM-4.2	Utilize the Pavement Condition Index (PCI) to determine maintenance and rehabilitation requirements, conduct long-term planning and, most importantly, establish priorities that maximize the City's limited financial resources.	MPP-T-2	TR-19	WAC 365-196-430(2)(b)(vii)	
Policy CM-4.3	Work with Pierce County to have streets within annexation areas constructed to City standards and in good repair. Require a funding and implementation program for their reconstruction as a condition of annexation, if the streets in an annexation area are substandard.	Policy CM-4.3	Work with Pierce County to have streets within annexation areas constructed to City standards and in good repair. Require a funding and implementation program for their reconstruction as a condition of annexation, if the streets in an annexation area are substandard.	MPP-T-1 MPP-T-2 MPP-T-7	UGA-7 UGA-8 TR-19	WAC 365-196-430(2)(b)(vii)	
Policy CM-4.4	Minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions. New development should be reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards.	Policy CM-4.4	Minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions. New development should be reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards.	MPP-T-1	TR-19	WAC 365-196-430(2)(b)(vii)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-4.5	Maintain the data needed to assess roadway safety and performance, including the safety of bicyclists and pedestrians as well as motorists.	Policy CM-4.5	Maintain the data needed to assess roadway safety and performance, including the safety of bicyclists and pedestrians as well as motorists.	MPP-T-4	TR-2 TR-19	WAC 365-196-430(2)(b)(vii)	
Goal CM-5	Strive to minimize impact on the environment created by transportation projects through context sensitive design strategies and to reduce congestion, air pollution, and fuel consumption through Transportation Demand Management (TDM) and Commute Trip Reduction (CTR) programs.	Goal CM-5	Strive to minimize impact on the environment created by transportation projects through context sensitive design strategies and to reduce congestion, air pollution, and fuel consumption through TDM and CTR Programs.	Transportation Goal		WAC 365-196-430(2)(c)	Update to spell out TDM and CTR.
Policy CM-5.1	Design and construct roads and other transportation facilities to minimize adverse impacts upon noise levels, air quality, surface water runoff, drainage patterns, and environmentally critical areas and fit the character of the neighborhoods through which they pass.	Policy CM-5.1	Design and construct roads and other transportation facilities to minimize adverse impacts upon noise levels, air quality, surface water runoff, drainage patterns, and environmentally critical areas and fit the character of the neighborhoods through which they pass.	MPP-T-5 MPP-T-9 MPP-T-32	ENV-35 ENV-39.5 C-1 TR-9.1	WAC 365-196-430(2)(c)	
Policy CM-5.2	Where determined necessary, incorporate sound absorption devices, landscaping, earthen berms and other natural or artificial features that help mitigate adverse noise, light and glare impacts generated by surface transportation facilities.	Policy CM-5.2	Where determined necessary, incorporate sound absorption devices, landscaping, earthen berms and other natural or artificial features that help mitigate adverse noise, light and glare impacts generated by surface transportation facilities.	MPP-En-7 MPP-T-9 MPP-T-21	ENV-35 ENV-39.5 C-1 TR-9.1	WAC 365-196-430(2)(c)	
Policy CM-5.3	Participate in efforts by county, regional and state agencies to reduce stormwater contamination.	Policy CM-5.3	Participate in efforts by county, regional and state agencies to reduce stormwater contamination.	MPP-T-32	C-17 ENV-27 TR-10	WAC 365-196-430(2)(c)	
Policy CM-5.4	Use transportation demand management (TDM) strategies to reduce single-occupant vehicle travel and encourage alternative modes of travel. These strategies include parking management, individualized marketing, ridesharing and support of non-motorized travel.	Policy CM-5.4	Use transportation demand management (TDM) strategies to reduce single-occupant vehicle travel and encourage alternative modes of travel. These strategies include parking management, individualized marketing, ridesharing and support of non-motorized travel.	MPP-CC-3 MPP-T-3 MPP-T-12 MPP-T-13 MPP-T-33	AH-2 ENV-46.1 TR-1 TR-2 TR-3.3 TR-6.4 TR-9.1 TR-11 TR-11.1 C-10 C-16	WAC 365-196-430(2)(a)(vi) WAC 365-196-430(2)(b)(iv)	

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-5.5	When required by law, develop a Commute Trip Reduction ordinance to minimize peak hour commuting using strategies such as flextime, telecommuting working, and other alternatives to driving alone.	Policy CM-5.5	Develop a Commute Trip Reduction ordinance to minimize peak hour commuting using strategies such as flextime, telecommuting working, and other alternatives to driving alone.	MPP-CC-3 MPP-T-3	C-13.4 C-13.5 C-34.7	WAC 365-196-430(2)(c)	Clarified that this applies when required by law.
		Policy CM-5.6	Develop an Electronic Vehicle Infrastructure ordinance as required by RCW 36.70A.695 to support battery charging stations for electronic vehicles.	MPP-CC-3 MPP-T-29 MPP-T-30	ENV-29 ENV-39 TR-9 TR-21.2	RCW 36.70A.695	Completed – see Chapter 18.40 BLMC.
Policy CM-5.6	Encourage residents who commute on SR 410 to carpool, ride the bus, work on offpeak hours, or telecommute. Encourage plateau residents generally to consolidate trips and avoid peak hour traffic.	Policy CM-5.7	Encourage residents who commute on SR 410 to carpool, ride the bus, work on offpeak hours, or telecommute. Encourage plateau residents generally to consolidate trips and avoid peak hour traffic.	MPP-T-3	TR-3.3 TR-11 TR-11.1 TR-13	WAC 365-196-430(2)(b)(i)	
Policy CM-5.7	Encourage mixed land use patterns in which people live close to jobs and services, allowing shorter and fewer vehicle trips.	Policy CM-5.8	Encourage mixed land use patterns in which people live close to jobs and services, allowing shorter and fewer vehicle trips.	RGS-Action-8 MPP-T-5 MPP-T-8 MPP-T-15 MPP-T-34	EC-1.2 EC-2.1	WAC 365-196-430(2)(a)(vi)	
Policy CM-5.8	Provide public forums to encourage public participation in transportation-related decisions.	Policy CM-5.9	Provide public forums to encourage public participation in transportation-related decisions.	MPP-T-9	TR-4	N/A	
Goal CM-6	Provide parking that meets the needs of residents, workers, visitors, and shoppers in a way that is consistent with broader goals related to sustainability and community character.	Goal CM-6	Provide parking that meets the needs of residents, workers, visitors, and shoppers in a way that is consistent with broader goals related to sustainability and community character.	Transportation Goal		WAC 365-196-430(2)(m)(iii)	
Policy CM-6.1	Apply parking requirements and standards for residential and commercial development, which adequately respond to demand and minimize adverse effects on neighboring properties.	Policy CM-6.1	Apply parking requirements and standards for residential and commercial development, which adequately respond to demand and minimize adverse effects on neighboring properties.		C-13 C-17 ENV-29 TR-3.12 TR-7.8 TR-11.2	WAC 365-196-430(2)(m)(iii)	
Policy CM-6.2	Strongly encourage the concept of shared parking (and shared parking agreements) for land uses where the peak parking demand occurs at different times of the day, thereby reducing the aggregate number of spaces required.	Policy CM-6.2	Strongly encourage the concept of shared parking (and shared parking agreements) for land uses where the peak parking demand occurs at different times of the day, thereby reducing the aggregate number of spaces required.		C-13 C-17 TR-3.12 TR-7.8 TR-11.2	WAC 365-196-430(2)(m)(iii)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-6.3	Encourage the development of secured bicycle parking at (or near) educational and recreational facilities, transit centers, and commercial areas. In commercial areas, bicycle parking may be consolidated in racks serving multiple businesses to create a cleaner and more attractive street appearance.	Policy CM-6.3	Encourage the development secured bicycle parking at (or near) educational and recreational facilities, transit centers and commercial areas. In commercial areas, bicycle parking may be consolidated in racks serving multiple businesses to create a cleaner and more attractive street appearance.		C-16 TR-3.12 TR-11.2	WAC 365-196-430(2)(m)(iii)	Added the word “of” near beginning of first sentence.
Goal CM-7	Provide the capacity required to serve the development envisioned in the Community Development and Economic Development Elements of the Comprehensive Plan by improving connections to the regional transportation system, increasing interconnectivity of the existing street grid, and providing multimodal facilities.	Goal CM-7	Provide the capacity required to serve the development envisioned in the Community Development and Economic Development Elements of the Comprehensive Plan by improving connections to the regional transportation system, increasing interconnectivity of the existing street grid, and providing multimodal facilities.	Transportation Goal		WAC 365-196-430(2)(g)(viii)	
Policy CM-7.1	Promote connectivity in the street network. Except where necessitated by topography, the use of dead-ends and cul-de-sacs shall be minimized, and the extension or preservation of a grid street pattern shall be encouraged. Additional street network connectivity (i.e., a “grid pattern”) should be created and existing gaps in the road, bike, and pedestrian networks should be closed.	Policy CM-7.1	Promote connectivity in the street network. Except where necessitated by topography, the use of dead-ends and cul-de-sacs shall be minimized, and the extension or preservation of a grid street pattern shall be encouraged. Additional street network connectivity (i.e., a “grid pattern”) should be created and existing gaps in the road, bike, and pedestrian networks should be closed.	MPP-T-14 MPP-T-16	TR-5	WAC 365-196-430(2)(g)(viii)	
Policy CM-7.2	Ensure that the design and scale of streets are sensitive to the context of surrounding neighborhoods.	Policy CM-7.2	Ensure that the design and scale of streets are sensitive to the context of surrounding neighborhoods.	MPP-T-11 MPP-T-21	TR-1	WAC 365-196-430(2)(e)(vi)	
Policy CM-7.3	Design and construct a transportation system to serve the land use pattern set forth by the Community Development Element of the Comprehensive Plan.	Policy CM-7.3	Design and construct a transportation system to serve the land use pattern set forth by the Community Development Element of the Comprehensive Plan.	MPP-DP-38	RUR-11 RUR-12 TR-6.2	WAC 365-196-430(1)(b) WAC 365-196-430(2)(C)(v)	
Policy CM-7.4	Establish an integrated transportation system with connectivity to the regional transportation system and to the local street networks in adjacent communities, which safely and conveniently accommodates all users: motorists, pedestrians, bicyclists, and transit riders.	Policy CM-7.4	Establish an integrated transportation system with connectivity to the regional transportation system and to the local street networks in adjacent communities, which safely and conveniently accommodates all users: motorists, pedestrians, bicyclist, and transit riders.	MPP-T-11	TR-1.1	WAC 365-196-430(2)(b)(ii)	Updated "bicyclist" to "bicyclists".
Policy CM-7.5	Use Intelligent Transportation System (ITS) strategies to optimize the existing street network.	Policy CM-7.5	Use Intelligent Transportation System (ITS) strategies to optimize the existing street network.	MPP-T-3	TR-9 TR-11	WAC 365-196-430(2)(g)(viii)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-7.6	Design and construct transportation facilities that prevent or minimize impacts to residential areas, while maintaining the street grid for access and circulation.	Policy CM-7.6	Design and construct transportation facilities that prevent or minimize impacts to residential areas, while maintaining the street grid for access and circulation.	MPP-T-5 MPP-T-9	TR-4 TR-5	WAC 365-196-430(2)(e)(vi)	
Policy CM-7.7	Manage traffic on arterials and collectors to reduce unnecessary travel delays and maintain efficient vehicle flow. However, auto speed and convenience may be diminished in some locations in order to achieve a livable, walkable, and attractive community.	Policy CM-7.7	Manage traffic on arterials and collectors to reduce unnecessary travel delays and maintain efficient vehicle flow. However, auto speed and convenience may be diminished in some locations in order to achieve a livable, walkable, and attractive community.	MPP-T-7	TR-1 TR-6.1	WAC 365-196-430(2)(c)(ii)	
Policy CM-7.8	Require new development to mitigate its impacts on mobility conditions through traffic impact fees, street and intersection improvements, transportation demand management programs, and other measures.	Policy CM-7.8	Require new development to mitigate its impacts on mobility conditions through traffic impact fees, street and intersection improvements, transportation demand management programs, and other measures.	MPP-T-3 MPP-T-5 MPP-T-6	TR-5 TR-9 TR-11 TR-16 TR-22	WAC 365-196-430(2)(b)(vi)	
Goal CM-8	Bonney Lake becomes a more prominent regional transportation hub and is seamlessly connected to locations throughout the Puget Sound Region and state.	Goal CM-8	Bonney Lake becomes a more prominent regional transportation hub and is seamlessly connected to locations throughout the Puget Sound Region and state.	Transportation Goal		RCW 36.70A.070(6)(a)(iii)(C)	
Policy CM-8.1	Participate in regional transportation and land use planning efforts, including programs to balance jobs and housing, manage congestion, address auto-related emissions and greenhouse gases, and reduce the share of the region's trips made by single occupant vehicles.	Policy CM-8.1	Participate in regional transportation and land use planning efforts, including programs to balance jobs and housing, manage congestion, address auto-related emissions and greenhouse gases, and reduce the share of the region's trips made by single occupant vehicles.	MPP-Ec-18 MPP-T-7 MPP-T-8 MPP-T-9 MPP-T-11 MPP-T-13 MPP-T-15 MPP-T-18 MPP-T-19 MPP-T-22 MPP-T-23 MPP-T-27 MPP-T-29 MPP-T-30 MPP-T-34 T-Action-9	TR-1.1 TR-1.2 TR-4 TR-6.1 TR-6.2 TR-8 TR-9 TR-11 TR-21	RCW 36.70A.070(6)(a)(iii)(C)	
Policy CM-8.2	Promote and coordinate the planning of pedestrian and bicycle trail systems with Pierce County, Buckley, Puyallup, Sumner, and other jurisdictions and organizations.	Policy CM-8.2	Promote and coordinate the planning of pedestrian and bicycle trail systems with Pierce County, Buckley, Puyallup, Sumner, and other jurisdictions and organizations.	MPP-T-17 MPP-T-34	TR-5 TR-11	RCW 36.70A.070(6)(a)(iii)(C)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-8.3	Support improved regional commuter bus service connecting Bonney Lake to commuter rail access and to employment centers elsewhere in the region.	Policy CM-8.3	Support improved regional commuter bus service connecting Bonney Lake to commuter rail access and to employment centers elsewhere in the region.	MPP-T-13 MPP-T-14 MPP-T-34	TR-6.1 TR-9 TR-11	WAC 365-196-430(2)(b)(ii)	
Policy CM-8.4	Coordinate with Pierce County, Buckley, Puyallup, Sumner, and other nearby jurisdictions and local public agencies to ensure compatible plans and road development standards and to coordinate major transportation investments. This should include coordination with both the Sumner and White River School Districts on the provision of school bus service and school-related traffic issues.	Policy CM-8.4	Coordinate with Pierce County, Buckley, Puyallup, Sumner, and other nearby jurisdictions and local public agencies to ensure compatible plans and road development standards and to coordinate major transportation investments. This should include coordination with both the Sumner and White River School Districts on the provision of school bus service and school-related traffic issues.	MPP-T-7 MPP-T-8 MPP-T-18	TR-1 TR-6.1	RCW 36.70A.070(6)(a)(iii)(C)	
Policy CM-8.5	Coordinate with regional, state, and federal agencies to develop and maintain contingency plans and emergency response plans in the event that road or transit service is disrupted by natural or manmade disaster.	Policy CM-8.5	Coordinate with regional, state, and federal agencies to develop and maintain contingency plans and emergency response plans in the event that road or transit service is disrupted by natural or manmade disaster.	MPP-T-31	TR-20	RCW 36.70A.070(6)(a)(iii)©	
Goal CM-9	Provide sufficient funding to construct a multimodal transportation system and assure that the beneficiaries of the system bear the costs in a proportionate manner.	Goal CM-9	Provide sufficient funding to construct a multimodal transportation system and assure that the beneficiaries of the system bear the costs in a proportionate manner.	Transportation Goal		RCW 36.70A.070(6)(a)(iv)	
Policy CM-9.1	Maintain a transportation impact fee system that equitably and proportionately charges new development for identified growth related improvements to the transportation system.	Policy CM-9.1	Maintain a transportation impact fee system that equitably and proportionately charges new development for identified growth related improvements to the transportation system.	MPP-T-6	TR-19 TR-22	RCW 36.70A.070(6)(b)	
Policy CM-9.2	Ensure that new development pays its proportionate share of the costs of needed transportation facilities through SEPA mitigation, traffic impact fees, frontage improvements, and local improvement districts.	Policy CM-9.2	Ensure that new development pays its proportionate share of the costs of needed transportation facilities through SEPA mitigation, traffic impact fees, frontage improvements, and local improvement districts.	MPP-T-6	TR-19 TR-22	RCW 36.70A.070(6)(b)	
Policy CM-9.3	Partner with WSDOT, Pierce County, and local agencies to fund improvement projects and programs.	Policy CM-9.3	Partner with WSDOT, Pierce County, and local agencies to fund improvement projects and programs.	MPP-T-6	TR-19 TR-22	RCW 36.70A.070(6)(a)(iii)(C)	

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-9.4	Maintain the Six-Year Transportation Improvement Program so it leverages available City funds while remaining financially feasible and consistent with this Plan.	Policy CM-9.4	Develop the annual Six-Year Transportation Improvement Program so it leverages available City funds while remaining financially feasible and consistent with this Plan.	MPP-T-6	TR-19 TR-22	RCW 35.77.010 RCW 36A.070(6)(iv)(B)	Updated to maintaining the plan.
Policy CM-9.5	Allocate resources to the Capital Improvement Plan (CIP) and Six-Year Transportation Improvement Plan (TIP) in the following ranked priority: 1. Projects that address existing/future transportation safety issues; 2. Projects that address existing capacity, operational, or maintenance issues; 3. Projects that provide capacity or operational enhancement to meet the long-term level of service; 4. Projects that support economic development and enhances City appearance; 5. Projects that promote multi-mode travel; and 6. Projects that promote connectivity and community circulation.	Policy CM-9.5	Allocate resources to the Capital Improvement Plan (CIP) and Transportation Improvement Plan (TIP) in the following ranked priority: 1) projects that address existing/future transportation safety issues; 2) projects that address existing capacity, operational, or maintenance issues; 3) projects that provide capacity or operational enhancement to meet the long-term level of service; 4) projects that support economic development and enhances City appearance; 5) projects that promote multi-mode travel; and 6) projects that promote connectivity and community circulation.	MPP-T-6	TR-19 TR-22	RCW 36.70A.070(6)(b)	Converted policy from paragraph form to list form. Clarified that this was related to the Six-Year Transportation Improvement Plan.
Goal CM-10	Maintain and improve transportation safety for all users and modes of travel.			Transportation Goal			Added to meet goals in the Safety Action Plans.
Policy CM-10.1	Reduce frequency of crashes and strive to eliminate serious injury and fatal crashes.			MPP-T-4 MPP-T-5	TR-2		Added to meet goals in the Safety Action Plans.
Policy CM-10.2	Improve areas where prioritized crash risk factors are present.			MPP-T-4 MPP-T-5	TR-2		Added to meet goals in the Safety Action Plans.
Policy CM-10.3	Design, construct and maintain all transportation facilities to ensure the safety of all transportation system users – motorists, bicyclists, pedestrians, freight, transit users and all others.			MPP-T-1 MPP-T-4 MPP-T-5	TR-2 TR-5		Added to meet goals in the Safety Action Plans.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CM-10.4	Periodically review crash data to assess system safety and performance.			MPP-T-4	TR-2		Added to meet goals in the Safety Action Plans.
Policy CM-10.5	Implement the City's Safety Action Plan			MPP-T-1 MPP-T-4 MPP-T-5	TR-2		Added to meet goals in the Safety Action Plans.

Chapter 5 Capital Facilities & Services - Bonney Lake Comprehensive Plan Goals and Policy Comparison							
2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal CF&S-1	**Bonney Lake will provide general government services and operations at the adopted level of service to serve existing and future residents.**	**Goal CFS-1**	**Bonney Lake will provide general government services and operations at the adopted level of service to serve existing and future residents.**	**Public Services Goal**			**No change.**
Policy CF&S-1.1	Promote energy efficiency and alternative energy sources in public facility remodeling and construction, in order to reduce maintenance and operation costs and environmental impact.	Policy CFS-1.1	Promote energy efficiency and alternative energy sources in public facility remodeling and construction, in order to reduce maintenance and operation costs and environmental impact.	MPP-PS-13 MPP-PS-14 MPP-PS-15	EC-3 H-6 EPF-4.1.5 EPF-6.10 TR-2 TR-5.1 TR-5.2 TR-13.3		No change.
Policy CF&S-1.2	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.	Policy CFS-1.2	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.	MPP-RC-9	C-11 C-13 C-19 C-27 C-34.7 ED-4 EPF-7 TR-1 TR-1.2 TR-13.2 TR-14.2 TR-17.6 TR-20 TR-21		No change.
Policy CF&S-1.3	Encourage shared development and use of public facilities including parks, libraries, schools, and other public buildings and community meeting facilities.	Policy CFS-1.3	Encourage shared development and use of public facilities including parks, libraries, schools, and other public buildings and community meeting facilities.	MPP-PS-7 MPP-Ec-2	H-4 TR-4.1 TR-4.2 TR-4.3 TR-4.4 TR-17.5 TR-21.2 C-5 C-11 C-22 CU-3 ENV-29 ENV-39.5.1 ENV-39.6 ENV-40.1.2 ENV-40.2.2 ENV-45.5 UGA-3.4		No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-1.4	Coordinate the transfer of capital facility programs and projects from the county to the city prior to the annexation of new areas through Interlocal agreements on service transition.	Policy CFS-1.4	Coordinate the transfer of capital facility programs and projects from the county to the city prior to the annexation of new areas through Interlocal agreements on service transition.	MPP-PS-7 MPP-Ec-2	UGA-5.3 UGA-10 UGA-11		No change.
Policy CF&S-1.5	Lands that are identified in this Element, including those ancillary plans adopted by reference, and any related special district comprehensive plans, shall be considered lands that are useful for public purposes.	Policy CFS-1.5	Lands that are identified in this Element, including those ancillary plans adopted by reference, and any related special district comprehensive plans, shall be considered lands that are useful for public purposes.	MPP-PS-4	EC-3		No change.
Policy CF&S-1.6	General government services and operations should be centralized at a single, compact municipal campus in the Downtown Civic Center or in the Eastown Public Works Center, to the extent practically feasible.	Policy CFS-1.6	General government services and operations should be centralized at a single, compact municipal campus in the Downtown Civic Center or in the Eastown Public Works Center, to the extent practically feasible.	MPP-PS-18	H-4 TR-4.1 CU-3		No change.
Goal CF&S-2	**Citizens feel safe and protected and there is open communication, participation, and trust between the citizens, the City, and the Police Department.**	**Goal CFS-2**	**Citizens feel safe and protected and there is open communication, participation, and trust between the citizens, the City, and the Police Department.**	**MPP-PS-17**		**WAC 365-196-415(2)(A)(II)**	**No change.**
Policy CF&S-2.1	Provide staff levels that provides superior police protection for the residents of the City of Bonney Lake and supports all of the current programs of the Police Department.	Policy CFS-2.1	Provide staff levels that provides superior police protection for the residents of the City of Bonney Lake and supports all of the current programs of the Police Department.	MPP-PS-1 MPP-PS-3		WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-2.2	Continue to build the reserve officer and police department volunteer program.	Policy CFS-2.2	Continue to build the reserve officer and police department volunteer program.	MPP-RC-14 MPP-PS-1		WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-2.3	Continue to participate in programs like the National Night Out and Shop with a Cop.	Policy CFS-2.3	Continue to participate in programs like the National Night Out and Shop with a Cop.	MPP-PS-2 MPP-PS-17		WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-2.4	Continue to provide public education programs, such as the Citizens Academy and the Water Safety and Boating Program, to promote prevention of crime and life safety.	Policy CFS-2.4	Continue to provide public education programs, such as the Citizens Academy and the Water Safety and Boating Program, to promote prevention of crime and life safety.	MPP-PS-2 MPP-PS-17		WAC 365-196-415(2)(A)(II)	No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-2.5	Assure that public safety capital investments in rolling stock and facilities meet the identified public safety needs of the City as demonstrated by a cost-benefit or similar analysis of the equipment or facility showing its direct benefit and value to the City prior to the expenditure of funds.	Policy CFS-2.5	Assure that public safety capital investments in rolling stock and facilities meet the identified public safety needs of the City as demonstrated by a cost-benefit or similar analysis of the equipment or facility showing its direct benefit and value to the City prior to the expenditure of funds.	MPP-PS-3 MPP-PS-4		WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-2.6	Partnership with non-profit and local community organizations to help develop trust, strengthen public-private dialogs, and improve community safety.	Policy CFS-2.6	Partnership with non-profit and local community organizations to help develop trust, strengthen public-private dialogs, and improve community safety.	MPP-PS-1 MPP-PS-2		WAC 365-196-415(2)(A)(II)	No change.
Goal CF&S-3	**Ensure that sufficient fire protection services and emergency medical services are provided to meet the needs of the City's current residents and to support future development.**	**Goal CFS-3**	**Ensure that sufficient fire protection services and emergency medical services are provided to meet the needs of the City's current residents and to support future development.**	**MPP-PS-1 MPP-PS-2 MPP-PS-7 MPP-Ec-2**		**WAC 365-196-415(2)(A)(II)**	**No change.**
		Policy CFS-3.1	Continue to provide EPF&R access to the Public Safety Building until a new Headquarters Station is constructed by EPF&R.			WAC 365-196-415(2)(A)(II)	Deleted.
Policy CF&S-3.1	Coordinate with EPF&R to assure adequate fire flow needs are provided by the City of Bonney Lake's water system.	Policy CFS-3.2	Coordinate with EPF&R to assure adequate fire flow needs are provided by the City of Bonney Lake's water system.	MPP-PS-25	UGA-13.4.2	WAC 365-196-415(2)(A)(II)	No change.
		Policy CFS-3.3	Coordinate and facilitate, as needed, with EPF&R's long range planning efforts to develop a new headquarters and training center for the District.			WAC 365-196-415(2)(A)(II)	Deleted.
Policy CF&S-3.2	Require all new or substantially remodeled residential and commercial buildings within the City install automatic sprinkler systems.	Policy CFS-3.4	Require all new or substantially remodeled residential and commercial buildings within the City install automatic sprinkler systems.	MPP-PS-1		WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-3.3	Support public education programs of EPF&R that inform and educate citizens in fire safety issues that will prevent fires and promote of life safety.	Policy CFS-3.5	Support public education programs of EPF&R that inform and educate citizens in fire safety issues that will prevent fires and promote of life safety.	MPP-PS-17	UGA-13.4.2	WAC 365-196-415(2)(A)(II)	No change.
Goal CF&S-4	**Ensure that sufficient library services are provided to meet the needs of the City's current residents and to support future development.**	**Goal CFS-4**	**Ensure that sufficient library services are provided to meet the needs of the City's current residents and to support future development.**	**MPP-PS-7** MPP-Ec-2		**WAC 365-196-415(2)(A)(II)**	**No change.**
Policy CF&S-4.1	Cooperate with the Library District in the implementation of the Library Facilities Plan.	Policy CFS-4.1	Cooperate with the Library District in the implementation of the Library Facilities Plan.			WAC 365-196-415(2)(A)(II)	No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-4.2	Encourage the construction of a new library in the Downtown area possibly co-locate in the new civic center if the timing of such facility development can be achieved to each party's satisfaction.	Policy CFS-4.2	Encourage the construction of a new library in the Downtown area possibly co-locate in the new civic center if the timing of such facility development can be achieved to each party's satisfaction.	MPP-PS-18 MPP-PS-27	H-4 TR-4.1 TR-4.2 TR-4.3 TR-4.4 TR-17.5 TR-21.2 C-5 C-11 C-22 CU-3 ENV-29 ENV-39.5.1 ENV-39.6 ENV-40.1.2 ENV-40.2.2 ENV-45.5 UGA-3.4	WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-4.3	Maintain the current facility lease with the Library District until a new library is constructed.	Policy CFS-4.3	Maintain the current facility lease with the Library District until a new library is constructed.			WAC 365-196-415(2)(A)(II)	No change.
Policy CF&S-4.4	Encourage the Library to construct satellite facilities as needed in Tehaleh or other appropriate areas of the greater Bonney Lake plateau.	Policy CFS-4.4	Encourage the Library to construct satellite facilities as needed in Tehaleh or other appropriate areas of the greater Bonney Lake plateau.			WAC 365-196-415(2)(A)(II)	No change.
Goal CF&S-5	**Local students have access to excellent educational opportunities and local school districts provide educational facilities and programs to meet the needs of the City's current and future residents.**	**Goal CFS-5**	**Local students have access to excellent educational opportunities and local school districts provide educational facilities and programs to meet the needs of the City's current and future residents.**	**MPP-PS-26** **MPP-PS-27** **MPP-PS-28**	ED-3 ED-4 ED-5 RUR-13	**WAC 365-196-415(2)(A)(II)**	**No change.**
Policy CF&S-5.1	Encourage the school districts in the community to maintain sufficiently detailed capital facilities plans that will provide valuable advance planning information in regards to long-range school district facility extension needs and would establish an acceptable basis for the imposition and collection of equitable school impact fees.	Policy CFS-5.1	Encourage the school districts in the community to maintain sufficiently detailed capital facilities plans that will provide valuable advance planning information in regards to long-range school district facility extension needs and would establish an acceptable basis for the imposition and collection of equitable school impact fees.	MPP-PS-26 MPP-PS-27	ED-3 ED-4 ED-5 RUR-13	WAC 365-196-415(2)(a)(ii)	No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-5.2	Partner with the various school districts in the City to facilitate the development of non-motorized transportation systems to enhance the safety of children walking and riding bicycles as a means of traveling to the schools.	Policy CFS-5.2	Partner with the various school districts in the City to facilitate the development of non-motorized transportation systems to enhance the safety of children walking and riding bicycles as a means of traveling to the schools.	MPP-PS-26	ED-3 ED-4 ED-5 RUR-13	WAC 365-196-415(2)(a)(ii)	No change.
Policy CF&S-5.3	Support school district programs that promote a healthy school environment such as nutritional education, fitness education, nutritional standards for the foods and beverages available to students while at school, providing opportunities for physical activity, and other school-based activities designed to promote the well-being of students.	Policy CFS-5.3	Support school district programs that promote a healthy school environment such as nutritional education, fitness education, nutritional standards for the foods and beverages available to students while at school, providing opportunities for physical activity, and other school-based activities designed to promote student wellness improve and well-being of students.	MPP-PS-26	ED-3 ED-4 ED-5 RUR-13	WAC 365-196-415(2)(a)(ii)	Minor clarification in last sentence.
Goal CF&S-6	**Develop a cost-effective parks and recreation system that provide a balance of passive and active recreational facilities and pedestrian/bicycle trails through pleasant natural ecosystems at the adopted park level of service standards.**	**Goal CFS-6**	**Develop a cost-effective parks and recreation system that provide a balance of passive and active recreational facilities and pedestrian/bicycle trails through pleasant natural ecosystems at the adopted park level of service standards.**	**MPP-DP-11**		WAC 365-196-415(2)(a)(iii)	No change.
		Policy CFS-6.1	Provide parks and recreational facilities that enhance the City's natural setting, respect natural resources, and preserve the community character.				Deleted – see Parks, Trails, Recreation & Open Space Plan.
Policy CF&S-6.1	Where land is conserved due to environmental limitations, such as wetlands or riparian corridors, consider extending trails through area without compromising ecosystems functions and values.	Policy CFS-6.2	Where land is conserved due to environmental limitations, such as wetlands or riparian corridors, consider extending trails through area without compromising ecosystems functions and values.	MPP-En-5 MPP-En-15	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2	WAC 365-196-415(2)(a)(iii)	No change.
		Policy CFS-6.3	Incorporate historical and cultural sites, markers, or activities into the park system where feasible.				Deleted – see Parks, Trails, Recreation & Open Space Plan.
		Policy CFS-6.4	Keep the parks safe though proper design, visibility, maintenance, supervision, and education as to acceptable behavior.				Deleted – see Parks, Trails, Recreation & Open Space Plan.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-6.2	Require new developments to either pay impact fees or provide parks as necessary to maintain the level of service standards, accepting only land that meets the site selection criteria for the applicable facility type.	Policy CFS-6.5	Require new developments to either pay impact fees or provide parks as necessary to maintain the level of service standards, accepting only land that meets the site selection criteria for the applicable facility type.	MPP-RC-9	ENV-16.2	WAC 365-196-415(2)(a)(iii)	
		Policy CFS-6.6	Design the parks to require low maintenance, and adequately fund maintenance.				Deleted – see Parks, Trails, Recreation & Open Space Plan
Policy CF&S-6.3	Design recreational facilities to be accessible to all citizens, including the disabled.	Policy CFS-6.7	Design recreational facilities to be accessible to all citizens, including the disabled.	MPP-En-15	C-32	WAC 365-196-415(2)(a)(iii)	No change.
		Policy CFS-6.8	Finance park acquisitions and developments through a combination of tax revenues, grants, and park impact fees.				Deleted – see Parks, Trails, Recreation & Open Space Plan
		Policy CFS-6.9	Concentrate on acquiring park sites before development or improvement of existing parks.				Deleted – see Parks, Trails, Recreation & Open Space Plan
		Policy CFS-6.10	Encourage recreational programs for youth and adult leisure sports.				Deleted – see Parks, Trails, Recreation & Open Space Plan
		Policy CFS-6.11	Provide athletic facilities that meet competitive playing standards, concentrating on those field and court activities, which attract the most participants.				Deleted – see Parks, Trails, Recreation & Open Space Plan
		Policy CFS-6.12	Illuminate fields and courts to allow greater use by working adults and tournaments.				Deleted – see Parks, Trails, Recreation & Open Space Plan
		Policy CFS-6.13	Develop a community center, which facilitates year-round indoor athletic activities.				Deleted – see Parks, Trails, Recreation & Open Space Plan
Policy CF&S-6.4	Where possible, use trails or sidewalks to link parks, open spaces, schools, community facilities, sidewalks (see Mobility Element), and other agencies' trials, such as the Pierce County Foothills Trail.	Policy CFS-6.14	Where possible, use trails to link parks, open spaces, schools, community facilities, sidewalks (see Mobility Element), and other agencies' trials, such as the Pierce County Foothills Trail.	MPP-En-15	C-32 ENV-14 TR-5.1.2 TR-6.4.4	WAC 365-196-415(2)(a)(iii)	Added "sidewalks".
Policy CF&S-6.5	Require subdivisions along the Fennel Creek corridor to dedicate trail right-of-way and develop their portions of the trail.	Policy CFS-6.15	Require subdivisions along the Fennel Creek corridor to dedicate trail right-of-way and develop their portions of the trail.	MPP-En-15	C-32 ENV-14 TR-5.1.2 TR-6.4.4	WAC 365-196-415(2)(a)(iii)	No change.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-6.6	Require new subdivisions to provide internal pathways as necessary to connect the subdivision to nearby pedestrian destinations.	Policy CFS-6.16	Require new subdivisions to provide internal pathways as necessary to connect the subdivision to nearby pedestrian destinations.	MPP-DP-53 MPP-T-15 MPP-T-17	TR-5.1.2 TR-6.4.4	WAC 365-196-415(2)(a)(iii)	No change.
Goal CF&S-7	**Cooperate with other organizations and individuals to maximize recreational opportunities.**	**Goal CFS-7**	**Cooperate with other organizations and individuals to maximize recreational opportunities.**	**Regional Collaboration Goal MPP-RC-2**			**No change.**
Policy CF&S-7.1	Encourage homeowner associations, churches, and schools to develop recreational facilities.	Policy CFS-7.1	Encourage homeowner associations, churches, and schools to develop recreational facilities.	MPP-RC-2 MPP-DP-11	H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10	WAC 365-196-415(2)(a)(iii)	No change.
Policy CF&S-7.2	Where appropriate, provide recreational programs cooperatively with other agencies such as Pierce County and the school districts.	Policy CFS-7.2	Where appropriate, provide recreational programs cooperatively with other agencies such as Pierce County and the school districts.	Regional Collaboration Goal MPP-RC-2	H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10	WAC 365-196-415(2)(a)(iii)	No change.
Policy CF&S-7.3	Encourage Pierce County to provide regional parks and satisfy the recreational needs of the proposed development in unincorporated Pierce County.	Policy CFS-7.3	Encourage Pierce County to provide regional parks and satisfy the recreational needs of the proposed Cascadia development.	Regional Collaboration Goal MPP-RC-1 MPP-RC-2	H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10		Updated to reflect development in Pierce County more generally.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-7.4	If land owned by other public entities is no longer needed for its original purpose, and if said land is suitable for parks, arrange to retain or acquire that land and convert it to park use.	Policy CFS-7.4	If land owned by other public entities is no longer needed for its original purpose, and if said land is suitable for parks, arrange to retain or acquire that land and convert it to park use.		H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10		No change.
Policy CF&S-7.5	Continue to cooperate with Sumner School District in the provision of the inter-local recreation program.	Policy CFS-7.5	Continue to cooperate with Sumner School District in the provision of the inter-local recreation program.	Regional Collaboration Goal MPP-RC-3	H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10		No change.
Goal CF&S-8	**Ensure an adequate supply of water for current and future residents, commercial activities, and public agencies.**	**Goal CFS-8**	**Ensure an adequate supply of water for current and future residents, commercial activities, and public agencies.**	**Public Services Goal**			**No change.**
Policy CF&S-8.1	Do not expand the City's water service area in such a manner as to cause water capacity to be inadequate for the City's water service area.	Policy CFS-8.1	Do not expand the City's water service area in such a manner as to cause water capacity to be inadequate for the City's water service area.	MPP-PS-5 MPP-PS-30	C-11 C-13 C-19 C-27 C-34.7 ED-4 EPF-7 TR-1 TR-1.2 TR-13.2 TR-14.2 TR-17.6 TR-20 TR-21		No change.
Policy CF&S-8.2	Work with the Valley Water District and Tacoma Public Utility, to ensure that the Districts long-range plans are consistent with the Bonney Lake Comprehensive Plan.	Policy CFS-8.2	Work with the Valley Water District and Tacoma Public Utility, to ensure that the Districts long-range plans are consistent with the Bonney Lake Comprehensive Plan.	MPP-PS-7 MPP-Ec-2	UGA-13.4.2		No change.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-8.3	The City shall require the use of efficient water fixtures in all new construction.	Policy CFS-8.3	The City shall require the use of efficient water fixtures in all new construction.	MPP-PS-24			No change.
Policy CF&S-8.4	The City will promote the efficient and responsible use of water and will conserve during a water shortage.	Policy CFS-8.4	The City will promote the efficient and responsible use of water and will conserve during a water shortage.	MPP-PS-21 MPP-PS-24	ENV-1 ENV-7		No change.
Policy CF&S-8.5	The City will require special control measures to protect aquifer recharge zones.	Policy CFS-8.5	The City will require special control measures to protect aquifer recharge zones.	MPP-PS-20 MPP-PS-21 MPP-PS-23	ENV-1 ENV-3 ENV-7		No change.
Policy CF&S-8.6	Maintain water quality at a level that equals or is better than water quality in its natural state and that meets or exceeds all water quality laws and standards.	Policy CFS-8.6	Maintain water quality at a level that equals or is better than water quality in its natural state and that meets or exceeds all water quality laws and standards.	MPP-PS-22	C-11 CU-3 ENV-40.1.2		No change.
Policy CF&S-8.7	Maintain current Interlocal Agreements (ILA) detailing usage policies and procedures for water supplied to and received from water purveyors outside the City.	Policy CFS-8.7	Maintain current Interlocal Agreements (ILA) detailing usage policies and procedures for water supplied to and received from water purveyors outside the City.	MPP-RC-15 MPP-PS-7 MPP-Ec-2	UGA-5.3 UGA-10 UGA-11		No change.
Goal CF&S-9	**Provide sewer services to all residents within the Bonney Lake sewer service area to maintain public health and protect ground and surface waters.**	**Goal CFS-9**	**Provide sewer services to all residents within the Bonney Lake sewer service area to maintain public health and protect ground and surface waters.**	**Public Services Goal**	**C-6**		**No change.**
Policy CF&S-9.1	Coordinate with other jurisdictions to provide sewer capacity.	Policy CFS-9.1	Coordinate with other jurisdictions to provide sewer capacity.	MPP-PS-7 MPP-Ec-2	UGA-13.4.2		No change.
Policy CF&S-9.2	Do not expand the UGA or provide sewer outside the UGA in such a manner as to cause sewer capacity to be inadequate for build-out of the existing City and UGA.	Policy CFS-9.2	Do not expand the UGA or provide sewer outside the UGA in such a manner as to cause sewer capacity to be inadequate for build-out of the existing City and UGA.	MPP-PS-5 MPP-PS-30	RUR-11		No change.
Policy CF&S-9.3	Require connection to City sewer when possible and on-site sewage disposal systems are failing.	Policy CFS-9.3	Require connection to City sewer when possible and on-site sewage disposal systems are failing.	MPP-PS-11	UGA-13.4.3		No change.
Policy CF&S-9.4	Treated effluent disposed to surface waters should also meet standards outlined in applicable State Law.	Policy CFS-9.4	Treated effluent disposed to surface waters should also meet standards outlined in applicable State Law.	MPP-PS-10			No change.
Policy CF&S-9.5	The City shall require the use of efficient water fixtures in all new construction.	Policy CFS-9.5	The City shall require the use of efficient water fixtures in all new construction.	MPP-PS-24	ENV-28		No change.
Policy CF&S-9.6	The City will ensure that Infiltration and Inflow (I&I) is kept to a minimum with a proactive sewer collection maintenance and repair program.	Policy CFS-9.6	The City will ensure that Infiltration and Inflow (I&I) is kept to a minimum with a proactive sewer collection maintenance and repair program.	MPP-PS-11 MPP-PS-12			No change.

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-9.7	The City will ensure that surges in Total Suspended Solids (TSS) reaching the WWTF are kept to a minimum through a proactive sewer collection system-flushing program.	Policy CFS-9.7	The City will ensure that surges in Total Suspended Solids (TSS) reaching the WWTF are kept to a minimum through a proactive sewer collection system-flushing program.				No change.
Policy CF&S-9.8	The City will divest itself of City owned and maintained grinder pumps serving private property when property owners agree to this change.	Policy CFS-9.8	The City will divest itself of City owned and maintained grinder pumps serving private property when property owners agree to this change.				Policy specific to City of Bonney Lake
Goal CF&S-10	**Natural gas and electric infrastructure that meet the needs of new development.**	**Goal CFS-10**	**Natural gas and electric infrastructure that meet the needs of new development.**		**C-34.7.2**		**No change.**
Policy CF&S-10.1	Where practical, install power distribution lines underground to reduce storm damage and aesthetic clutter.	Policy CFS-10.1	Where practical, install power distribution lines underground to reduce storm damage and aesthetic clutter.	MPP-PS-19			No change.
Policy CF&S-10.2	Wisely manage placement of private utilities in street right-of-way.	Policy CFS-10.2	Wisely manage placement of private utilities in street right-of-way.				No change.
Policy CF&S-10.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.	Policy CFS-10.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.	MPP-PS-7 MPP-Ec-2			No change.
Policy CF&S-10.4	Work with PSE to ensure that their long-range plans are consistent with the City's Comprehensive Plan and that infrastructure is sufficient to support new development.	Policy CFS-10.4	Work with PSE to ensure that their long-range plans are consistent with the Bonney Lake 2035 and that infrastructure is sufficient to support new development.	MPP-Ec-2			Reference to Comprehensive Plan updated.
Goal CF&S-11	**High quality, inexpensive communications networks available to the community.**	**Goal CFS-11**	**High quality, inexpensive communications networks available to the community.**	**MPP-PS-16**	**C-34.7.2**		**No change.**
Policy CF&S-11.1	Where practical, install power and telecommunication distribution lines underground to reduce storm damage and aesthetic clutter.	Policy CFS-11.1	Where practical, install power and telecommunication distribution lines underground to reduce storm damage and aesthetic clutter.	MPP-PS-16 MPP-PS-17 MPP-PS-19	H-4 TR-4.1 TR-4.2 TR-4.3		No change.
Policy CF&S-11.2	Wisely manage placement of private utilities in street rights-of-way.	Policy CFS-11.2	Wisely manage placement of private utilities in street rights-of-way.		H-4 TR-4.1 TR-4.2 TR-4.3		No change.
Policy CF&S-11.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.	Policy CFS-11.3	Coordinate with private utility providers to provide good service and to facilitate planned land development in the Bonney Lake area.	MPP-Ec-2	H-4 TR-4.1 TR-4.2 TR-4.3		No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-11.4	Encourage cable providers to complete upgrades to local fiber optic networks, taking into account the need to minimize traffic disruptions and return the streets to their pre-existing condition.	Policy CFS-11.4	Encourage cable providers to complete upgrades to local fiber optic networks, taking into account the need to minimize traffic disruptions and return the streets to their pre-existing condition.	MPP-Ec-2	H-4 TR-4.1 TR-4.2 TR-4.3		No change.
Goal CF&S-12	**Waste diversion maximized with the long-term objective of significantly reducing landfill waste.**	**Goal CFS-12**	**Waste diversion maximized with the long-term objective of significantly reducing landfill waste.**	**MPP-PS-8**	**C-34.7.2**		**No change.**
Policy CF&S-12.1	Encourage the provision of solid waste collection, disposal and recycling facilities and services that protect the public health, the natural environment, and land use quality.	Policy CFS-12.1	Encourage the provision of solid waste collection, disposal and recycling facilities and services that protect the public health, the natural environment, and land use quality.	MPP-PS-8			No change.
Policy CF&S-12.2	Promote waste reduction and recycling as a means to minimize the need for transfer stations and sanitary landfills.	Policy CFS-12.2	Promote waste reduction and recycling as a means to minimize the need for transfer stations and sanitary landfills.	MPP-PS-8			No change.
Policy CF&S-12.3	Educate the public to make informed purchasing decisions that reduce waste, litter, toxicity, and pollution in the environment.	Policy CFS-12.3	Educate the public to make informed purchasing decisions that reduce waste, litter, toxicity, and pollution in the environment.	MPP-PS-8			No change.
Goal CF&S-13	**Ensure that public facilities and services necessary to support new development are adequate to serve the development at the time the development is available for occupancy and use based on locally adopted level of service standards.**	**Goal CFS-13**	**Ensure that public facilities and services necessary to support new development are adequate to serve the development at the time the development is available for occupancy and use based on locally adopted level of service standards.**	**Public Services Goal MPP-DP-36**	**C-11 UGA-12.1**		**No change.**
Policy CF&S-13.1	Periodically review the Capital Facilities Element in order to assess its applicability, ensure timely updates are made to improvement plans, and to maintain Level of Service standards for the existing and future population.	Policy CFS-13.1	Periodically review the Capital Facilities Element in order to assess its applicability, ensure timely updates are made to improvement plans, and to maintain Level of Service standards for the existing and future population.	MPP-PS-3 MPP-PS-4	UGA-12.1 UGA-13.4.4		No change.
Policy CF&S-13.2	Ensure that new growth and development pay for a proportionate fair share of the cost of new facilities needed to serve such growth and development.	Policy CFS-13.2	Ensure that new growth and development pay for a proportionate fair share of the cost of new facilities needed to serve such growth and development.	MPP-RC-11 MPP-RC-12			No change.
Policy CF&S-13.3	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.	Policy CFS-13.3	Ensure that adequate funding is available to support continued operations and maintenance costs of existing capital facilities prior to construction of new capital facilities.	MPP-RC-11 MPP-RC-12	C-13 TR-11 UGA-13.4.1 UGA-13.5.2		No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-13.4	Concurrently with the review and update of the Water, Sewer, and Stormwater System Plans review and update City charges and fees that are based on these infrastructure project costs. This includes utility System Development Charges, Impact Fees, and monthly utility rates that have infrastructure renewal elements built into them.	Policy CFS-13.4	Concurrently with the review and update of the Water, Sewer, and Stormwater System Plans review and update City charges and fees that are based on these infrastructure project costs. This includes utility System Development Charges, Impact Fees, and monthly utility rates that have infrastructure renewal elements built into them.	MPP-RC-11 MPP-RC-12			No change.
Policy CF&S-13.5	Annually adjust charges, fees, and utility rates by an annual rate based on national indexes such as the Engineering New Record Construction Cost Index or the Consumer Price Index.	Policy CFS-13.5	Annually adjust charges, fees, and utility rates by an annual rate based on national indexes such as the Engineering New Record Construction Cost Index or the Consumer Price Index.	MPP-RC-11 MPP-RC-12			No change.
Policy CF&S-13.6	Reset charges, fees, and utility rates when new rate analysis is completed concurrently with the update of the Water, Sewer, and Stormwater System Plans.	Policy CFS-13.6	Reset charges, fees, and utility rates when new rate analysis is completed concurrently with the update of the Water, Sewer, and Stormwater System Plans.	MPP-RC-11 MPP-RC-12			No change.
Goal CF&S-14	**Essential public facilities (EPFs) are located, designed, expanded in such a way as to enhance, or at least minimize adverse impacts on surrounding residents, community, and land uses.**	**Goal CFS-14**	**Essential public facilities are located, designed, expanded in such a way as to enhance, or at least minimize adverse impacts on surrounding residents, community, and land uses.**	**MPP-PS-6**	**EPF-1 EPF-3**		**Added abbreviation for Essential Public Facilities.**
Policy CF&S-14.1	The City's comprehensive plan and development regulations may not render EPFs impossible or impracticable to site, expand, or operate, by the outright exclusion of such uses, or by imposition of process requirements or substantive conditions that render EPF impracticable.	Policy CFS-14.1	The City's comprehensive plan and development regulations may not render EPFs impossible or impracticable to site, expand, or operate, by the outright exclusion of such uses, or by imposition of process requirements or substantive conditions that render EPF impracticable.	MPP-RC-1	H-5 HAC-1 ENV-5 ENV-42 AH-4 ED-3 TR-1 TR-3 TR-7 UGA-5.3 UGA-10		No change.
Policy CF&S-14.2	Utilize the City's permit process to review, approve, impose reasonable conditions on EPFs necessary to mitigate the impacts, provide notice and an opportunity to comment to other interested counties and cities and the public.	Policy CFS-14.2	Utilize the City's Conditional Use Permit to review, approve, impose reasonable conditions on EPFs necessary to mitigate the impacts, provide notice and an opportunity to comment to other interested counties and cities and the public.		EPF-4 EPF-5 EPF-6		Updated to generalize the permit process. Detail is provided in the development regulations.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-14.3	Impose design conditions to make an EPF compatible with its surroundings.	Policy CFS-14.3	Impose design conditions to make an EPF compatible with its surroundings.		EPF-4 EPF-5 EPF-6 EPF-7		No change.
Policy CF&S-14.4	Consider provisions for amenities or incentives for neighborhoods in which the EPF is sited.	Policy CFS-14.4	Consider provisions for amenities or incentives for neighborhoods in which the EPF is sited.		EPF-1 EPF-2 EPF-3		No change.
Policy CF&S-14.5	Any conditions imposed must be necessary to mitigate an identified impact of the EPF.	Policy CFS-14.5	Any conditions imposed must be necessary to mitigate an identified impact of the EPF.		EPF-7		No change.
Goal CF&S-15	**Families and individuals can meet their basic needs, share in the region's economic prosperity, and participate in building a safe, healthy, educated, and caring community.**	**Goal CFS-15**	**Families and individuals can meet their basic needs, share in regions economic prosperity, and participate in building a safe, healthy, educated, and caring community.**				**Minor grammatical update.**
Policy CF&S-15.1	Promote volunteerism and community service by enhancing people's access to information about opportunities to contribute their time, energy, or resources and by encouraging young people of all ages to be involved in creating and participating in community service projects.	Policy CFS-15.1	Promote volunteerism and community service by enhancing people's access to information about opportunities to contribute their time, energy, or resources and by encouraging young people of all ages to be involved in creating and participating in community service projects.				No change.
Policy CF&S-15.2	Encourage public and private efforts that support food banks and nutrition programs, especially to meet the nutritional needs of infants, children, and the elderly, and other vulnerable populations.	Policy CFS-15.2	Encourage public and private efforts that support food banks and nutrition programs, especially to meet the nutritional needs of infants, children, and the elderly, and other vulnerable populations.				No change.
Policy CF&S-15.3	Promote opportunities that bring people together to help them build connections to each other, their peers, their neighbors, and the greater community in order to achieve a sense of belonging among all Bonney Lake plateau residents.	Policy CFS-15.3	Promote opportunities that bring people together to help them build connections to each other, their peers, their neighbors, and the greater community in order to achieve a sense of belonging among all Bonney Lake plateau residents.				No change.
Policy CF&S-15.4	Promote the investment by adults in the healthy development of the community's children and youth.	Policy CFS-15.4	Promote the investment by adults in the healthy development of the community's children and youth.				No change.
Policy CF&S-15.5	Encourage private parties to help provide recreational facilities through donations, sponsorships, and volunteerism.	Policy CFS-15.5	Encourage private parties to help provide recreational facilities through donations, sponsorships, and volunteerism.				No change.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Policy CF&S-15.6	Encourage the formation of garden clubs to develop and maintain undeveloped City property, to include undeveloped right-of-way, that are barren, weed-infested areas, with flower or vegetable gardens.	Policy CFS-15.6	Encourage the formation of garden clubs to develop and maintain flower gardens where now there are barren, weed-infested areas within highly visible City rights-of-way.				Added language to support growing food as well as flower gardens at the request of Council.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal ES-1	Enhance coordination among cities, counties, federally recognized tribes, federal and state agencies, utilities, and other partners to protect, preserve, and restore environmental resources for current and future population.			MPP-RC-1 MPP-RC-4 MPP-EN-1 MPP-DP-7 MPP-EC-15	HAC-1 HAC-2 TR-4.6 TC-1 TC-2	RCW 36.70A.110	
ES-1.1	Coordinate with Tribes, local and reginal jurisdictions, and community partners to restore and enhance the Puget Sound watersheds to a more natural state.			MPP-RC-15 MPP-PS-23	HAC-1 HAC-2 TR-4.6 TC-1 TC-2	RCW 36.70A.110	
ES-1.2	Coordinate with Tribes, local and reginal jurisdictions, and community partners to identity, mitigate, and adapt to the impacts of climate change on regional hydrological systems and local critical area.			MPP-RC-15 MPP-EN-1 MPP-PS-23	HAC-1 HAC-2 TR-4.6 TC-1 TC-2	RCW 36.70A.110	
ES-1.3	Maintain and enhance the ecological, social, and economic benefits provided by a healthy Puget Sound environment.			MPP-EC-15 MPP-RC-15	HAC-3 HAC-5	RCW 36.70A.110	
ES-1.4	Support implementation of the Puget Sound Partnership's action agenda.			MPP-RC-1	ENV-20		
Goal ES-2	Protect the environment, public health, and property from erosion, landslides, and unnecessary scars on the land that could occur as part of the Development.	Goal ES-1	Development accounts for soil conditions and avoids land surface modifications that would induce erosion, create landslides, or unnecessarily scar the land in order to protect the environment, public health, and property.	Environmental Goal	ENV-3		Updated grammar.
ES-2.1	Discourage development and disturbance of native vegetation on steep slopes.	Policy ES-1.1	Discourage development and disturbance of native vegetation on steep slopes.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-2.2	Require buildings to be set back from the toe and top of steep slopes.	Policy ES-1.2	Require buildings to be set back from the toe and top of steep slopes.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-2.3	Require geotechnical or engineering studies to demonstrate that any proposed development in areas that have a high or moderate landslide hazard risk has been designed to withstand the hazard and not aggravate the hazard for other properties.	Policy ES-1.3	Require geotechnical or engineering studies to demonstrate that any proposed development in areas that have a high or moderate landslide hazard risk has been designed to withstand the hazard and not aggravate the hazard for other properties.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-2.4	Designate areas with a moderate or high risk of slope instability either as Open Space – Conservancy, Open Space – Private, or Open Space – Public to limit the development intensity, site coverage, and vegetation removal within these hazardous areas.	Policy ES-1.4	Designate areas with a moderate or high risk of slope instability either as Open Space – Conservancy, Open Space – Private, or Open Space – Public to limit the development intensity, site coverage, and vegetation removal within these hazardous areas.	MPP-EN-3 MPP-EN-5	ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV-38 ENV-39 ENV43.4 RUR-9 TR-9 EPF-6.10 H-3		
ES-2.5	Ensure that soils are suitable for the development proposed. Where soil suitability is questionable, require review by a geotechnical engineer.	Policy ES-1.5	Ensure that soils are suitable for the development proposed. Where soil suitability is questionable, require review by a geotechnical engineer.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-2.6	Maintain existing vegetation to the greatest extent possible in order to prevent erosion. In cases where development necessitates removal of vegetation, a reasonable amount of landscaping should be required to replace trees, shrubs, and ground cover removed during construction.	Policy ES-1.6	Maintain existing vegetation to the greatest extent possible in order to prevent erosion. In cases where development necessitates removal of vegetation, a reasonable amount of landscaping should be required to replace trees, shrubs, and ground cover removed during construction.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-2.7	When erosion hazard areas are disturbed, require erosion control measures and limit the duration of site exposure.	Policy ES-1.7	When erosion hazard areas are disturbed, require erosion control measures and limit the duration of site exposure.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-2.8	Enforce building codes designed to prevent earthquake damage.	Policy ES-1.8	Enforce building codes designed to prevent earthquake damage.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
Goal ES-3	Protect the quality and supply of groundwater used for public water supplies to ensure reliable current and future sources of safe and drinkable water for Bonney Lake and the region.	Goal ES-2	Protect the quality of groundwater used for public water supplies to ensure adequate sources of potable water for Bonney Lake and the region.	Environmental Goal	ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV43.4 RUR-9		Added "and supply", "reliable current and future", and "safe and drinkable". Removed "adequate" and "potable".
ES-3.1	Evaluate, monitor and mitigate the potential impacts of land development on critical aquifer recharge areas to ensure that the level of protection provided corresponds with the potential for contaminating the water supply aquifer.	Policy ES-2.1	Evaluate the potential impacts of land development on critical aquifer recharge areas to ensure that the level of protection provided corresponds with the potential for contaminating the water supply aquifer	MPP-EN-5 MPP-PS-25	ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV43.4 RUR-9		Added "...monitor and mitigate...".

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-3.2	Work with Pierce County, the Washington State Department of Ecology, Tribes and any relevant liable or engaged parties to protect Bonney Lake's water supply from contaminants originating inside and outside the city limits.	Policy ES-2.2	Work with Pierce County, the Washington State Department of Ecology, and other agencies to protect Bonney Lake's water supply from contaminants originating outside the city limits	MPP-PS-25	ENV-7.8		Added "...tribes...", "...any relevant liable or engaged parties...", and "...inside and...".
ES-3.3	Periodically review and update land use policies, regulations, development, or operating standards to ensure the use of best available science for meeting and exceeding levels of groundwater recharge while preventing degradation of groundwater quality.	Policy ES-2.3	Periodically review and update land use policies, regulations, development, or operating standards to ensure appropriate levels of groundwater recharge while preventing degradation of groundwater quality.	MPP-EN-17 MPP-PS-25	ENV-7		Added "...the use of best available science for meeting and exceeding...".
ES-3.4	Manage surface water to maintain and improve water quality maximizing groundwater recharge.	Policy ES-2.4	Manage surface water to maintain and improve water quality and maximize groundwater recharge.	MPP-EN-17	ENV-7		Updated grammar.
ES-3.5	Require new subdivisions and commercial development to connect to public sewers.	Policy ES-2.5	Require new subdivisions and commercial development to connect to public sewers.	MPP-PS-10	UGA-13.4		
ES-3.6	Encourage homes and businesses with septic systems to connect to public sewers.	Policy ES-2.6	Encourage homes and businesses with septic systems to connect to public sewers.	MPP-PS-10	UGA-13.4		
ES-3.7	Use the best available science (BAS) to protect and enhance groundwater quality.			MPP-EN-6	ENV-32	WAC 365-195-905 through WAC 365-195-925	
~~ES-3.8~~	~~Require regular water quality monitoring and improvement projects to ensure safe drinkable water for all residents regardless of race social, or economic status, accounting for potential impacts of climate change on water quality.~~			~~MPP-EN-4~~ ~~MPP-EN-10~~	~~ENV-7~~ ~~ENV-23~~ ~~ENV-27~~ ~~TR-9.2~~ ~~UGA-13.4.3~~		~~Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.~~
Goal ES-4	Preserve, and restore, and enhance the quality of surface waters to provide high quality natural habitats protected from point and non-point pollution sources.	Goal ES-3	Preserve and restore the quality of surface waters to provide high quality natural habitats protected from point and non-point pollution sources.	Environmental Goal	ENV-19		
ES-4.1	Protect water bodies from point and non-point sources of contamination and nitrification.	Policy ES-3.1	Protect water bodies from point and non-point sources of contamination and nitrification.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-4.2	Promote the enhancement or restoration of surface waters as adjacent development activities occur.	Policy ES-3.2	Promote the enhancement or restoration of surface waters as adjacent development activities occur.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.3	Protect against erosion of drainage channels.	Policy ES-3.3	Protect against erosion of drainage channels.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.4	Encourage land developments to maximize stormwater infiltration	Policy ES-3.4	Encourage land developments to maximize stormwater infiltration	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.5	Promote Low Impact Development techniques as an alternative to standard development practices such as, using natural systems to maintain and enhance environmental quality by having them perform such functions as cleaning air and water, and controlling storm water runoff.	Policy ES-3.5	Promote Low Impact Development techniques as an alternative to standard development practices such as, using natural systems to maintain and enhance environmental quality by having them perform such functions as cleaning air and water, and controlling storm water runoff.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.6	Preserve vegetative buffers along streams and drainage ways to enhance water quality, protect habitat, and prevent erosion.	Policy ES-3.6	Preserve vegetative buffers along streams and drainage ways to enhance water quality, protect habitat, and prevent erosion.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.7	Mitigate stormwater related impacts through best management practices. based on the best available science.	Policy ES-3.7	Mitigate stormwater related impacts through best management practices.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		Added "...based on best available science."
ES-4.8	Protect Fennel Creek's natural functions by being especially diligent in applying to the Fennel Creek corridor those policies relating to wetlands and fish and wildlife habitat as stated elsewhere in this Element	Policy ES-3.8	Protect Fennel Creek's natural functions by being especially diligent in applying to the Fennel Creek corridor those policies relating to wetlands and fish and wildlife habitat as stated elsewhere in this Element	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-4.9	Construct the Fennel Creek corridor environmental improvements identified in the 1999 Environmental Analysis of the Fennel Creek Corridor.	Policy ES-3.9	Construct the Fennel Creek corridor environmental improvements identified in the 1999 Environmental Analysis of the Fennel Creek Corridor.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-4.10	Continue to purchase property along the Fennel Creek Corridor to preserve the corridor and consider using property around the creek as wetland mitigation sites.	Policy ES-3.10	Continue to purchase property along the Fennel Creek Corridor to preserve the corridor and consider using property around the creek as wetland mitigation sites.	MPP-EN-3 MPP-EN-5	ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV-38 ENV-39 ENV43.4 RUR-9 TR-9 EPF-6.10 H-3		
ES-4.11	Work with Tribes, local and regional jurisdictions, and community partners to restore local freshwater bodies identifying and mitigating potential impacts from extreme weather events.			MPP-RC-1 MPP-RC-15 MPP-EN-1	HAC-1 HAC-2 TR-4.6 TC-1 TC-2		
Goal ES-5	Minimize risks to life and property resulting from flooding and preserve habitat associated with floodplains.	Goal ES-4	Minimize risks to life and property resulting from flooding and preserve habitat associated with floodplains.	Environmental Goal	ENV-23 TR-20		
ES-5.1	Prohibit new buildings in the 100-year flood zone as determined by the Federal Emergency Management Agency (FEMA) and as shown on the FEMA Flood Insurance Rate Maps (FIRM) unless the base elevation is above the floodplain elevation, the structure has been flood proofed, or the area is removed from the floodplain.	Policy ES-4.1	Prohibit new buildings in the 100-year flood zone as determined by the Federal Emergency Management Agency (FEMA) and as shown on the FEMA Flood Insurance Rate Maps (FIRM) unless the base elevation is above the floodplain elevation, the structure has been flood proofed, or the area is removed from the floodplain.	MPP-EN-18	ENV-23 ENV-27 TR-9.2 TR-10		
ES-5.2	Protect floodplains from filling, excavating, and other activities that would interfere with natural drainage patterns and negatively affect the habitat functions.	Policy ES-4.2	Protect floodplains from filling, excavating, and other activities that would interfere with natural drainage patterns and negatively affect the habitat functions.	MPP-EN-14 MPP-EN-18	ENV-3 ENV-3.1 ENV-21 ENV-22 ENV-23 ENV-27 ENV-36 TR-9.2 TR-10		
ES-5.3	Preserve and enhance floodplains to provide for natural flood storage protection and habitat functions.	Policy ES-4.3	Preserve floodplains to provide for natural flood storage protection and habitat functions.	MPP-EN-14 MPP-EN-18	ENV-3 ENV-3.1 ENV-21 ENV-22 ENV-23 ENV-27 ENV-36 TR-9.2 TR-10		Added "...and enhanced...".

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-5.4	Require new development and redevelopment designs to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding.	Policy ES-4.4	Design new development and redevelopment projects to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding.	MPP-EN-5 MPP-EN-18	ENV-23 ENV-27 ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV-43.4 RUR-9 TR-9.2 TR-10		Updated grammar.
ES-5.5	Design new city development and redevelopment projects to minimize hazards associated with flooding and extreme weather events, limiting the amount of runoff that contributes to flooding.			MPP-CC-10	TR-10 TR-20 ENV-27		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-5.6	Research and evaluation the implementation of development incentives for projects incorporating climate mitigation and adaptation strategies into their stormwater design criteria.			MPP-DP-46	TR-10 TR-20		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-5.7	Coordinate the implementation of flood mitigation and adaptation measures based on the best available science for development already built within flood zones.			MPP-EN-6	ENV-32	WAC 365-195-905 through WAC 365-195-925	
Goal ES-6	Protect and enhance natural habitat, groundwater recharge, and floor attenuation functions performed by wetlands.	Goal ES-5	Protect natural habitat, groundwater recharge, and floor attenuation functions performed by wetlands.	Environmental Goal			Added "...and enhance...".
ES-6.1	Ensure that wetland buffers are adequately sized to protect functions and values of wetlands.	Policy ES-5.1	Ensure that wetland buffers are adequately sized to protect functions and values of wetlands.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		
ES-6.2	Ensure a no net loss of wetland functions and values.	Policy ES-5.2	Ensure a no net loss of wetland functions and values.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-6.3	Avoid denying all reasonable use on any parcel.	Policy ES-5.3	Avoid denying all reasonable use on any parcel.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		
ES-6.4	Protect wetlands from water quantity or quality impacts stemming from improper stormwater management.	Policy ES-5.4	Protect wetlands from water quantity or quality impacts stemming from improper stormwater management.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		
ES-6.5	Encourage environmental stewardship programs aimed at wetland preservation.	Policy ES-5.5	Encourage environmental stewardship programs aimed at wetland preservation.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		
ES-6.6	Pursue implementation of a wetland mitigation-banking program.	Policy ES-5.6	Pursue implementation of a wetland mitigation-banking program.	MPP-EN-17	ENV-7 ENV-23 ENV-27 TR-9.2 UGA-13.4.3		
ES-6.7	Use the best available science when assessing wetland values and functions.			MPP-EN-6	ENV-32	WAC 365-195-905 through WAC 365-195-925	
Goal ES-7	Preserve, restore, and enhance fish and wildlife habitat conservation areas.	Goal ES-6	Preserve and restore fish and wildlife habitat conservation areas.	Environmental Goal	ENV-21 ENV-32		Added "...and enhance...".
ES-7.1	Preserve habitats for species, which the federal or state government have identified, as endangered, threatened, or sensitive.	Policy ES-6.1	Preserve habitats for species, which the federal or state government have identified, as endangered, threatened, or sensitive.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		
ES-7.2	Further the conservation of sites that protect fish and wildlife habitat conservation areas through incentives or acquisition	Policy ES-6.2	Encourage conservation of sites that protect fish and wildlife habitat conservation areas through incentives or acquisition	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		Updated grammar.
ES-7.3	Support the restoration of ecological functions and the natural environment in environmentally damaged areas by offering incentives.	Policy ES-6.3	Encourage the restoration of ecological functions and the natural environment in environmentally damaged areas through incentives.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		Updated grammar.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-7.4	Protect and enhance water quality in lakes and streams using the best available science in coordination with local and regional jurisdictions, Tribes, and community organizations.	Policy ES-6.4	Protect water quality in lakes and streams.	MPP-EN-3	ENV-38 ENV-39 TR-9 EPF-6.10 H-3		Added "...using the best available science in coordination with local and regional jurisdictions, Tribes, and community organizations."
ES-7.5	Promote clustered developments, common areas, buffers, conservation easements, and retention of native vegetation as a means of conserving critical habitat.	Policy ES-6.5	Promote clustered developments, common areas, buffers, conservation easements, and retention of native vegetation as a means of conserving critical habitat.	MPP-EN-3 MPP-EN-5 MPP-EN-10 MPP-RGS-15	ENV-3.9 ENV-30 ENV-30.1 ENV-30.2 ENV-34 ENV-38 ENV-39 ENV-43.4 TR-9 EPF-6.10 H-3 RUR-5 RUR-9		
ES-7.6	Use the best available science in measures preserving, restoring, and enhancing fish and wildlife habitats, giving special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat.			MPP-EN-6 MPP-PS-21	ENV-21 ENV-32	WAC 365-195-905 through WAC 365-195-925	
ES-7.7	Coordinate conservation or protection measures of anadromous fish habitat in partnership with local Tribes.			MPP-RC-15	TC-1 TC-2	RCW 36.70A.110	
Goal ES-8	Establish and maintain a healthy urban forest with an overall tree canopy goal of 38 percent.	Goal ES-7	Promote, preserve, and emphasize a healthy urban forest with an overall tree canopy goal of 38%.	Environmental Goal	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		Updated grammar.
ES-8.1	Protect and conserve open space and transition buffers between urban and rural areas	Policy ES-7.1	Protect and conserve open space and transition buffers between urban and rural areas	MPP-EN-9 EN-Action-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-16.8 ENV-17 ENV-22.3 ENV-23.3 ENV-44.2		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-8.2	Preserve and protect public views of the mountains and valley corridors.	Policy ES-7.2	Preserve and protect public views of the mountains and valley corridors.	MPP-EN-9 EN-Action-4	ENV-11 ENV-12 ENV-13 ENV-15 ENV-16.8 ENV-17 ENV-22.3 ENV-23.3 ENV-44.2		
ES-8.3	Practice land cover management, which includes forest and topsoil preservation, native growth protection easements, dense vegetative zones, and preservation of the tree canopy.	Policy ES-7.3	Practice land cover management, which includes forest and topsoil preservation, native growth protection easements, dense vegetative zones, and preservation of the tree canopy.	MPP-EN-9 MPP-EN-13	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		
ES-8.4	Protect significant trees and, promote tree replanting, and the use of native plants in residential and commercial development and redevelopment.	Policy ES-7.4	Protect significant trees, promote tree replanting, and encourage the use of native plants in residential and commercial development.	MPP-EN-9 MPP-EN-13	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		Added "...and redevelopment."
ES-8.5	Support the preservation of native vegetation and mature trees, revegetation, and appropriate landscaping to improve the quality of air, water, and fish and wildlife habitat.	Policy ES-7.5	Promote the preservation of native vegetation and mature trees, revegetation, and appropriate landscaping to improve air and water quality and fish and wildlife habitat.	MPP-EN-9 MPP-EN-13	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		Updated grammar.
ES-8.6	Promote the use of native plants in residential and commercial landscapes	Policy ES-7.6	Promote the use of native plants in residential and commercial landscapes	MPP-EN-9 MPP-EN-13	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		
ES-8.7	Maintain the City urban forestry in-lieu fee program to assist the City in establishing or preserving urban tree canopy.	Policy ES-7.7	Develop an in-lieu fee program to assist the City in establishing or preserving urban tree canopy.	MPP-EN-9 MPP-EN-13	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		Updated to current language.
ES-8.8	Provide opportunities to engage the Tree Board as advisors and stakeholders committed to the preservation of our tree canopy.	Policy ES-7.8	Provide opportunities to engage the Tree Board as advisors and stakeholders committed to the preservation of our tree canopy.	MPP-EN-9	ENV-16.8 ENV-22.3 ENV-23.3 ENV-44.2		
Goal ES-9	Preserve and protect agricultural resource lands and urban agriculture sites to improve access to healthy foods, build social connections, and provide local sourced food.	Goal ES-8	Preserve and protect agricultural resource lands and urban agriculture sites to improve access to healthy foods, build social connections, and provide local sources of food.	MPP-DP-20	AG-8 CU-1 EC-4		Updated grammar.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
~~ES-9.1~~	~~Preserve Pierce County's designation of "urban agricultural land of long-term commercial significance" for properties so designated in the proposed Fennel Creek Corridor UGA.~~	~~Policy ES-8.1~~	~~Preserve Pierce County's designation of "urban agricultural land of long-term commercial significance" for properties so designated in the proposed Fennel Creek Corridor UGA.~~	~~MPP-DP-20~~ ~~MPP-DP-32~~ ~~MPP-DP-42~~ ~~MPP-EC-23~~	~~ENV-18.3~~ ~~AG-2.1~~ ~~AG-5~~ ~~AG-5.1~~ ~~AG-5.2~~ ~~AG-7.2~~ ~~ENV-7.9~~ ~~ENV-7.10~~ ~~ENV-7.11~~		
ES-9.~~2~~1	Allow continued agricultural production in areas which are producing such products but are not currently in designated agricultural resource lands as long as such production is appropriate incompatible with surrounding urban context.	Policy ES-8.2	Allow continued agricultural production in areas which currently produce such products but which have not been designated agricultural resource lands if such production is appropriate in an urban context.	MPP-DP-20 MPP-DP-32 MPP-DP-39 MPP-EC-23	ENV-18.3 RUR-8 RUR-9 RUR-10		Updated grammar.
ES-9.~~3~~2	Maintain agricultural production as the principal use on agricultural lands by limiting residential development, preventing conversion to non-agricultural uses, and prohibiting uses that are incompatible with long-term agricultural production.	Policy ES-8.3	Maintain agricultural production as the principal use on agricultural lands by limiting residential development, preventing conversion to non-agricultural uses, and prohibiting uses that are incompatible with long-term agricultural production.	MPP-DP-20 MPP-DP-32 MPP-DP-33 MPP-DP-39 MPP-DP-42 MPP-DP-44 MPP-EC-23	ENV-18.3 AG-2.1 AG-5 AG-5.1 AG-5.2 AG-7.2 ENV-7.9 ENV-7.10 ENV-7.11 RUR-3 RUR-4		
ES-9.~~4~~3	Protect property owner's rights to cultivate gardens to produce fresh fruits and vegetables and to keep a limited number of farm animals through the City's development regulations.	Policy ES-8.4	Protect property owner's rights to cultivate gardens to produce fresh fruits and vegetables and to keep a limited number of farm animals through the City's development regulations.	MPP-DP-20	AG-8		
ES-9.~~5~~4	Expand access to community gardens through Bonney Lake to increasing availability of locally sourced fresh produce while reducing greenhouse gas emissions.	Policy ES-8.5	Expand access to community gardens through Bonney Lake to increase access to fresh produce.	MPP-DP-20	AG-8		Added "...availability of locally sourced..." and "...while reducing greenhouse gas emissions."
ES-9.~~6~~5	Remain open to further designations of agricultural resource lands on land shown to merit that designation.	Policy ES-8.6	Remain open to further designations of agricultural resource lands on land shown to merit that designation.	MPP-DP-20 MPP-DP-39 MPP-DP-44	AG-8 RUR-8 RUR-9 RUR-10		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-9.~~7~~6	Ensure that land uses proposed adjacent to lands designated, as agricultural resource lands are compatible with agricultural activities.	Policy ES-8.7	Ensure that land uses proposed adjacent to lands designated, as agricultural resource lands are compatible with agricultural activities.	MPP-DP-20 MPP-DP-39 MPP-DP-41 MPP-DP-42 MPP-DP-43 MPP-DP-44	RUR-8 RUR-9 RUR-10 AG-2.1 AG-3 AG-4.1 AG-5 AG-5.1 AG-5.2 AG-6 AG-7 AG-7.2 AG-7.9 ENV-7 ENV-7.9 ENV-7.10 ENV-7.11 EPF-4.2.8		
ES-9.~~8~~7	Support community education programs providing opportunities to learn about urban agriculture and ways to use and access healthy foods locally, especially for communities that experience greater barriers accessing healthy foods.			MPP-DP-20	AG-8	RCW 36.70A.070(5)	
ES-9.~~9~~8	Identity and mitigate the potential impacts of climate change on local agricultural lands, systems, and working condition.			MPP-DP-39	ENV-1 ENV-6		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
Goal ES-10	Meet the Washington State goal to reduce greenhouse emissions to 25% below 1990 levels by 2035 established by RCW 70.235.020(1)(a)(ii) and ensuring that overall air quality meets or exceeds State and Federal standards.	Goal ES-9	Meet the Washington State goal to reduce greenhouse emissions to 25% below 1990 levels by 2035 established by RCW 70.235.020(1)(a)(ii) and ensuring that overall air quality meets or exceeds State and Federal standards.	Environmental Goal	ENV-46 TR-10		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-10.1	Support efforts of other local, regional and State agencies to improve regional air quality.	Policy ES-9.1	Support efforts of other local, regional and State agencies to improve regional air quality.	MPP-EN-1 MPP-EN-3 MPP-EN-22 MPP-CC-11 CC-Action-3	ENV-1 ENV-4 ENV-5.4 ENV-16 ENV-17 ENV-20 ENV-21.9 ENV-23 ENV-25 ENV-29 ENV-36 ENV-38 ENV-39 ENV-39.2 ENV-40 ENV-42 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33		
ES-10.2	Coordinate land use planning and local transportation planning to reduce the potential for long-term exposure to criteria air pollutants and toxic air contaminants.	Policy ES-9.2	Coordinate land use planning and local transportation planning to reduce the potential for long-term exposure to criteria air pollutants and toxic air contaminants.	MPP-EN-3 MPP-EN-22 MPP-CC-11 CC-Action-3	ENV-29 ENV-38 ENV-39 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-10.3	Reduce the air quality impacts created by truck traffic, hazardous materials, and development through transportation investments that reduce vehicle miles traveled and greenhouse gas emissions.	Policy ES-9.3	Reduce the air quality impacts created by truck traffic, hazardous materials, and development.	MPP-EN-3 MPP-EN-22 MPP-CC-11 CC-Action-3	ENV-29 ENV-38 ENV-39 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33		Added "...through transportation investments that reduce vehicle miles traveled and greenhouse gas emissions."
ES-10.4	Continue to implement the policies adopted by Resolution 2049.	Policy ES-9.4	Continue to implement the policies adopted by Resolution 2049.	MPP-EN-3 MPP-EN-22 MPP-CC-11 CC-Action-3	ENV-29 ENV-38 ENV-39 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33		
ES-10.5	Encourage energy efficiency in site design, building orientation, landscaping, and utilities/infrastructure for all development and redevelopment projects.	Policy ES-9.5	Encourage energy efficiency in site design, building orientation, landscaping, and utilities/infrastructure for all development and redevelopment projects.	MPP-EN-3 MPP-EN-5 MPP-EN-22 MPP-CC-11 CC-Action-3 MPP-DP-46	ENV-29 ENV-34 ENV-38 ENV-39 ENV-43.4 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33 RUR-9		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-10.6	Pursue renewable energy sources as part of new and existing city buildings and infrastructure projects.	Policy ES-9.6	Encourage renewable energy sources for new and existing buildings and infrastructure.	MPP-EN-3 MPP-EN-22 MPP-CC-2 MPP-CC-11 CC-Action-3 MPP-DP-46 MPP-PS-13	ENV-29 ENV-34 ENV-38 ENV-39 ENV-43.4 ENV-46.4 TR-9 TR-11 TR-21 EPF-6.10 H-3 C-22 C-31 C-33 RUR-9		Updated grammar.
ES-10.7	Incentivize renewable energy sources for new and existing buildings and infrastructure projects proposed in the city.			MPP-PS-13 MPP-CC-5 MPP-CC-7	ENV-45 C-31		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-10.8	Identify and publish a citywide approach to increasing energy efficiency and greenhouse gas emission reductions.			Climate Change Goal MPP-EN-22 MPP-CC-1 MPP-CC-3	ENV-45 ENV-46 TR-10 C-31		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-10.9	Evaluate the implementation of incentive opportunities to encourage desired energy efficiency practices within site design, building orientation, landscaping, and utility/infrastructure for all development and redevelopment projects.			MPP-CC-5 MPP-CC-7	ENV-45 ENV-46 TR-10 C-31		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
Goal ES-11	Develop disaster preparedness management systems with a focus on community resilience that prepares the Bonney Lake community to withstand, adapt, and recover from disaster in a responsive and healthy manner.	Goal ES-10	Develop disaster preparedness management systems with a focus on resilience that prepares our residents, community, and systems to recover from disaster quickly and healthfully.	MPP-PS-19			Updated grammar. Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-11.1	Improve and retrofit existing infrastructure and develop future infrastructure to withstand a variety of compounding severe weather events ranging from droughts to floods, prioritizing improvements to communities most vulnerable to these events.	Policy ES-10.1	Improve existing infrastructure and develop future infrastructure to withstand greater than average weather events including storms and drought.	MPP-CC-7 MPP-CC-8 CC-Action-3 CC-Action-4 MPP-T-31 MPP-PS-17 MPP-PS-19	ENV-40 C-22 C-31 C-33 ENV-29 ENV-39 ENV-46.2 TR-9 TR-11 TR-20 TR-20.1 TR-21 UGA-10 H-5		Added "...and retrofit..." and "... a variety of compounding severe weather events ranging from droughts to floods, prioritizing improvements to communities most vulnerable to these events."
ES-11.2	Cooperate with other agencies in preparing emergency management plans to respondto a lahar originating on Mount Rainer, an eruption of Mount Rainer, or an earthquake along the Cascadia Subduction Zone or the Nisqually Fault Line.	Policy ES-10.2	Cooperate with other agencies in preparing emergency management plans to respondto a lahar originating on Mount Rainer, an eruption of Mount Rainer, or an earthquake along the Cascadia Subduction Zone or the Nisqually Fault Line.	MPP-CC-8 CC-Action-3 CC-Action-4 MPP-PS-17 MPP-PS-19	ENV-40 TR-20.1 C-22 C-31 C-33 ENV-29 ENV-39 ENV-46.2 TR-9 TR-11 TR-20 TR-21 H-5		

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2024 Proposed (*Envision Bonney Lake*)		**2015 Existing (*Bonney Lake 2035*)**		**Requirement**			**Notes**
Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-11.3	Develop and update maps that identify areas of the City most at risk of hazards and develop resiliency resources and education programs for citizens likely to be impacted., prioritizing resources and programs for citizens most vulnerable within these areas.	Policy ES-10.3	Develop maps that identify areas of the City most at risk of hazards and develop resiliency resources and education programs for citizens likely to be impacted.	MPP-CC-7 MPP-CC-8 CC-Action-3 CC-Action-4 MPP-PS-17 MPP-PS-19	ENV-40 C-22 C-31 C-33 ENV-29 ENV-39 ENV-46.2 TR-9 TR-11 TR-20 TR-20.1 TR-21 H-5		Added "...and update..." and "...prioritizing resources and programs for citizens most vulnerable within these areas."
ES-11.4	Develops plans for managing event evacuees and, when appropriate, enter into interlocal and mutual aid agreements to help manage temporary population influx from disasters.	Policy ES-10.4	Develops plans for managing event evacuees and, when appropriate, enter into interlocal and mutual aid agreements to help manage temporary population influx from disasters.	MPP-CC-8 CC-Action-3 CC-Action-4 MPP-T-31 MPP-PS-17 MPP-PS-19	ENV-40 C-22 C-31 C-33 ENV-29 ENV-39 ENV-46.2 TR-9 TR-11 TR-20 TR-20.1 TR-21 UGA-10 H-5		
ES-11.5	Develop a continuity of operations plan that identifies the City's essential functions and provides procedures for notifications, orders of succession, delegation of authority, alternate locations, essential records, and reconstitution.	Policy ES-10.5	Develop a continuity plan that identifies the City's essential functions and provides procedures for notifications, orders of succession, delegation of authority, alternate locations, essential records, and reconstitution.	MPP-CC-8 CC-Action-3 CC-Action-4 MPP-PS-17 MPP-PS-19	ENV-40 TR-20.1 C-22 C-31 C-33 ENV-29 ENV-39 ENV-46.2 TR-9 TR-11 TR-20 TR-21 H-5		Added "...of operations...".
ES-11.6	Evaluate urban forestry program and codes for incorporation of fire prevention and preparedness best practices.	Policy ES-10.6	Evaluate urban forestry program and codes for incorporation of fire prevention and preparedness best practices.	MPP-PS-19	TR-20		
ES-11.7	Complete a Risk and Resilience Analysis and develop an Emergency Response Plan for drinking water infrastructure.	Policy ES-10.7	Complete a Risk and Resilience Analysis and develop an Emergency Response Plan for drinking water infrastructure.	MPP-PS-19	TR-20		

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Goal / Policy #	Goal / Policy Language	Goal / Policy #	Goal / Policy Language	MPP	CPP	RCW/WAC	
ES-11.8	Coordinate with other local and regional agencies and community organizations in preparing emergency management plans to respond to a variety of compounding severe weather events ranging from droughts to floods, prioritizing improvements to communities most vulnerable to these events.			MPP-CC-6 MPP-CC-7 MPP-PS-17	TR-20		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-11.9	Ensure members of the public receive timely concise information and instructions to proactively respond when an emergency strikes, especially for communities disproportionately impacted in emergency situations.			MPP-PS-17 MPP-T-31	TR-20		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-11.10	Coordinate with Tribes, local and regional jurisdictions, and community groups to explore the logistics of joining a Pierce County coalition to address the impacts of climate change on a regional scale, recognizing the clear danger posed by climate change, and its potential to drastically impact quality of life, the natural and built environment, and human health and safety for future generations.			MPP-PS-17 MPP-T-31	HAC-1 HAC-2 TR-4.6 TC-1 TC-2		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.
ES-11.11	Require the incorporation of climate resiliency measures in all new development, especially new critical infrastructure and public facilities.			MPP-CC-7 MPP-EC-16 MPP-T-31 MPP-PS-19	ENV-40		Added to comply with the MPPs. Growth Management Act will require a Climate Change Element to be incorporated into Comprehensive plans by 2029.

DRAFT ORDINANCE NO. D25-80

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, REGARDING IMPLEMENTING ACTIONS ASSOCIATED WITH THE 2024 COMPREHENSIVE PLAN PERIODIC UPDATE; AMENDING THE OFFICIAL ZONING DISTRICT FOR REAL PROPERTY COMMONLY KNOWN AS PARCEL NUMBERS 2925000210 AND 2925000220; AMENDING THE OFFICIAL ZONING MAP; AMENDING THE BONNEY LAKE MUNICIPAL CODE FOR CONSISTENCY WITH THE COMPREHENSIVE PLAN AND STATE LAW; PROVIDING FOR SEVERABILITY AND CORRECTIONS; AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, in 1990, the Washington State Legislature enacted the Growth Management Act (GMA), codified as Chapter 36.70A of the Revised Code of Washington (RCW), that requires cities and counties throughout the state to adopt comprehensive plans for a twenty-year planning period that includes various elements for land use, housing, capital facilities, utilities, transportation, and economic development, and which may include other elements such as parks and recreation and conservation; and;

WHEREAS, the City adopted a GMA Comprehensive Plan on May 30, 1995, after study, review, community input, public workshops and public hearings; and

WHEREAS, RCW 36.70A.130(4) requires that each comprehensive land use plan and development regulations be subject to continuing review and evaluation by the county or city that adopted them, and, that the jurisdiction should periodically review and, if needed, revise their comprehensive plans and development regulations to ensure the plan and regulations comply with the requirements of the Growth Management Act (GMA) – Chapter 36.70A RCW; and

WHEREAS, the GMA provides for amendments to the Comprehensive Plan no more than once per year; and

WHEREAS, the last periodic update of the City's Comprehensive Plan was completed in 2015; and

WHEREAS, the City of Bonney Lake was required to conduct a major periodic update of its Comprehensive Plan and development regulations pursuant to RCW 36.70A.130 by December 31, 2024; and

WHEREAS, the City received periodic update grants totaling $125,000 from the Washington State Department of Commerce to help fund the preparation of specific components of the periodic update to its Comprehensive Plan, including the critical areas

consistency checklist and development regulations consistency checklist (Contract Nos. 23-63210-046 and 24-63335-246); and

WHEREAS, the City Council passed Resolution No. 3151 to officially initiate the Comprehensive Plan process, including adoption of a Project Charter and Public Participation Plan; and

WHEREAS, pursuant to the requirements of the GMA, the City is required to develop and adopt development regulations, including the Official Zoning Map, which are consistent with and implement the adopted Comprehensive Plan and applicable subarea plans; and

WHEREAS, the Comprehensive Plan's Future Land Use Map was amended as part of this update to show future land uses for specific properties, which authorizes a change in zoning of said properties; and

WHEREAS, the City's Official Zoning Map must also be amended to implement the Comprehensive Plan's Future Land Use Map; and

WHEREAS, pursuant to RCW 36.70A.470(2), each city and county planning under RCW 36.70A.040 must include in its development regulations a procedure for any interested person, including applicants, citizens, hearings examiners, and staff of other agencies, to suggest plan or development regulation amendments; and

WHEREAS, Chapter 14.140 of the Bonney Lake Municipal Code, titled Amendments to the Comprehensive Plan or Development Regulations, establishes procedures for comprehensive plan or development regulation amendments as required by RCW 36.70A.470(2); and

WHEREAS, as part of its periodic update process, the City of Bonney Lake accepted applications for non-city-initiated site-specific comprehensive plan amendments and concurrent zoning reclassifications between May 1, 2021, and April 30, 2023; and

WHEREAS, one (1) application was received, and the city chose to review the application concurrently with the 2024 comprehensive plan periodic update (City of Bonney Lake File Nos. PLN-2023-02837 – Stamps Comprehensive Plan Amendment, and PLN-2023-02828 – Stamps Rezone); and

WHEREAS, pursuant to RCW 36.70A.130(7)(b) and after review against the Washington State Department of Commerce Critical Areas Checklist, the development regulations related to critical areas were determined to be consistent with state law and have not been updated as part of this periodic update; and

WHEREAS, RCW 36.70A.040(3), WAC 365-196-800 and WAC 365-196-810 require cities to adopt development regulations that implement and are consistent with the comprehensive plan; and

WHEREAS, amendments to the Bonney Lake Municipal Code are proposed to implement and be consistent with *Envision Bonney Lake*; and

WHEREAS, copies of these proposed amendments were filed with the Washington State Department of Commerce on October 9, 2025, not less than sixty days prior to final action, pursuant to RCW 36.70A.106 and WAC 365-196-630; and

WHEREAS, the Public Services Director acting as the State Environmental Policy Act (SEPA) Responsible Official determined the proposal will not have a probable significant adverse impact on the environment, and an environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c) and issued a Determination of Nonsignificance (DNS)on November 3, 2025, with a comment period through November 19, 2025. This DNS was [appeal status] and the decision [decision status]; and

WHEREAS, the City provided public notice of the hearing as required by Bonney Lake Municipal Code (BLMC) 14.140.040; and

WHEREAS, the Planning Commission held a public hearing on November 19, 2025, as required by BLMC 14.140.080 and recommended that the City Council [recommendation], as required by BLMC 14.140.100; and

WHEREAS, on December 2, 2025, City Council held a meeting to consider the Planning Commission recommendation; and

WHEREAS, adoption of the ordinance will bring the city into compliance with RCW 36.70A.040(3), WAC 365-196-800 and WAC 365-196-810 and will serve the general welfare of the public;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings of Facts and Conclusions. The findings of fact and conclusions set forth Attachment A, the response to comments submitted to the City provided in Attachment B, the application materials for the rezone of the Stamps property provided in Attachment C, the Department of Commerce Critical Areas Checklist provided in Attachment E, and the Department of Commerce Periodic Update Checklist for Fully-Planning Cities and Expanded Housing Element Checklist provided in Attachment F are adopted in full by the City Council in support of its decision. The recitals listed above in this Ordinance are further adopted as legislative findings of fact.

Section 2. Rezone of Stamps Property. Consistent with the Planning Commission's recommendation, Council hereby approves the proposed amendment to zoning map (City of Bonney Lake File No. PLN-2023-02828 – Stamps Rezone) to change the zoning classification of Pierce County Tax Parcel Nos. 2925000210 and 2925000220, commonly known as 19401 94th St E and 19405 94th St E, from R-3 to Midtown Core.

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Section 3. **Zoning Map.** The City Council adopts the Zoning Map included as Attachment D, attached hereto and incorporated by this reference, as the Official Zoning Map superseding all previous versions of the Official Zoning Map.

Section 4. **Amendment.** Subsection "A.1" of Section 2.18.090 of the Bonney Lake Municipal Code is amended to read as follows:

2.18.090 Powers of the hearing examiner.

A. … 1. Issue final decision on all Type ~~3A and 3B~~4 permits as defined in BLMC 14.30.010; ….

Section 5. **Amendment.** Subsection "A" of Section 2.18.180 of the Bonney Lake Municipal Code is amended to read as follows:

2.18.180 Appeal from examiner's decision.

A. The decision of the examiner on Type ~~3A and 3B~~4 permit applications and appeals of administrative decisions, notice of violations, and civil penalties shall be final. Appeal of a hearing examiner's decision shall be through the Land Use Petition Act (LUPA), Chapter 36.70C RCW. ….

Section 6. **Amendment.** Subsection "B" of Section 9.07.030 of the Bonney Lake Municipal Code is amended to read as follows:

9.07.030 Identification of environments.

…

B. The following land use zoning classifications as described in BLMC Title 18 are hereby assigned the EDNA classifications below:

1. Class A EDNA are districts primarily utilized for residential purposes in the city and include R-1 district, ~~R-2 medium-density residential district,~~ R-3 high-density residential district, ~~and~~ RC-5 residential/conservation district, and midtown core (MC).

2. Class B EDNA are districts primarily utilized for commercial purposes in the city and include ~~C-1 neighborhood commercial district,~~ C- 2 commercial district, C-3 warehousing and light manufacturing district, C-2/C-3 combined retail commercial, warehousing and light manufacturing, downtown core district (DC), and downtown mixed use (DM).

3. Class C EDNA are districts primarily utilized or potentially utilized for industrial purposes in the city and include ~~M-1 manufacturing~~ public facility (PF) and eastown (E)~~district~~.

Section 7. **Amendment.** Subsections "B" and "F.1" of Section 12.04.005 of the Bonney Lake Municipal Code is amended to read as follows:

Commented [LB1]: Updated permit types based on new typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

Commented [LB2]: Updated permit types based on new typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

Commented [LB3]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB4]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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12.04.005 Underground distribution utilities required.

… B. New Wiring Systems to Be Placed Underground. Any construction activities related to development of all ~~subdivisions, short plats~~ land divisions, as defined in 17.10.030 BLMC, multifamily construction, public facilities, or commercial construction shall place all existing and new utilities underground for internal development as well as along the existing and new street frontage adjacent to the project.

…

F. …

1. All residential short ~~plats~~ subdivisions of four lots or less, unit lot subdivisions of four unit lots or less, administrative lots splits, and duplexes, triplexes, and fourplexes where new public roads are not built, unless the property owner voluntarily places the above-ground utilities underground; or ….

Commented [LB5]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Section 8. **New Section.** A new Section 12.04.025 is hereby added to the Bonney Lake Municipal Code to read as follows:

12.04.025 Deviation from standards.

The director may grant deviations from the construction standards adopted in this chapter; provided that all of the following are met.

A. The applicant shall submit the request to the city using forms provided by the director. The director shall prepare a submittal checklist providing a list of the materials that shall be considered the minimum necessary to constitute a complete request.

B. The director will review the deviation request, together with all supporting material and any staff review and recommendations. The director shall make written findings supporting the determination that the deviation:

1. Produces compensating or comparable results, that are adequate for the end users, and that are in the general public interest;

2. Will not violate any development related conditions imposed upon the project;

3. Will not be materially detrimental to the public welfare or injurious to the property or improvement in the vicinity in which the subject property is located; and

Commented [LB6]: Added to clarify process mentioned on Page 100-1 of the City of Bonney Lake Development Policies and Public Works Design Standards. Provides a clear process and flexibility for applicants to propose an alternative engineering solution not contemplated under the Design Standards.

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4. Is based upon sound engineering judgment, and that the objectives of safety, function, appearance, fire protection, environmental protection, and maintainability are fully met.

C. Request for deviation on a project which has previously been reviewed by other agencies shall be sent to those agencies for re-review before approval or denial of the deviation.

D. The director may grant or deny a deviation request in full or in part based on the written findings. The director may attach specific conditions to the deviation which will serve to accomplish the intent of standards, criteria, and established policies.

E. Decisions of the director are final and may not be appealed separately from the final decision on the associated permit application.

F. Deviations must receive approval before the associated permit application can be approved. In the event a deviation becomes necessary during construction, the deviation must be approved prior to completing construction associated with the deviation request.

G. Fees for deviation requests shall be set by resolution of the city council.

Section 9. **Amendment.** Section 12.04.030 of the Bonney Lake Municipal Code is amended to read as follows:

12.04.030 Definitions.

A. "Director" means the Public Services Director or designee.

B. ~~A.~~ "Frontage" or "street frontage" is defined as that portion of the property that abuts city right-of-way.

C. ~~B.~~ "Frontage improvement charge" or "FIC" means the amount the developer may elect to pay in lieu of physical improvements.

D. ~~C.~~ "New development" is defined is defined as the construction of a nonresidential project which requires permits from the city, the construction of a duplex~~,~~ or multifamily building as defined in BLMC 18.04.130, ~~short subdivision, or subdivision~~ or a land division, as defined in 17.10.030 BLMC.

Section 10. **Amendment.** Subsection "A.1" of Section 12.04.040 of the Bonney Lake Municipal Code is amended to read as follows:

12.04.040 Frontage improvement exemption.

…

Commented [LB7]: Added to clarify role of director in relation to this chapter.

Commented [LB8]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB9]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

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A. …

1. Frontage improvement charges shall be paid prior to the time when the ~~plat~~ land division is finalized.

….

Section 11. **Amendment.** Section 12.28.020 of the Bonney Lake Municipal Code is amended to read as follows:

12.28.020 Installation of street lights as a condition of subdivision, unit lot subdivision, or short subdivision.

Installation of street lights as a condition of ~~subdivision of property~~ a land division is required and governed by BLMC 17.50.080.

Section 12. **Amendment.** Subsection "C" of Section 12.28.030 of the Bonney Lake Municipal Code is amended to read as follows:

12.28.030 City installation of street lights.

…

C. Should the city, in its discretion, approve installation of street lighting in response to a request for additional street lighting on existing public residential streets not associated with a ~~subdivision~~ land division application, the installation of such lighting will follow the location standards set forth in this section but will be consistent with the existing pole and light head standard ~~of the subdivision~~ for a land division unless otherwise approved by the ~~public works~~ director.

….

Section 13. **Amendment.** Subsections "C" and "M" of Section 13.04.030 of the Bonney Lake Municipal Code are amended to read as follows:

13.04.030 Definitions.

…

C. "C".

1. "City" means the city of Bonney Lake.

2. "Co-living housing" means "co-living housing" as defined in BLMC 18.04.030.

3. ~~2.~~ "Commodity charge" means the amount the customer must pay the city for water by volume (cost/100 cubic feet).

Commented [LB10]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB11]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB12]: Added to be consistent with sewer connection fees, consistent with ESHB 1998, Laws of 2024, Section 2(8).

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4. ~~3.~~ "Condominium" means a "condominium" as defined in BLMC 18.04.030.

5. ~~4.~~ "Connection charge" means the total of the cost of the customer's connection to the system as defined in subsection (I)(1) of this section plus the customer's equitable share of the cost of the system.

6. ~~5.~~ "Council" means the city council of the city of Bonney Lake.

…

M. "M".

1. "Mobile home parks, and recreational vehicle parks" means a "mobile/manufactured home/recreational vehicle park" as defined in BLMC 18.04.130.

2. ~~1.~~ "Metered service" means the service for which charges are computed on the basis of measured quantities of water.

3. ~~2.~~ "Multifamily" means "multifamily" as defined in BLMC 18.04.130.

….

Section 14. **Amendment.** Subsections "D.2.d", "D.2.e", "D.2.f", and "D.2.g" of Section 13.04.070 of the Bonney Lake Municipal Code are amended to read as follows:

13.04.070 Water service applications and connection charges.

…

D. …

2. …

d. Co-living Units. Co-living units shall be charged 50 percent of the SDC applicable to a five-eighths-inch single-family connection for each co-living unit. There shall be only one water meter installed for each building housing multiple co-living units.

e. Multifamily, Mobile Home Parks, and Recreational Vehicle Parks. Multifamily, mobile home parks, and recreational vehicle (RV) parks shall be charged 77 percent of the SDC applicable to a five-eighths-inch single-family connection for each living unit/space/stall. There shall be only one water meter installed for each building housing multiple residential units.

Commented [LB13]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB14]: Added to be consistent with sewer connection fees, consistent with ESHB 1998, Laws of 2024, Section 2(8).

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f. ~~e.~~ Alternative Assignment of Residential Equivalents (REs). To ensure that all new connections pay for an equitable share of system costs based on their demands and service characteristics, the city reserves the right to determine an alternative assignment of REs to connections that are one and one-half inches or larger. When applicable, this assignment shall be determined by converting the estimated water usage of the connection to REs.

g. ~~f.~~ Property Owner's Responsibility. Property owners are responsible for all leaks or damage due to leaks from privately installed and owned water lines. The property owner shall install and maintain at his own expense all water service from the water meter to the place of use.

Section 15. **Amendment.** Subsection "C.1.b" of Section 13.04.100 of the Bonney Lake Municipal Code is amended to read as follows:

13.04.100 Water rates.

…

C. Multiple Dwelling Units

1. …

b. In the case of apartments/trailer courts/co-living units having one meter, each unit will be billed as though separately connected to the water main, occupied or not, based on five-eighths- or three-quarters-inch meter rates.

….

Commented [LB15]: Added to be consistent with how other single-meter buildings are billed, in relation to ESHB 1998, Laws of 2024.

Section 16. **Amendment.** Subsections "C.2" – "C.7", Subsection "L", and Subsection "N" of Section 13.12.010 of the Bonney Lake Municipal Code are amended to read as follows:

13.12.010 Definitions.

…

C. "C".

1. "City" means the city of Bonney Lake, Washington.

2. "Co-living housing" means "co-living housing" as defined in BLMC 18.04.030.

Commented [LB16]: Added to comply with ESHB 1998, Laws of 2024, Section 2(8).

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3. 2. “Collection system” means the system of public sewers to be operated by the city designed for the collection of sanitary sewerage.

4. 3. “Commercial user” means any premises used for commercial or business purposes which is not a residential user and not an industry as defined in this chapter. A commercial user is one who introduces primarily domestic wastes and wastes from sanitary conveniences into the sewer system.

5. 4. “Condominium” means a “condominium” as defined in BLMC 18.04.030.

6. 5. “Council” means the city council of the city of Bonney Lake.

7. 6. “County”

…

L. “L.”

1. “Land division” means “land division” as defined in BLMC 17.10.030.

2. 1. “Lateral” …

3. 2. “Lot” …

…

N. “N.”

1. “New development” means the construction of a nonresidential project which requires permits from the city, the construction of a duplex, multifamily building as defined in BLMC 18.04.130, or single-family residence, ~~short subdivision, or subdivision~~ or a land division as defined in BLMC 17.10.030.

2. “Natural outlet” means any outlet into a watercourse, pond, ditch, lake or other body of surface or ground water.

….

Section 17. Amendment. Subsection “D.1” of Section 13.12.082 of the Bonney Lake Municipal Code is amended to read as follows:

13.12.082 Sewer charges.

…

Commented [LB17]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

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D. Sewer Service Charges for Customers Other than Single-Family Residential.

1. Multifamily, duplex, townhouse, co-living, and accessory dwelling unit customers on a single water meter shall pay the single-family sewer availability charge (no grinder pump) for each unit. The volumetric charge shall be capped at eight CCF per unit per month for multifamily customers.

….

Section 18. **Amendment.** A new subsection "D.6" is hereby added to Section 13.12.100 of the Bonney Lake Municipal Code to read as follows:

13.12.100 Sewer service applications and connection charges.

…

D. Residential System Development Charges (SDC).

…

6. The SDC for each unit of co-living housing shall be 50 percent of the charge applicable to one residential equivalent (RE) unit, $11,927 effective July 1, 2023.

….

Section 19. **Amendment.** Subsections "A", "D.1", and "D.3" of Section 13.12.130 of the Bonney Lake Municipal Code are amended to read as follows:

13.12.130 Sewer connections mandatory.

…

A. Residential Development. A private wastewater disposal system may be installed in conjunction with the construction of an individual detached single-family dwelling unit, duplex, triplex, fourplex, co-living housing with up to four co-living units, or attached or detached accessory dwelling unit, when the following are met:

…

D. ~~Short Plats~~ Land divisions. ~~Shorts plats~~ Land divisions of four or fewer lots may install new private wastewater disposal systems on each individual lot; provided, that the Tacoma-Pierce County health department issues a permit for all private wastewater disposal systems and complies with the following:

Commented [LB18]: Added to be consistent with how similar uses are billed, in relation to ESHB 1998, Laws of 2024.

Commented [LB19]: Added to comply with ESHB 1998, Laws of 2024, Section 2(8).

Commented [LB20]: Added to clarify when on-site wastewater disposal is available to co-living, consistent with a similar number of dwelling units and ESHB 1998, Laws of 2024.

Commented [LB21]: Updated to land divisions so that unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3) and administrative lot splits (ESSHB 1096, Laws of 2025) are treated consistent with other land divisions.

1. The applicant shall prepare civil plans, which must be approved by the city, for the sewer extension that would have been required to serve the ~~short plat,~~ land division; provided that:

   a. The applicant shall ~~and~~ install dry lines consistent with the approved civil plans within and along the frontage of said short ~~plat~~ subdivision or unit lot subdivision prior to obtaining final ~~short plat~~ approval. For an administrative lot split, the applicant may choose one of the options in BLMC 17.20.050.D.

   b. This provision does not require an applicant to prepare plans for any required regional lift stations.

…

3. Place the following notices on the face of the administrative lots split, final short ~~plat~~ subdivision, or final unit lot subdivision:

….

Section 20. Amendment. Subsection "E" of Section 13.16.060 of the Bonney Lake Municipal Code is amended to read as follows:

13.16.060 Process for latecomer agreements and assessment of reimbursement areas.

… E. Any developments or ~~short plats~~ land divisions that are connecting to a utility where a latecomer agreement applies shall pay the latecomer fees at final ~~plat~~ approval. Latecomer fees paid at final ~~plat~~ approval will be exempt from administration fees. All lots of record identified in the latecomer agreement will pay the applicable latecomer fee when their building permit is issued or, for existing buildings, when the utility connection is made.

Commented [LB22]: Updated to land divisions to treat unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3) and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Section 21. Amendment. Section 14.10.010 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.010 Title.

This title shall be ~~entitled~~ cited as the "city of Bonney Lake development code". It may also be known as "development code administration", or hereinafter referred to as "this title" or "this code".~~"~~ The development code shall consist of:

Commented [LB23]: Updated to make this easier to read and to reflect the various ways the development code is referred to in Titles 14-19 BLMC.

A. BLMC Title 14, Development Code Administration~~,~~;

B. BLMC Title 15, Buildings and Construction~~,~~;

C. BLMC Title 16, Environmental Protection~~,~~;

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D. BLMC Title 17, Divisions of Land~~,~~;

E. BLMC Title 18, Zoning~~,~~; and

F. BLMC Title 19, Concurrency Management.

Section 22. **Amendment.** Section 14.10.030 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.030 Definitions.

~~In the event of conflict between the following definitions and other definitions given in this development code, the following shall prevail:~~ The definitions in this section shall apply equally to the entire development code, BLMC Titles 14 through 19. Definitions may also be found in specific sections of this title. In the event of conflict between the following definitions and other definitions given in this development code, the more specific definition shall prevail.

A. "Applicant" means the owner or the owner's authorized agent for an application.

B. ~~A.~~ "Area-wide" describes a land area containing four or more parcels, contiguous or noncontiguous, or comprising 40 or more acres, which area as an integral proposal is considered for a change in zoning or comprehensive plan designation; provided, that the director(s) may deem any proposal to be site-specific if the public interest will be better served by a quasi-judicial process than a legislative process.

C. ~~B.~~ "BLMC" means the Bonney Lake Municipal Code.

D. ~~C.~~ "BMP" means best management practice.

E. ~~D.~~ "Building code" means the codes adopted in Chapter 15.04 BLMC, and any amendments thereto.

F. ~~E.~~ "Building permit" means any permit, including, but not limited to, permits for buildings, structures, building service equipment, or uses required by the construction codes adopted in Chapter 15.04 BLMC ~~issued by the building official, including building, plumbing, demolition, mechanical, and grading permits~~.

G. ~~F.~~ "Building official" means the ~~city of Bonney Lake building official~~ Public Services Director or designee.

~~G. "City" means the city of Bonney Lake, Washington.~~

~~H. "City council" means the city council of the city of Bonney Lake.~~

Commented [LB24]: Added definitions for various actors and review stages in the permit process, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

Commented [LB25]: Defined in BLMC 1.04.010.

H. ~~I.~~ "Comprehensive plan" means the city of Bonney Lake comprehensive plan.

~~J. "Design commission" means the city of Bonney Lake design commission established pursuant to Chapter 2.60 BLMC.~~

J. ~~K.~~ "Development code" means BLMC Titles 14 through 19, including any maps adopted as part thereof.

K. ~~L.~~ "Development regulation" means a control placed on development or land use activities, as defined in RCW 36.70A.030.

L. ~~M.~~ "Director" means the ~~community development director unless otherwise designated~~ Public Services Director or designee.

M. "Emergency activity" means development activity that is required due to an unanticipated and imminent threat to public health, safety, or the environment and that requires remedial or preventative action in a time frame too short to allow for compliance with the requirements of the development. As a general matter, flooding or other seasonal events that can be anticipated and may occur but that are not imminent are not an emergency event that would require an emergency activity.

N. "Fire chief" means the fire chief of East Pierce Fire and Rescue.

O. "Fire official" or "fire code official" means the Public Services Director or designee who is charged with the administration and enforcement of the International Fire Code and Wildland-Urban Interface Code, as adopted in Chapter 15.04 BLMC.

P. ~~N.~~ "Legislative actions" means amendments to the city's comprehensive plan or development code, including area-wide amendments to any associated maps, but excluding adoption of state-adopted building codes.

Q. "May" or "should" means optional and permissive, and does not impose a mandatory requirement.

R. "Owner" means any owner, or reputed owner, of the property which is listed on the tax rolls of the Pierce County assessor-treasurer for the property; or otherwise having control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

S. "Parties of record" means persons with legal standing with respect to an application including the applicant, property owner as identified by the records available from the Pierce County assessor's office, or any person who

Commented [LB26]: Design commission repealed by Ordinance No. 1688; updating decision authority consistent with ESHB 1293, Laws of 2023.

Commented [LB27]: Added to clarify distinction between the role of the fire district and the role of the fire official for the purposes of permit review throughout the development code.

testified at the open record public hearing on the application; and/or any person who submitted written comments during administrative review or has submitted written comments concerning the application at the open record public hearing, excluding persons who have only signed petitions or mechanically produced form letters.

T. "Permittee" means the owner or the owner's authorized agent to whom a permit is issued.

U. ~~O.~~ "Planning commission" means the city of Bonney Lake planning commission established pursuant to Chapter 2.26 BLMC.

V. ~~P.~~ "Premises" means any real property or structure.

W. "Project action" means a decision on a specific project, such as a construction or management activity located in a defined geographic area. Projects include and are limited to agency decisions to:

1. License, fund, or undertake any activity that will directly modify the environment, whether the activity will be conducted by the agency, an applicant, or under contract;

2. Purchase, sell, lease, transfer, or exchange natural resources, including publicly owned land whether or not the environment is directly modified.

Commented [LB28]: Added consistent with WAC 197-11-704(2)(a) and SEPA review (not defined in Title 16, Article 1 BLMC).

X. "Project permit" means any land use or environmental permit or license required from the city of Bonney Lake for a project action, including but not limited to subdivisions, conditional uses, shoreline substantial development permits, permits or approvals required by critical area ordinances, site-specific rezones which do not require a comprehensive plan amendment, but excluding the adoption or amendment of a comprehensive plan, subarea plan, or development regulations. A "project permit" or "project permit application" does not include building permits.

Commented [LB29]: Added consistent with RCW 36.70b.020(4), for the permit types that Bonney Lake authorizes, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

Y. "Public utility" means an entity whose principal purpose is to provide electricity, water, sewer, storm drainage, gas, radio, television, telephone and/or other forms of communication utilizing electromagnetic spectrum to the general public.

Z. "Revision" means a change by an applicant or permittee to an application under review or to the scope of work authorized by an issued permit.

AA. ~~Q.~~ "SEPA" means State Environmental Policy Act.

BB. "Shall" or "must" means mandatory and imposes a requirement.

CC. ~~R.~~ "Site-specific" means other than "area-wide" as defined in subsection ~~A~~B of this section.

DD. "Withdraw" or "withdrawn" means an action by an applicant or permittee to withdraw a project from active review or construction status.

Section 23. Amendment. Section 14.10.040 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.040 ~~Applicability of definitions.~~ Words not defined.

~~The definitions in BLMC 14.10.030 shall apply equally to the entire development code, BLMC Titles 14 through 19.~~ The definition of any word or phrase, not listed in BLMC 14.10.030, which is in question when administering the development code, shall be defined from one of the following sources that are incorporated herein and adopted by reference. Said sources shall be utilized to find the desired definition in the order listed as follows:

A. City of Bonney Lake development code;

B. City of Bonney Lake comprehensive plan;

C. Any other portion of the Bonney Lake Municipal Code or other city resolution, ordinance, or regulations, including standards adopted by reference;

D. Any statute or regulation of the state of Washington (i.e., the most applicable);

E. Legal definitions from applicable case law;

F. Common dictionary.

The director shall have the final authority in determining the most applicable definition to apply in construing the development code.

Commented [LB30]: Added process for how to interpret words that are not defined, that does not require a code interpretation or other resource-intensive process.

Section 24. Amendment. Section 14.10.070 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.070 ~~One-hundred-twenty-day time limit – Exceptions.~~ Calculation of review time for permit applications.

~~The following time periods shall not count toward the maximum of 120 days which can expire between the determination of completeness and the notice of decision~~ The number of calendar days an application is in review shall be calculated from the day completeness is determined under BLMC 14.40.030 to the date a final decision is issued under BLMC 14.40.080 on the project permit application. The number of calendar days in review shall be calculated by counting every day, excluding the following periods:

Commented [LB31]: Updated to be consistent with the time periods in in SSSB 5290, Laws of 2023, Section 7(1).

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A. ~~Any period commencing with a request by the city that the applicant provide any further information or an environmental impact statement until the applicant provides said information.~~ The period between the day that the director has notified the applicant, in writing, that additional information is required to further process the application and the day when the applicant is notified in writing that the additional information satisfies the request or 14 calendar days after the last required resubmitted information.

B. ~~Any period during which the applicant is not current in payment of city permit review fees or utility bills.~~ Any period during which an environmental impact statement is being prepared following a determination of significance pursuant to Chapter 43.21C RCW.

C. Any period during which a comprehensive plan or development regulation amendment, development agreement, or zoning reclassification is being processed preliminary to deciding upon a permit application.

D. ~~Any period between the initial determination of completeness and any subsequent determination of completeness should the applicant substantially revise the proposal.~~ Annual amendments to the comprehensive plan.

Commented [LB32]: Moved to the end of the section and updated.

E. Any period during which any decision related to the permit application is being appealed, until the administrative appeal is resolved and any additional time period provided by the administrative appeal has expired.

F. Any period mutually agreed upon by the applicant and the city.

G. Any period after an applicant informs the director, in writing, that they request a temporary suspension of the review of the application, until the time that the applicant notifies the director, in writing, that they would like to resume the application:

1. If any request to suspend the application or to resume review is received on a Saturdays~~,~~ Sundays~~,~~ or a day designated by BLMC 2.32.010(A) through (C) as a legal holiday, ~~and the days between December 25th and January 1st.~~ then the corresponding date shall be calculated from the next business day;

2. Any such suspension shall be permitted a maximum of one time, for a minimum of 60 calendar days and a maximum of 180 calendar days; and

3. If the director does not receive notice from the applicant to resume review, the application shall automatically lapse;

4. If an applicant suspends the review of an application for more than 60 calendar days, an additional 30 calendar days will be added to the time periods for final decision, as set forth in this section.

H. If an applicant has been non-responsive for period of 60 consecutive days, an additional 30 calendar days will be added to the time periods for final decision, as set forth in this section.

I. The project permit is to rectify a code violation, under timelines specified in a valid work plan or voluntary correction agreement.

J. Any period during which a landmark designation, street vacation, or other approval relating to the use of public areas or facilities is being considered.

K. The time periods for the director to process an application shall restart if an applicant proposes a change in use or a change that adds or removes commercial or residential elements from the original application that would make the application fail to meet the determination of procedural completeness for the new use.

L. Applications for which no permit is issued and/or for which an applicant is unresponsive shall automatically expire after 90 days from the date the applicant was notified that a permit is approved.

Section 25. Amendment. Section 14.10.100 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.100 Permit expiration and extensions.

A. ~~Unless a more specific provision applies to the type of permit, approved permits shall expire two years after the date of issuance if substantial progress has not been made toward realizing the permitted use or project, or within five years if construction has not been completed; except as provided in subsections B through D of this section.~~ Except as provided elsewhere in this section and unless a more specific provision applies to the type of permit, approved permits shall automatically expire two years after the date of issuance if the use is not commenced or if the construction permit(s) to complete the work are not issued. Once the construction permit(s) are issued, expiration of the underlying and associated project permit shall be tied to the expiration of the construction permit. If the construction permit expires, then the underlying project permit approval shall become null and void.

…

C. Permits authorized under the urban forestry code codified as BLMC Title 16, Division IV, shall automatically expire one year from the date of issuance or

Commented [LB33]: Updated to clarify the portion of the permit process related to expiration and extension of approved permits, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

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with the expiration or revocation of the corresponding land use, grading, and/or building permit, whichever comes later.

D. Expiration and extension of the following ~~land use~~ permits shall not be governed by this section:

…

E. Permit applications not excepted above shall automatically expire as provided for in BLMC 14.10.070 ~~one year after any application dormancy or hold status, whether initiated by the applicant or during which the city waits for information it has requested of the applicant which is needed in order to process the application~~.

F. The director may ~~extend the date of permit expiration for one year upon request by the applicant prior to said permit's expiration~~ grant a single, one-time extension of up to one year (365 calendar days) to an issued permit, when the permittee has shown due diligence and/or substantial progress in completing the work associated with the permit. Such a request shall:

1. Be made by the permittee in writing a minimum of ten business days prior to the expiration date;

2. Document the progress and outstanding items required to complete the work associated with the permit; and

3. Clearly describe the need for an extension.

~~G. Any extensions of time shall be based upon a finding of justifiable cause and that the land use permit is compliant with all applicable codes at the time of the extension request. The director shall not grant more than one permit extension.~~

Section 26. Amendment. Section 14.10.110 of the Bonney Lake Municipal Code is amended to read as follows:

14.10.110 Applications are binding.

A. All aspects of the application shall be binding for the life of the project/building, including graphic representations such as site plans, building elevations, and related required materials.

B. All work regulated by this development code shall be done in accordance with the approved permit and associated documents.

Commented [LB34]: Updated to clarify relationship of issued permits to after-issuance revisions, consistent with SSSB 5290, Laws of 2023.

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C. Approved permits shall not be changed, modified, or altered without authorization of the director. Revisions shall be reviewed using the procedures applicable to a new application of the same type, except as authorized by BLMC 14.10.120.

Section 27. Amendment. Section 14.30.010 of the Bonney Lake Municipal Code is amended to read as follows:

14.30.010 Permits by type.

~~Type 1~~	~~Type 2A~~	~~Type 2B~~	~~Type 3A~~	~~Type 3B~~	~~Type 4~~
~~Building Permits~~		~~Preliminary Short Plats~~	~~Shoreline Conditional Use Permit~~		~~Zoning Reclassification~~
~~Temporary Permits~~			~~Shoreline Variances~~	~~Conditional Use Permits~~	
~~Sign Permits~~	~~SEPA Reviews~~	~~Design Review~~	~~Plat Alterations~~	~~Preliminary Plats~~	
~~Clearing and Tree Removal Permits~~			~~Plat Vacations~~		
~~Accessory Dwelling Unit~~	~~Shoreline Substantial Development Permits~~		~~Zoning Variances~~		
~~Boundary Line Adjustments~~			~~Critical Area Reasonable Use Exception~~		
~~Eligible Facility Modification~~	~~Administrative Wireless Permit~~				
~~Shoreline Letters of Exemption~~	~~Comprehensive Sign Review~~				
~~Critical Area Permits~~	~~Short Plat Alteration~~				
~~Critical Area Exemption~~	~~Short Plat Vacation~~				
~~Site Plan~~					

Commented [LB35]: Replaced to alphabetize for ease of use, and update permit type groupings to comply with review deadlines consistent with SSSB 5290, Laws of 2023, Section 7(1).

A. Permit types.

Type 1	Type 2	Type 3	Type 4
• Boundary Line Adjustments • Business Licenses / Home Occupation Reviews[1] • Certificate of Water Availability[1] • Certificate of Sewer Availability[1]	• Accessory Dwelling Unit • Administrative Lot Split • Building Permits[1] • Civil Construction Permits • Critical Area Permits • Design Review	• Administrative Wireless Permit • Comprehensive Sign Review • Preliminary Unit Lot Subdivision, 9 or Less Lots • SEPA Reviews	• Conditional Use Permits • Critical Area Reasonable Use Exception • Essential Public Facility Permits • Preliminary Subdivision

Commented [LB36]: Public notice is required for a unit lot subdivision, consistent with ESB 5559, Laws of 2025, Section 2.

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Type 1	Type 2	Type 3	Type 4
• Civil Utility Connections[1] • Clearing and Tree Removal Permits • Critical Area Exemption • Encroachment Permit[1] • Final Short Subdivision[1] • Final Subdivision[1] • Final Unit Lot Subdivision[1] • Grading and Filling Permits • Right-of-Way Permits[1] • Road Approach Permits • Shoreline Letters of Exemption • Sign Permits • Site Plan Review[1] • Small Cell Wireless Permit • Temporary Use Permits • Wireless Eligible Facility Modification	• Deviation Requests[1] • Preliminary Short Subdivision	• Shoreline Substantial Development Permits • Short Subdivision Alteration • Short Subdivision Vacation • Unit Lot Subdivision Alteration • Unit Lot Subdivision Vacation	• Preliminary Unit Lot Subdivision, 10 or More Lots • Shoreline Conditional Use Permit • Shoreline Variances • Site-Specific Zoning Reclassification (No Concurrent Amendment to Comprehensive Plan) • Subdivision Alterations • Subdivision Vacations • Zoning Variances
Notes:			
1. See BLMC 14.30.040.			

B. Unlisted permits. If a review type is not identified for a particular permit, the director shall determine the proper procedure by determining which procedure the permit most closely resembles. Where there is a question as to the appropriate classification, the director shall resolve the question in favor of the higher procedure and type number.

Commented [LB37]: Added in the event new permit types are added or existing permit types were inadvertently missed, to ensure permits can continue to be processed in a timely and predictable manner.

Section 28. Amendment. Section 14.30.020 of the Bonney Lake Municipal Code is amended to read as follows:

14.30.020 Permit procedures by type.

Commented [LB38]: Updated permit type procedures based on new typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

	~~Type 1~~	~~Type 2A and 2B~~	~~Type 3A and 3B~~	~~Type 4~~
~~Pre-Application~~	~~Optional~~	~~Optional~~	~~Optional~~	~~Optional~~
~~Notice of Complete Application[1]~~	~~Required~~	~~Required~~	~~Required~~	~~Required~~
~~Public Notice of Application[2]~~	~~No~~	~~Required~~	~~Required~~	~~Required~~
~~Public Hearing[3]~~	~~No~~	~~No~~	~~Required~~	~~Required~~
~~Staff Report[4]~~	~~No~~	~~Required[5]~~	~~Required~~	~~Required~~
~~Written Decision[6]~~	~~No~~	~~Required~~	~~Required~~	~~Required~~

	~~Type 1~~	~~Type 2A and 2B~~	~~Type 3A and 3B~~	~~Type 4~~
~~Notice of Decision~~	~~No~~	~~Required[7]~~	~~Required~~	~~Required~~
~~Recommendation~~	~~N/A~~	~~N/A~~	~~Director~~	~~Hearing Examiner[9]~~
~~Decision Maker~~	~~Director~~	~~Director~~	~~Hearing Examiner~~	~~City Council~~
~~Administrative Appeal[10]~~	~~Yes~~	~~Yes~~	~~No~~	~~No~~
~~Judicial Appeal[11]~~	~~Yes[12]~~	~~Yes[12]~~	~~Yes~~	~~Yes~~

	Type 1	Type 2	Type 3	Type 4
Pre-Application	Optional	Optional	Optional	Optional
Notice of Complete Application[1]	Required	Required	Required	Required
Public Notice of Application[2]	No	No	Required	Required
Public Hearing[3]	No	No	No	Required
Staff Report[4]	No	Required[5]	Required[6]	Required
Written Decision[7]	No	Required[5]	Required	Required
Notice of Decision	No	Required[5]	Required[8]	Required
Recommendation	N/A	N/A	N/A	Director
Decision Maker	Director	Director	Director	Hearing Examiner
Administrative Appeal[9]	Yes	Yes	Yes	No
Judicial Appeal[10]	Yes[11]	Yes[11]	Yes[11]	Yes

Notes:

…

5. ~~9. The hearing examiner conducts the required public hearing and makes a recommendation to the city council which issues the final decision on the underlying permit.~~ A staff report, written decision, and notice of decision are only required for administrative lot splits, design review, and preliminary short subdivisions.

6. ~~5.~~ A staff report is not required for a SEPA threshold determination.

7. ~~6.~~ See BLMC 14.40.090 and 14.50.050.

8. ~~7.~~ The notice of decision for a SEPA review is the threshold determination (e.g., DNS, MDNS, DS); a separate notice of decision is not required. The threshold determination shall be disturbed as provided for in BLMC 16.06.030, 16.10.040 or 16.10.050.

~~8. Repealed.~~

9. ~~10.~~ See BLMC 14.120.020, except that an appeal of a building permit decision is provided in BLMC 14.120.030.

10. ~~11.~~ See BLMC 14.120.040 and 14.120.050.

11. ~~12.~~ Types 1, 2~~A~~, and ~~2B~~3 are administrative determinations that must first be appealed to the hearing examiner and the decision of the hearing examiner can then be judicially appealed.

Section 29. Amendment. Subsections "A", "B", "C", and "D" of Section 14.30.030 of the Bonney Lake Municipal Code are amended to read as follows:

14.30.030 Consolidation of permits.

~~If a proposal requires more than one permit, permits shall be consolidated to the extent feasible and desired by the applicant, as follows:~~

Commented [LB39]: Same as current Type 1.

Commented [LB40]: Same as current Type 1, except broken out to add more review time for more complex permit types.

Commented [LB41]: Same as current Type 2.

Commented [LB42]: Same as current Type 3.

Commented [LB43]: Clarified how various types of permits work together for permit review consolidation, consistent with SSSB 5290, Laws of 2023, Section 7(1)(e).

A. ~~Such information as name, address, and legal description need only be entered once, by such means as a master permit application form or master cover sheet.~~ Consolidated Permit Review Process. Pursuant to the provisions of this chapter, the applicant may elect to consolidate two or more development-related permits for one project action and submit the applications simultaneously. The review process for consolidated permits shall follow the provisions of this chapter.

1. Project Permit Approval Prior to Building Permit Application. An applicant who files an application for any project permit prior to the filing of a valid and complete application for a building permit shall be deemed to have specifically acknowledged that the acceptance and processing of such project permit application shall in no way establish or create a vested right to proceed with construction of any proposed project in accordance with the codes, ordinances, or regulations existing at the time of filing of such application, or at any time thereafter, prior to the filing of a valid and complete building permit application.

2. Project Permit Approval Together With Building Permit Application.

   a. If project permit approval was not obtained prior to building permit application, the building permit approval is subject to obtaining any required project permit approval and shall not be issued until such project permit approval is obtained.

   b. An applicant who fails to obtain any required project permit approval prior to submitting a building permit application shall be deemed to have specifically acknowledged that the building permit application may expire prior to a decision on any such project permit application, and that the building permit application is made at the applicant's own risk.

B. ~~The director shall utilize the process of that permit type which includes all reviews required for the various permits.~~ Consolidated permits submitted for the same project action with different process types will follow the higher process decision type set forth in BLMC 14.30.010, above.

C. If one permit cannot be reasonably processed until another is issued, such as a building permit that cannot be processed until a variance is issued, the ~~120 days~~ review period within which a notice of decision must be issued for the contingent permit (in this example, the building permit) shall not begin until the other permit has been issued.

D. Appeals of one or more Type 1, ~~or~~ Type 2, or Type 3 permits shall be combined with any required open public hearing.

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Section 30. **Amendment.** Subsections "B", "C", "I", and "L" of Section 14.30.040 of the Bonney Lake Municipal Code are amended to read as follows:

14.30.040 Exemptions.

The following actions (with BLMC citations where applicable) are not project permits for the purpose of this development code~~, do not appear in the table in BLMC 14.30.020~~, and are exempt from Chapters 14.40 through 14.60 BLMC:

…

B. Right-of-way permits ~~and variances~~ (Chapter 12.08 BLMC) , encroachments in the public right-of-way (Chapter 12.32.BLMC), and traffic studies (Title 19 BLMC);

C. Final ~~plats~~ approval of subdivisions, ~~and~~ short ~~plats~~ subdivisions, and unit lot subdivisions (~~BLMC 17.20.040~~ Chapter 17.20 BLMC);

…

I. Deviations from adopted standards ~~Administrative variations and waivers~~ (BLMC 12.04.023, 15.13.045, and 15.20.060 ~~and 18.20.050(E)~~);

…

L. ~~Permission~~ Civil utility connection permits to connect to city sanitary sewer (Chapter 13.12 BLMC), stormwater system (Chapter 15.13 BLMC), or water system (Chapter 13.04 BLMC), or certificates of availability for the same;

….

Section 31. **Amendment.** Section 14.40.010 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.010 Pre-application conference.

A. The purpose of the pre-application process is for the applicant to provide city staff with preliminary information about a proposed project and site conditions so that the city can provide the applicant with the requirements that must for the proposal to proceed through the formal review process.

B. Any potential applicant may request a pre-application conference. Pre-application conferences are not mandatory but are optional at the request of the applicant. The director shall conduct a pre-application conference if requested by the applicant. For the city to provide the most applicable

Commented [LB44]: Updated consistent with actions that warrant different review procedures, as permitted by RCW 36.70B.140 and consistent with SSSB 5290, Laws of 2023.

Commented [LB45]: Repealed by Ordinance No. 1601.

Commented [LB46]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), consistent with other land divisions.

Commented [LB47]: Clarification of the purpose and role of an optional pre-application conference, consistent with SSSB 5290, Laws of 2023, Section 8(1)(g).

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information at the pre-application conference, the applicant should provide, at a minimum:

1. Project narrative;

2. List of questions;

3. Draft site plan;

4. Draft building elevations, if applicable; and

5. Any other drawings or documents helpful to illustrate the proposal.

C. At a minimum, the conference shall be scheduled with applicable representatives from the city, including but not limited to the planning, engineering, building, and utility divisions. Representatives from other departments or agencies are encouraged to attend to provide comments on the proposal.

D. It is impossible for the pre-application conference to be an exhaustive review of all potential issues. The discussions at the conference shall not bind or prohibit the city's future application or enforcement of all applicable laws.

E. Review of a proposal at a pre-application conference does not vest any project.

Section 32. Amendment. Subsection "B" of Section 14.40.020 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.020 Application forms.

…

B. At a minimum, all ~~All~~ applications shall contain the following:

1. A completed application form.

2. All applicable fees.

3. Written authorization of the property owner. ~~be signed by the property owner or an authorized representative.~~

4. A completed environmental checklist for projects subject to review under SEPA if not exempt under Chapter 16.08 BLMC or if an Environmental Impact Statement was previously issued for the project.

5. All accompanying information required for the type of permit as provided on the checklist prepared by the director.

Commented [LB48]: Moved from BLMC 14.40.030.A to comply with SSSB 5290, Laws of 2023.

Section 33. Amendment. Section 14.40.030 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.030 Notice of complete application.

Commented [LB49]: Updated to comply with SSSB 5290, Laws of 2023, Section 6.

A. For the purposes of this title, a complete application is one that contains all items required under BLMC 14.40.020. ~~An application is complete for purposes of this section when it contains all of the following:~~

~~1. A completed application form.~~

~~2. All applicable fees.~~

~~3. Written authorization of the property owner.~~

~~4. A completed environmental checklist for projects subject to review under the SEPA.~~

~~5. All accompanying information required for the type of permit.~~

B. Determination of Complete Application.

1. Within 28 calendar days, except for telecommunications applications which shall be notified within 10 days, after receiving a project permit application, ~~the director shall mail or personally deliver to the applicant a notice that advises the applicant of other agencies that may have jurisdiction over the proposal, if known at that time, and states either~~ the director shall provide a written determination of completeness to the applicant via electronic mail which states either:

a. ~~1.~~ That the application is complete; or

b. ~~2.~~ That the application is incomplete and ~~what is necessary to make the application complete~~ that the procedural submission requirements of the city have not been met. The determination will outline what is necessary to make the application procedurally complete. To the extent known by the city, the determination will identify other agencies of local, state, or federal governments that may have jurisdiction over some aspect of the application.

2. ~~C. Failure of the director to respond to the applicant, in writing, within the 28-day time frame, shall be deemed as the city's acceptance of the application for processing.~~ If the director does not provide a written determination to the applicant that the application is incomplete within 28 calendar days, the

application shall be deemed procedurally complete on the twenty-ninth day after receiving a project permit application. When the director does not provide a written determination to the applicant that the application is procedurally incomplete, the director may still seek additional information or studies as provided for in subsection (B)(3) of this section. The time period guidelines for review of project permit applications begins following the determination of a complete application, as set forth in BLMC 14.40.080.

C. If the applicant receives a written determination from the city that an application is procedurally incomplete, the applicant shall have 90 calendar days to submit the necessary information to the city. If the applicant does not submit the required information within the 90-calendar-day period, the application shall lapse due to a lack of information necessary to complete the review. No extensions shall be granted.

D. Within 14 calendar days after the applicant has submitted the requested additional information, the director shall make a determination of completeness and notify the applicant in the manner provided in subsection B of this section; provided, however, that if upon review the application remains procedurally incomplete, the application shall lapse due to a lack of information necessary to complete the review, and the applicant shall be notified in writing of the determination.

E. Additional information or studies may be required or project modifications may be undertaken subsequent to the procedural review of the application by the director. The director's issuance of a determination of completeness shall not preclude the city from requesting additional information or studies, either at the time of the determination of completeness or at some later time if additional information is required or where substantial changes in the proposed action occur. However, if the procedural submission requirements as outlined on the project permit application have been provided, the need for additional information or studies may not preclude a completeness determination.

… G. Nothing in this section shall preclude the director from providing a notice of complete application to an applicant after receiving a non-project permit application. When given, such notice should follow the procedures in this section.

Section 34. **New Section.** A new Section 14.40.045 is hereby added to the Bonney Lake Municipal Code to read as follows:

14.40.045 Incorrect applications.

A. Following a determination of a complete application, if the director finds that additional information is necessary or corrections are required to make the proposal consistent with the comprehensive plan and development regulations, the director shall provide a letter to the applicant:

1. Detailing the necessary corrections;

Commented [LB50]: Added to describe process when additional information or corrections are requested, to comply with SSSB 5290, Laws of 2023, Sections 6 and 7(1)(i).

2. Providing the response deadline; and

3. Include a notice that nonresponsiveness for 60 consecutive calendar days may result in 30 calendar days being added to the time for review permitted under BLMC 14.40.080. "Nonresponsiveness" means that an applicant is not making demonstrable progress on providing the additional requested information, or that there is no ongoing communication from the applicant to the city on the applicant's ability or willingness to provide the additional information.

B. The applicant receives a written determination from the city that corrections or additional information are necessary, the applicant shall have up to 90 calendar days to submit the necessary information to the city.

1. The director may allow for up to a total of two extensions to submit the required information, not to exceed an additional 90 calendar days each. Requests must be made in writing a minimum of 10 calendar days prior to the submittal deadline.

2. If the applicant either refuses in writing to submit corrected information or does not submit the corrected information within the 90-calendar day period, the application shall lapse.

3. The director shall have 14 calendar days to review the submittal of corrected information.

C. If the application requires a second request for additional or corrected information, the director shall schedule a meeting with said request in an attempt to resolve outstanding issues during the review process with the applicant. The meeting shall be scheduled within 14 calendar days of the correction letter date, unless the applicant requests an alternative date or refuses to meet. Following this attempt, if the director receives the additional or corrected information and proceeds with review, the director shall either approve or deny the application. If the applicant refuses to meet, the requirement for the city to meet with the applicant shall be determined to have been met.

Section 35. **Amendment.** Section 14.40.050 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.050 Design review.

If the proposal is not exempt from design review pursuant to Chapter 14.95 BLMC, the ~~design commission~~ director shall review it and issue a recommendation of conformance ~~(~~with or without conditions~~)~~ or nonconformance with the applicable subarea plans and design guidelines.

Commented [LB51]: Design commission repealed by Ordinance No. 1688; updating decision authority consistent with ESHB 1293, Laws of 2023.

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Section 36. **Amendment.** Section 14.40.080 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.080 Decision.

A. The decision maker identified in BLMC 14.30.020 shall determine if the application is consistent with the development code and the policies of the comprehensive plan and notify the applicant within the following time periods ~~120 days of the determination of completeness~~, except as provided in subsections B through F of this section, and as calculated pursuant to BLMC 14.10.070 ~~subject to the following~~:

1. Type 1 applications: 65 calendar days. ~~The decision maker may include in a decision any conditions of approval that are necessary to ensure that the proposal complies with all applicable development code and comprehensive plan policies.~~

2. Type 2 applications: 100 calendar days. ~~If the proposal is not exempt from design review, the decision maker shall not issue a final decision until the design commission has reviewed the applications and made recommendations to the director; unless the design commission delegates its design review on a specific application to the director pursuant to BLMC 14.95.030.~~

3. Type 3 applications: 120 calendar days.

4. Type 4 applications: 170 calendar days. ~~No building permit shall be issued until all related, necessary permits are final, including appeals to the hearing examiner, unless the director(s) waives this prohibition based on the applicant signing a statement acknowledging the appeal period and agreeing to remove or modify the permitted work at the applicant's expense should an appeal result in revocation or modification of the appealed permit.~~

~~4. Short plats shall not be recorded until after the appeal period has lapsed.~~

5. The time periods above shall be extended as provided for in BLMC 14.10.070.

B. Telecommunications.

…

C. Preliminary subdivisions and preliminary unit lot subdivisions with ten or more lots or unit lots must be approved, disapproved, or returned to the applicant within 90 days of filing a complete application, unless the applicant consents to an extension.

Commented [LB52]: Updated to comply with SSSB 5290, Laws of 2023 , Section 7.

Commented [LB53]: Moved to BLMC 14.40.090.A.7.

Commented [LB54]: Moved to subsection C and updated to reflect repeal of design commission.

Commented [LB55]: Moved to subsection D.

Commented [LB56]: Added to provisions in Title 17 for final subdivision, final short subdivision, final unit lot subdivision, and land division alterations and vacations.

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D. Preliminary short subdivisions, preliminary unit lot subdivisions with nine or less lots, final subdivisions and final short subdivisions must be approved, disapproved, or returned to the applicant within 30 days of filing a complete application, unless the applicant consents to an extension.

E. If the proposal is not exempt from design review and the proposal is consolidated pursuant to BLMC 14.30.030, the director shall review the design review application and make a recommendation to the decision maker as part of the staff report to the decision maker.

F. No building permit shall be issued until all related, necessary permits are approved, including appeals to the hearing examiner, unless the director(s) waives this prohibition based on the applicant signing a statement acknowledging the appeal period and agreeing to remove or modify the permitted work at the applicant's expense should an appeal result in revocation or modification of the appealed permit.

Commented [LB57]: Moved from BLMC 14.40.080A.2. Design commission repealed by Ordinance No. 1688; updating decision authority consistent with ESHB 1293, Laws of 2023.

Commented [LB58]: Moved from BLMC 14.40.080.A.3.

Section 37. Amendment. Subsection "A.7" of Section 14.40.090 of the Bonney Lake Municipal Code is amended to read as follows:

14.40.090 Written decision – Content.

A.

…

7. The decision denying or approving the application and any conditions, if applicable. The decision maker may include in a decision any conditions of approval that are necessary to ensure that the proposal complies with all applicable development code and comprehensive plan policies;

….

Commented [LB59]: Moved from BLMC 14.40.080.A.1 and to comply with SSSB 5290, Laws of 2023

Section 38. Amendment. Subsection "E" of Section 14.50.030 of the Bonney Lake Municipal Code is amended to read as follows:

14.50.030 Method of publication.

… E. Posted on the subject property with a sign(s) consistent with the following requirements:

1. One public notice sign shall be required per street frontage. In case of large parcels or street frontages exceeding 500 feet, the director may require the posting of additional signs.

Commented [LB60]: The current public notice requirements result in needing to order a custom notice sign for various proposals. The lead time to obtain this sign is 7-10 calendar days of time counted against the city's review clock, pursuant to SSSB 5290, Laws of 2023 . This update would minimize time lost for public notice procedures and allow the City to purchase notice signs in bulk, at a savings of $30 per sign and time savings for the customer.

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2. Signs shall be located on the site of the proposed action, set back at least 10 feet from a public right-of-way or private road or easement as applicable, and shall be situated to maximize readability by the public from public rights-of-way. A sign may be located within the 10-foot setback, if determined necessary by the director to provide adequate visibility.

3. Signage shall be a minimum of two ~~and one-half~~ feet by ~~one and one-half~~ three feet ~~for Type 2A and 3A permits~~ and shall contain the following:

   a. The heading "~~Proposed Land Use Development Action~~ Public Notice" ~~in one-and-a-quarter-inch blue lettering~~;

   b. Contact information for the city ~~in one-half-inch blue capital letters~~;

   c. An area for ~~a~~ one or more eight-and-one-half-inch by 11-inch placards for specific public notifications; and

   d. The city logo.

~~4. Signage shall be a minimum of two feet by four feet for Type 2B, 3B, and 4 permits and shall include the following:~~

   ~~a. The heading "Proposed" followed by the general type of the development in two-inch blue capital letter;~~

   ~~b. The description of the proposed action in one-inch blue capital letters;~~

   ~~c. An area to post an 11-inch by 17-inch site plan;~~

   ~~d. Area for two eight-and-one-half-inch by eleven-inch placards for specific public notifications;~~

   ~~e. Contact information for the city in one-half-inch blue capital letters; and~~

   ~~f. The city logo.~~

….

Section 39. **Amendment.** Section 14.50.040 of the Bonney Lake Municipal Code is amended to read as follows:

14.50.040 Comment period.

A. If a public comment period is required, the comment period shall be at least 15 calendar days except in the following cases when a longer comment period is required:

1. ~~A.~~ For applications or proposals subject to the shoreline master program, a 30-day public comment period shall be provided prior to any public hearing or taking any final action on the application or proposal.

2. ~~B.~~ Notices of scoping associated with a determination of significance under the State Environmental Policy Act shall be followed by a minimum of a 21-day comment period; provided, that the longer comment period shall not apply if the scoping notice is included with the notice of application issued pursuant to BLMC 14.50.010.

3. ~~C.~~ Notice of availability of a draft environmental impact statement shall be followed by a 30-day comment period; provided, that the director can extend the comment period for an additional 15 days if a request for an extension has been submitted to the city prior to the end of the initial 30-day comment period.

B. Any notice that a public comment period shall contain the duration of the public comment period, including the first and last date and time by which written public comment may be submitted.

Commented [LB61]: Added to comply with SHB 1105, Laws of 2024.

Section 40. **Amendment.** Subsection "B.4" of Section 14.80.030 of the Bonney Lake Municipal Code is amended to read as follows:

14.80.030 Essential public facilities criteria.

…

B. …

4. An EPF may be permitted in the R-1, ~~R-2,~~ R-3, RC-5, DM or DC zoning classification only if there is an operational or other need that requires locating in that district to achieve the purpose or function of the EPF;

….

Commented [LB62]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Section 41. **Amendment.** Subsections "A", "B", "C", "D" and "E" of Section 14.95.020 of the Bonney Lake Municipal Code are amended and new subsections "I" and "J" are added to Section 14.95.020 to read as follows:

14.95.020 Exemptions.

…

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A. Development permits not immediately associated with building construction, such as short ~~plats~~ subdivisions, subdivisions, unit lot subdivisions, or rezones unaccompanied by any building permit application;

B. ~~Detached homes, attached homes, townhouses, duplexes, triplexes, fourplexes, accessory dwelling units, and accessory uses,~~ Buildings with four or less dwelling units, including accessory uses and structures, both new construction and modifications;

C. ~~Construction activities which do not require a building permit, sign permit, or any other city permit~~ Normal building maintenance and repair or a change of use that does not otherwise exceed the thresholds in this section;

D. ~~Modifications to existing structures which will not be visible from outside the structure;~~ Interior alterations that do not modify the existing site layout or its current use and involve no exterior work adding to the building footprint, provided that the alterations do not result in the following:

1. Additional sleeping quarters or bedrooms;
2. Nonconformity with substantial improvement thresholds for frequently flooded areas regulated by BLMC Title 16, Division II, Critical Areas.
3. An increase in the total square footage or valuation of the structure thereby requiring upgraded fire access or fire suppression systems.

Nothing in this section exemptions interior alterations from the construction code requirements in Title 15 BLMC.

E. Nonresidential additions of less than 1,000 square feet of gross floor area;

…

I. Construction of new dwelling units entirely within a legally conforming or legally nonconforming existing building, the density may be increased by up to 50 percent. For the purpose of this subsection "existing building" means a building that received a valid certificate of occupancy at least three years prior to the permit application to add housing units. Any such dwelling unit shall also be subject to the provisions of BLMC 15.04.098.

J. Construction of aboveground utility facilities of less than 2,000 gross square feet of gross floor area, such as sewer lift stations and water pump stations.

Section 42. Repealed. Section 14.95.030 of the Bonney Lake Municipal Code, Design commission may delegate, is hereby repealed in its entirety.

Section 43. Amendment. Section 14.105.010 of the Bonney Lake Municipal Code is amended to read as follows:

Commented [LB63]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), consistent with other land divisions.

Commented [LB64]: Updated to comply with ESHB 1998, Laws of 2024, Section 2(4).

Commented [LB65]: Clarified to ensure design review is not inadvertently required for routine maintenance.

Commented [LB66]: Updated to comply with SSSB 5290, Laws of 2023, Section 1(3)-(5).

Commented [LB67]: Added to comply with HB 1757, Laws of 2025, Section 1(1)(a).

Commented [LB68]: Added to ensure design review is not required for certain utility structures.

Commented [LB69]: Design commission repealed by Ordinance No. 1688; repealing to ensure decision authority of director is clear consistent with ESHB 1293, Laws of 2023.

14.105.010 Purpose.

~~Large commercial or multifamily development~~ Development proposals sometimes require major administrative decisions and interpretations regarding permitted uses, critical areas, access, traffic mitigation, SEPA determination, location of utilities, and other site planning factors. Such administrative actions may be needed before project feasibility can be determined and before building footprints can be identified. The purpose of the optional site plan approval process before the building permit process is to allow developers to resolve site planning issues before preparing building plans, and to provide the applicant with certainty at a key point in the land development process. A site plan approval is especially helpful for phased development proposals such as shopping centers in which "pads" are sold to subsequent developers. The purpose is to allow the site plan approval process as an optional extra step.

Commented [LB70]: Site plan approvals are most commonly used to verify conflicts prior to septic approval for new residential structures by TPCHD or for minor alterations to existing commercial sites. This update provides additional flexibility in this optional process, consistent with SSSB 5290, Laws of 2023.

Section 44. Amendment. Subsection "A" of Section 14.110.010 of the Bonney Lake Municipal Code is amended to read as follows:

14.110.010 Procedure.

A. Unless otherwise specified in this code, a variance is a Type ~~3~~4 permit. The purpose of variances is, under certain circumstances as set forth in the variance criteria, to grant flexibility in the administration of any the provisions of this development code, BLMC Titles 16 through 19; provided, that a variance cannot be granted from:

Commented [LB71]: Updated permit type based on new typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

….

Section 45. Amendment. Subsection "A" of Section 14.120.020 of the Bonney Lake Municipal Code is amended to read as follows:

14.120.020 Appeal of actions of the director(s) to the hearing examiner.

A. All final actions of the director(s), including Type 1, ~~or~~ Type 2, or Type 3 permit decisions, SEPA threshold determinations, code interpretations (see BLMC 14.10.140), notices of civil violation, and approvals of minor changes to permits (see BLMC 14.10.120) shall be final and conclusive unless the applicant, a department of the city or county, or other party of record or agency with jurisdiction files a written appeal with the planning and community development department within 15 days following:

Commented [LB72]: Updated permit types based on new typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

….

Section 46. Amendment. A new Subsection "R" is hereby added to Section 15.04.082 of the Bonney Lake Municipal Code to read as follows:

15.04.082 International Building Code amended.

… R. Section 508.1 General.

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508.1 General.

Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3, 508.4 or 508.5, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 510.

2. Where required by Table 415.6.5, areas of Group H-1, H-2 and H-3 occupancies shall be located in a detached building or structure.

3. When a child day care center, as defined in BLMC 18.04.030, is operated in a dedicated space within an existing building that has more than one use, the building official must calculate the occupancy load of the child day care center based only on the areas in the building where the child day care services are provided.

Commented [LB73]: Same as adopted IBC.

Commented [LB74]: Added to comply with SSB 5655, Laws of 2025, Section 3.

Section 47. New Section. A new Section 15.04.098 is hereby added to the Bonney Lake Municipal Code to read as follows:

15.04.098 Special provisions for certain housing units.

A. New housing in existing buildings.

Commented [LB75]: Added to comply with ESHB 1042, Laws of 2023, Section 2, and HB 1757, Laws of 2025, Section 1.

1. In any building that received a certificate of occupancy at least three years prior to a complete permit application to add housing units, the building official shall:

   a. Not require unchanged portions of an existing building that have been used for residential or previously permit-approved conditioned space purposes to meet the current energy code solely because of the addition of new dwelling units within the building. When any other existing building is converted to new dwelling units, changed portions of each of those new units must meet the requirements of the current Washington State Energy Code, except if:

      i. The square footage of new dwelling units does not exceed 2,500 square feet or 50 percent of the total building square footage, whichever is greater;

      ii. The building owner submits documentation, in a form acceptable to the city, showing the building's residential units' projected

energy use intensity is less than or equal to the energy use intensity target in accordance with the clean buildings performance standard in RCW 19.27A.210; or

iii. In all areas zoned for residential housing, an additional housing unit is created within an existing home;

b. Not deny a building permit application for the addition of housing units within an existing building due to nonconformity regarding parking, height, setbacks, elevator size for gurney transport, or modulation, unless the director makes written findings that the nonconformity is causing a significant detriment to the surrounding area.

2. For retrofits of existing buildings to be used for residential housing:

a. The portion of exterior wall assemblies that includes insulation must be allowed to project up to an additional eight inches into the setbacks of the underlying zoning district on all sides;

b. The building must be allowed to exceed the maximum allowable roof height by eight inches to accommodate additional insulation; and

c. Gross floor area must be measured from the interior face of the exterior walls, which includes drywall, as typically depicted on the architectural floor plans.

3. For existing nonconforming buildings already projecting into setbacks, the portion of exterior wall assemblies that include insulation must be allowed to project up to an additional eight inches into the setbacks on all sides if the building is to be used for residential housing.

4. Nothing in this section requires the city to approve a building permit application for the addition of housing units constructed entirely within an existing building envelope in a building located within a zone that permits multifamily housing in cases in which the building cannot satisfy life safety standards.

5. Nothing in this section prohibits the city from applying the requirements of the building code, as adopted in this chapter.

B. New construction or the retrofit of existing buildings meeting passive house requirements.

Commented [LB76]: Added to comply with SSHB 1183, Laws of 2025, Section 2.

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1. For the purpose of this subsection, "passive house requirements" means the criteria for certification as a passive house by Phius or the International Passive House Institute.

2. In any application for new construction or the retrofit of an existing building that meets passive house requirements, the building official shall:

   a. Measure any required setback from the outside face of the foundation, and the portion of exterior wall assemblies that include insulation must be allowed to project up to eight inches into setbacks on all sides;

   b. Allow the building to exceed the maximum allowable roof height by eight inches to accommodate additional insulation; and

   c. Measure gross floor area from the interior face of the exterior walls, which includes drywall, as typically depicted on the architectural floor plans.

Section 48. **Amendment.** Section 15.08.020 of the Bonney Lake Municipal Code is amended to read as follows:

15.08.020 Permitted locations and age.

Manufactured homes shall be permitted in all zones allowing single-family residences. Manufactured homes requiring an installation permit under this chapter shall be new manufactured homes under RCW 35.63.160(2); provided, that manufactured homes moving into currently existing mobile/manufactured home/recreational vehicle parks shall not be required to be new homes, but shall otherwise comply with all other provisions of this chapter.

Section 49. **Amendment.** Section 15.08.125 of the Bonney Lake Municipal Code is amended to read as follows:

15.08.125 Manufactured homes in mobile/manufactured home/recreational vehicle parks.

Manufactured homes may be installed in mobile/manufactured home parks subject to the provisions of this chapter; provided, that if the existing physical layout of the park does not allow full compliance BLMC 15.08.010(E)(1), compliance with that subsection shall be excused as to sites that will not accommodate compliance with that subsection.

Section 50. **New Section.** A new Section 15.13.045 is hereby added to the Bonney Lake Municipal Code to read as follows:

15.13.045 Deviation from standards.

The director may grant deviations from the stormwater manual adopted in this chapter; provided that all of the following are met.

Commented [LB77]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(2)(h).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB78]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(2)(h).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB79]: Various sections of the Pierce County Stormwater Management & Site Design Manual, adopted by reference in BLMC 15.13.040.A, allow for consideration of equivalent designs or methods for stormwater system design. This section is added to provide a clear process and flexibility for applicants to propose an alternative engineering solution not contemplated under the adopted manual.

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A. The applicant shall submit the request to the city using forms provided by the director. The director shall prepare a submittal checklist providing a list of the materials that shall be considered the minimum necessary to constitute a complete request.

B. The director will review the deviation request, together with all supporting material and any staff review and recommendations. The director shall make written findings supporting the determination that the deviation:

    1. Will not otherwise result in non-compliance with minimum requirements set forth in the adopted stormwater manual or the City's NPDES permit;

    2. Produces compensating or comparable results that are in the general public interest;

    3. Will not violate any development related conditions imposed upon the project;

    4. Will not be materially detrimental to the public welfare or injurious to the property or improvement in the vicinity in which the subject property is located; and

    5. Is based upon sound engineering judgment, and that the objectives of safety, function, appearance, fire protection, environmental protection, and maintainability are fully met.

C. Request for deviation on a project which has previously been reviewed by other agencies shall be sent to those agencies for re-review before approval or denial of the deviation.

D. The director may grant or deny a deviation request in full or in part based on the written findings. The director may attach specific conditions to the deviation which will serve to accomplish the intent of standards, criteria, and established policies.

E. Decisions of the director are final and may not be appealed separately from the final decision on the associated permit application.

F. Deviations must receive approval before the associated permit application can be approved. In the event a deviation becomes necessary during construction, the deviation must be approved prior to completing construction associated with the deviation request.

G. Fees for deviation requests shall be set by resolution of the city council.

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Section 51. **Amendment.** Subsection "C" of Section 15.14.020 of the Bonney Lake Municipal Code is amended to read as follows:

15.14.020 Definitions.

…

C. "C".

1. "Co-living housing" means "co-living housing" as defined in BLMC 18.04.030.

2. ~~1.~~ "Commercial/multi-family customer" means any public or private parcel owner or occupant of property with usage other than single-family residential with any type of building improvements or paved areas greater than 120 square feet within the city of Bonney Lake.

3. ~~2.~~ "Condominium" means a "condominium" as defined in BLMC 18.04.030.

Section 52. **Amendment.** A new Subsection "C" is added to Section 15.14.035 of the Bonney Lake Municipal Code to read as follows:

15.14.035 System development charges (SDC).

…

C. Each new co-living unit shall pay a stormwater SDC at the rate of 50% of the SDC in subsection A of this section.

Section 53. **Amendment.** Section 15.20.060 of the Bonney Lake Municipal Code is amended to read as follows:

15.20.060 ~~Variations~~ Deviation from standards.

~~Variation from engineering standards may be authorized only by the planning and community development director upon submittal and approval of additional information, plans or design data only by the engineer, which indicates that the requested variation is based on sound engineering judgment, that requirements for safety, environmental considerations, function, appearance and maintainability are fully met, and the variation is in the best interest of the public. All variations must be approved prior to the start of construction or in the event changes become necessary during construction before the actual changes are made. Requests for a variation on a project which has been previously reviewed by other agencies shall be sent to them for re-review before approval or denial of the variation.~~ The director may grant deviations from the construction standards adopted in this chapter; provided that all of the following are met.

Commented [LB80]: Added to be consistent with sewer connection fees, consistent with ESHB 1998, Laws of 2024, Section 2(8).

Commented [LB81]: Added to be consistent with sewer connection fees, consistent with ESHB 1998, Laws of 2024, Section 2(8).

Commented [LB82]: Updated to be consistent for all deviation processes.

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A. The applicant shall submit the request to the city using forms provided by the director. The director shall prepare a submittal checklist providing a list of the materials that shall be considered the minimum necessary to constitute a complete request.

B. The director will review the deviation request, together with all supporting material and any staff review and recommendations. The director shall make written findings supporting the determination that the deviation:

1. Produces compensating or comparable results, that are adequate for the end users, and that are in the general public interest;

2. Will not violate any development related conditions imposed upon the project;

3. Will not be materially detrimental to the public welfare or injurious to the property or improvement in the vicinity in which the subject property is located; and

4. Is based upon sound engineering judgment, and that the objectives of safety, function, appearance, fire protection, environmental protection, and maintainability are fully met.

C. Request for deviation on a project which has previously been reviewed by other agencies shall be sent to those agencies for re-review before approval or denial of the deviation.

D. The director may grant or deny a deviation request in full or in part based on the written findings. The director may attach specific conditions to the deviation which will serve to accomplish the intent of standards, criteria, and established policies.

E. Decisions of the director are final and may not be appealed separately from the final decision on the associated permit application.

F. Deviations must receive approval before the associated permit application can be approved. In the event a deviation becomes necessary during construction, the deviation must be approved prior to completing construction associated with the deviation request.

G. Fees for deviation requests shall be set by resolution of the city council.

Section 54. **Amendment.** Subsection "A" of Section 15.20.120 of the Bonney Lake Municipal Code is amended to read as follows:

15.20.120 Application for permit.

Commented [LB83]: Updated to align with permit typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

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A. An application for a permit under this chapter shall be made and filed with the ~~Bonney Lake community development department and will be valid for 210 days~~ director. Applications shall be processed as a Type 1 permit pursuant to Title 14. The applications for permits shall be on a form approved by the director in accordance with Chapter 15.36 BLMC.

….

Section 55. Amendment. Subsections "B" and "D" of Section 15.28.070 of the Bonney Lake Municipal Code are amended to read as follows:

15.28.070 Signs in residential districts.

…

B. One permanent, non-internally illuminated sign per neighborhood, ~~subdivision~~ land division with 10 or more lots or unit lots, development, apartment, or condominium complex per main entrance not to exceed 32 square feet in sign area per face and six feet in height. Such sign may be indirectly lighted.

…

D. Home occupations, authorized under ~~BLMC 18.22.010~~ Chapter 5.08 BLMC, may have the following signage:

….

Section 56. Amendment. Subsection "E" of Section 15.36.020 of the Bonney Lake Municipal Code is amended to read as follows:

15.36.020 Definitions.

…

E. "Development" means any manmade change to improved or unimproved real estate including, but not limited to, buildings or other structures, utilities, placement of manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, or subdivision, short subdivision, unit lot subdivision, or administrative lot split of property.

….

Section 57. Amendment. Subsections "H" and "I of Section 15.36.040 of the Bonney Lake Municipal Code are amended to read as follows:

15.36.040 Applicable civil improvements.

…

Commented [LB84]: Updated to reflect relocation of home occupation regulations in Ordinance No. 1739.

Commented [LB85]: Added to treat unit lot subdivisions with ten or more unit lots consistent with subdivisions, consistent with ESSSB 5258, Laws of 2023, as amended by ESB 5559, Laws of 2025.

Commented [LB86]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), administrative lot splits (ESSHB 1096, Laws of 2025), and short plats (already required to obtain a civil permit but not listed) consistent with subdivisions.

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H. Short ~~plat~~ subdivision, unit lot subdivision, or administrative lot split, one through three lots (Chapters 12.04, 17.20 and 17.50 BLMC);

…

I. Short ~~plat~~ subdivision or unit lot subdivision, four through nine lots (Chapters 17.20 and 17.50 BLMC);

….

Section 58. Amendment. Subsection "B" of Section 15.36.050 of the Bonney Lake Municipal Code is amended to read as follows:

15.36.050 Permit process.

…

B. …

3. ~~Applicants shall be required to submit further information necessary to process the application, as required by the director. Failure to supply requested information, or otherwise pursue issuance of the permit, shall result in the application expiring 180 days after submission if no permit has been issued. The director may grant a one-time extension for an additional 180 days if the applicant is diligently pursuing the application. In order to renew action on an application after expiration, the applicant shall submit new plans and pay a new plan review fee.~~ Applications shall be processed as a Type 2 application pursuant to Title 14 BLMC.

Section 59. Amendment. Subsections "A" and "B" of Section 16.20.115 of the Bonney Lake Municipal Code are amended to read as follows:

16.20.115 Financial guarantee.

A. Financial guarantees shall be provided for mitigation, maintenance, monitoring, or restoration as required pursuant to this chapter valued at $10,000 or more. Financial guarantees shall be sufficient to guarantee that all required mitigation, maintenance, monitoring, or restoration measures will be completed no later than the time established by the city and shall be based on the bond quantity amount established in accordance with BLMC 16.20.110(I). The financial guarantee shall be in a form ~~of an assignment of funds~~ acceptable to the city.

B. ~~Depletion, failure or collection of the financial guarantee shall not relieve an~~ The applicant or violator shall not be relieved from completing the required mitigation, maintenance, monitoring, or restoration as required under this chapter when:

Commented [LB87]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB88]: Updated to align with permit typology, consistent with permit processing requirements in SSSB 5290, Laws of 2023.

Commented [LB89]: Updated to clarify when a financial guarantee is required for smaller projects.

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1. The financial guarantee is depleted or collected; or

2. The installed mitigation or restoration fails, or the required monitoring report is not submitted or does not meet the requirements in the approved critical area permit. In such cases, the time period of the financial guarantee shall be extended one additional year for each occurrence.

3. The value of the mitigation work is under $10,000.

….

Section 60. Amendment. Subsections "F.3" and "K" of Section 16.20.130 of the Bonney Lake Municipal Code are amended to read as follows:

16.20.130 Substantive requirements.

…

F. …

3. Noted on the face of any ~~plat~~ subdivision, short subdivision, unit lot subdivision, administrative lot split survey, or recorded drawing; and

…

K. Lots created through subdivisions ~~or~~ short ~~plats~~ subdivisions, unit lot subdivisions, or administrative lots splits shall not contain undevelopable critical areas and associated buffers. Subdivisions, ~~and~~ short ~~plats~~ subdivisions, unit lot subdivisions, and administrative lot splits shall show any applicable critical area limitations.

….

Section 61. Amendment. Subsection "E.3" of Section 16.64.070 of the Bonney Lake Municipal Code is amended to read as follows:

16.64.070 Tree retention.

…

E. …

3. Noted on the face of any ~~plat, short plat~~ subdivision, short subdivision, unit lot subdivision, or administrative lot split or recorded drawing; and

….

Commented [LB90]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB91]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

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Section 62. **Amendment.** Subsection "F" and portions of Tables 16.68A and 16.68B of Section 16.68.040 of the Bonney Lake Municipal Code are amended to read as follows:

16.68.040 Required landscaping areas.

… F. All vehicular use areas shall be landscaped in accordance with BLMC 16.68.090.

Table 16.68A Minimum Width Dimensions for Required Landscaping by District

District	Front Yard	Side Yard	Rear Yard
R-1 ~~and R-2~~	Specific landscaping within residential front, side, and rear yards is not required.[1]		
…			
DC, DM, ~~C-1,~~ and C-2	Type 3 equal to the greater of: five feet, exclusive of sidewalk width, or 50 percent of the required front setback	Six feet when adjacent to residential zones, otherwise three feet[2]	
….			

…

Table 16.68B Minimum Required Landscape Treatments – Side and Rear Setbacks

Zoning of Subject Property	Zoning of Adjacent Property							
	R5[1] and R10[1]	**~~R-1, R-2,~~ and MSF[1]**	**R-3**	**RC-5**	**DC, DM, ~~C-1,~~ and C-2**	**MC and CC[1]**	**E**	**PF**
…								
DC, DM, ~~C-1,~~ and C-2	Type 1		Type 3	Type 2	NR[2]	Type 3		
….								

…

Section 63. **Amendment.** Subsection "E.2" of Section 16.68.070 of the Bonney Lake Municipal Code is amended to read as follows:

16.68.070 Type 3 – Visibility planting.

…

E. …

2. Trees shall be selected from species ~~lists provided in the tree plan~~ suitable for planting in Bonney Lake, such as the list in Pierce County Code 18J.15.100.D.

Commented [LB92]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB93]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB95]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 zone into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB94]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB96]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 zone into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB97]: The city does not have a tree plan with a tree list; updated to assist customers with a list of plants appropriate for Pierce County that are not noxious or invasive. Clarification of this item helps speed up the permit process by providing a clear, accessible, and approved resource.

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[Figure LC4 "Street Frontages" graphic is unchanged]

….

Section 64. Amendment. Subsection "B.3" of Section 16.68.090 of the Bonney Lake Municipal Code is amended to read as follows:

16.68.090 Vehicular use area landscaping.

... B. … 3. Trees shall be selected from species ~~lists provided in the tree plan~~ suitable for planting in Bonney Lake, such as the list in Pierce County Code 18J.15.100.D. ….

Commented [LB98]: The city does not have a tree plan with a tree list; updated to assist customers with a list of plants appropriate for Pierce County that are not noxious or invasive. Clarification of this item helps speed up the permit process by providing a clear, accessible, and approved resource.

Section 65. Amendment. New Subsections "A.8", "A.9", "A.10", "C.7" and "C.8" are added to Section 17.10.030 of the Bonney Lake Municipal Code, and Subsections "C.1", "C.4" and "C.5" of Section 17.10.030 of the Bonney Lake Municipal Code are amended to read as follows:

17.10.030 Definitions.

A. Definitions for the following terms are adopted by reference from RCW 58.17.020 as presently constituted or as may be subsequently amended:

…

8. Parent lot.

9. Unit lot.

10. Unit lot subdivision.

Commented [LB99]: Added to comply with ESSHB 1096, Laws of 2025, Section 2(15)(d).

Commented [LB100]: Added to comply with ESB 5559, Laws of 2025, Sections 1(17) and (18).

… C. As used in this title, the following terms and phrases shall have the following meanings:

1. "Divisions of land" or "land division" means ~~both~~ a subdivision, ~~and~~ short subdivision, unit lot subdivision, and an administrative lot split.

…

4. "Short subdivision" means a short plat where the lot is divided ~~the division of land~~ into nine or less lots, tracts, parcels, or other divisions of land for the purpose of sale, ~~or~~ lease, or transfer of ownership.

5. "Subdivision" means a plat where the lot is divided ~~the division of land~~ into 10 or more lots, tracts, parcels, or other divisions of land for the purpose of sale, lease, ~~development~~ or transfer of ownership.

Commented [LB101]: Updated for consistency.

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7. "Lot split" or "administrative lot split" means the administrative process of dividing one existing lot into two lots for the purpose of sale, lease, or transfer of ownership.

8. "Lot split survey" or "administrative lot split survey" means the final survey prepared for filing for record with the Pierce County auditor and containing all elements and requirements for a lot split under Title 17 BLMC and RCW 58.17.145.

Section 66. Amendment. Subsections "B", "C", and "D" of Section 17.20.020 of the Bonney Lake Municipal Code are amended to read as follows:

17.20.020 Preliminary approval of subdivisions and short subdivisions.

… B. The applications procedures for ~~all divisions of land~~ subdivisions and short subdivisions are provided in BLMC Title 14.

C. The city shall not approve a preliminary ~~plat~~ subdivision or preliminary short ~~plat~~ subdivision unless the city approving authority makes written findings that:

…

D. Preliminary approval authorizes for the applicant to develop the required facilities and improvements, after review, approval, and issuance of construction permits by the director. All development shall be subject to any conditions imposed by the city on the preliminary approval.

Section 67. Amendment. The title of Section 17.20.030 of the Bonney Lake Municipal Code is amended to read as follows:

17.20.030 Installation of improvements for all divisions of land.

….

Section 68. Amendment. Section 17.20.040 of the Bonney Lake Municipal Code is amended to read as follows:

17.20.040 Final approval of subdivisions and short subdivisions.

A. Any person, having received preliminary ~~plat~~ subdivision or preliminary short ~~plat~~ subdivision approval, shall obtain final ~~plat~~ subdivision or short ~~plat~~ subdivision approval within the time frames specified in BLMC 14.10.100.

B. The applicant shall submit for final ~~plat~~ subdivision or final short ~~plat~~ subdivision using forms provided by the director. The director shall prepare a submittal checklist providing a list of the application materials that shall be considered the minimum necessary to constitute a complete application.

Commented [LB102]: Added to comply with ESSHB 1096, Laws of 2025, Section 2(15)(a).

Commented [LB103]: Added to comply with ESSHB 1096, Laws of 2025, Section 2(15)(b).

Commented [LB104]: Updated to be consistent with existing definitions in BLMC 17.10.030 and add clarification about process for short subdivisions and full subdivisions (preliminary approval, civil improvement design, civil improvement construction, final approval, building construction).

Commented [LB105]: Update of this section name to clearly apply to all types of land division.

Commented [LB106]: Updated to be consistent with existing definitions in BLMC 17.10.030.

C. The final subdivision or final short subdivision shall be approved, denied, or returned to the applicant within 30 days of filing a complete application, unless the applicant consents in writing to an extension. The city shall not approve a final ~~plat~~ subdivision or final short ~~plat~~ subdivision unless:

1. The final ~~plat~~ subdivision or short ~~plat~~ subdivision is consistent with approved preliminary ~~plat~~ subdivision, or preliminary short ~~plat~~ subdivision, to include any conditions attached to the decision issued by the city; and

2. The construction of all improvements required by the city has been completed and accepted by the director; provided, that:

   a. The city may accept as a condition of final ~~plat~~ subdivision or final short ~~plat~~ subdivision approval a surety equal to 200 percent of the estimated cost of improvement(s) required by the city; provided, that the city will not accept a surety for water mains, hydrants, sewer mains, storm drains, or street paving. The surety shall be released upon completion of all required improvements and acceptance by the city.

   b. If the director determines that installation of improvements required for a short subdivision for commercial uses within a commercial zone is not needed at the time of the approval of the final short ~~plat~~ subdivision, the improvements shall be installed in conjunction with the construction of the building(s) located on the property. This condition shall be stated on the final short ~~plat~~ subdivision, and shall be binding on all later owners of lots created by the short ~~plat~~ subdivision.

3. The final subdivision or final short subdivision shall conform to the requirements for notes on the face of the document in Chapter 58.17 RCW and the recording standards of the Pierce County auditor.

Commented [LB107]: Updated due to applicants not providing plans that conform to state law or auditor's requirements.

D. The director and city engineer shall sign the final ~~plat~~ subdivision or short ~~plat~~ subdivision documents indicating the city's approval of the final ~~plat~~ subdivision or short ~~plat~~ subdivision.

E. The final subdivision or short subdivision shall not be recorded until after the appeal period has lapsed.

Commented [LB108]: Moved from BLMC 14.40.080.A.4.

F. ~~E.~~ Upon recording of a final subdivision or short subdivision, all easements and utilities as shown on the final ~~plat~~ subdivision or final short ~~plat~~ subdivision shall be deemed dedicated to the public.

G. ~~F.~~ It shall be the responsibility of the applicant to execute and record any private easements or agreements identifying the rights and responsibilities of

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property owners and/or a homeowners' association for use and maintenance of common areas, facilities, utilities, interior or exterior building components, and other similar features with the Pierce County auditor. Any such private easements may be shown on the face of the proposed final subdivision or final short subdivision for courtesy review prior to final approval.

H. ~~G.~~ It shall be the responsibility of the applicant to file the approved final ~~plat~~ subdivision or short ~~plat~~ subdivision, bearing on its face all required signatures and certifications, with the county auditor and to complete the platting process and provide an approved copy of the signed and recorded document to the city.

Section 69. **New Section.** A new Section 17.20.050 is hereby added to the Bonney Lake Municipal Code to read as follows:

17.20.050 Procedures for administrative lot splits.

Commented [LB109]: Added to comply with ESSHB 1096, Laws of 2025, Sections 1 and 2.

A. Purpose. The purpose of an administrative lot split is to provide current property owners with the opportunity to maintain homeownership in changing life circumstances while facilitating development of additional housing to provide homebuyers, including first-time homebuyers, with more affordable ownership opportunities.

B. Applicability.

1. A maximum of one new lot can be created with an administrative lot split. Any lot that is not buildable according to the development code including, but not limited to, critical areas, shorelines, stormwater, setbacks, impervious surface areas, and building coverage standards, are not eligible for an administrative lot split under this section.

2. An administrative lot split may be combined with concurrent review of a residential building permit application to create a new buildings with six or fewer dwelling units.

C. Application procedure.

1. The applicant shall submit for an administrative lot split using forms provided by the director.

a. The director shall prepare a submittal checklist providing a list of the application materials that shall be considered the minimum necessary to constitute a complete application.

b. A certificate of water availability and a certificate of sewer availability from the applicable utility for the newly created lot and dwelling unit(s) shall be included as part of any complete application.

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c. If the proposed administrative lot split would require demolition or alteration of any existing housing that would displace a renter, the applicant must recommend a displacement mitigation strategy as part of any complete application. The strategy may include, but is not limited to, relocation assistance.

2. An application for an administrative lot split shall be processed as a Type 1 permit pursuant to Title 14 BLMC; provided, an administrative lot split is not eligible for administrative appeal to the Hearing Examiner under Chapter 14.120 BLMC pursuant to RCW 58.17.145.

3. The city shall not approve an administrative lot split unless:

   a. The director makes written findings that:

      i. The proposal is eligible for an administrative lot split pursuant to this section;

      ii. The proposal is located in the RC-5, R-1, R-3, C-2, DC, or DM zoning district;

      iii. Both the original lot and the proposed lot meet the minimum lot size and bulk and setback regulations under applicable development regulations;

      iv. The proposal meets the minimum and maximum density requirements for the underlying zoning district;

      v. The proposal creates no more than one new lot;

      vi. The original lot was not created through the splitting of a residential lot, as authorized by this section and RCW 58.17.145; and

      vii. The proposal is consistent with the design standards in Chapter 17.50 BLMC and requirements of RCW 58.17.145.

   b. All improvements required by the city have been:

      i. Completed and accepted by the director. Installation of improvements shall comply with BLMC 17.20.030.; or

      ii. The improvements may be installed in conjunction with the construction of the building(s) located on the property. If the applicant chooses to delay completion of required improvements,

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the requirement to complete improvements shall be stated on the final lot split survey, and shall be binding on all future owners, successors, and assigns of the administrative lot split; or

iii. A surety equal to 200 percent of the estimated cost of improvement(s) required by the city; provided, that the city will not accept a surety for water mains, hydrants, sewer mains, storm drains, or street paving. The surety shall be released upon completion of all required improvements and acceptance by the city.

D. Recording.

1. The final lot split survey shall conform to the requirements for notes on the face of the document in Chapter 58.17 RCW and the recording standards of the Pierce County auditor, including but not limited to the informational notes required in RCW 58.17.060, as existing or as amended:

   a. A condition that further lot splits of the original lot or the newly created lot are not authorized;

   b. A note that if a lot split results in a lot of a size that would allow for further land division, the lot is not eligible for a lot split but may be divided under other applicable land subdivision processes in the Bonney Lake Municipal or Chapter 58.17 RCW; and

   c. A note that all future construction is subject to all applicable state and local laws, including the requirements for approval of residential building permits in the Bonney Lake Municipal Code and Chapter 19.27 RCW.

   d. A note that the City of Bonney Lake is immune from any liability, loss, or other damage suffered by another that is related to the city's approval of a lot split under Chapter 301, Laws of 2025, including if the lot split creates a lot that is later determined to not be buildable.

2. The director shall sign the final lot split survey indicating the city's approval of the final lot split survey. The applicant shall file the final lot split survey with the Pierce County auditor to become the lawful plat of the property.

3. The final lot split survey shall not be recorded until after the appeal period has lapsed.

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4. Upon recording of a final lot split survey, all easements and utilities as shown on the final lot split survey shall be deemed dedicated to the public.

5. All streets, stormwater, and utility tracts shall be deeded to the city by either a statutory warranty deed or quit claim deed.

6. Access and utility rights are granted or conveyed as necessary on or before recording of the lot split survey to provide access for the maximum number of dwelling units that could be developed on the newly created lot, provided such access rights may be reduced consistent with a city's adopted codes, regulations, or design standards as applicable through review of a subsequent application for a building permit, short subdivision, unit lot subdivision, subdivision application, or short subdivision if less than the maximum number of dwelling units are built on the newly created lot.

7. It shall be the responsibility of the applicant to execute and record any private easements or agreements identifying the rights and responsibilities of property owners and/or a homeowners' association for use and maintenance of common areas, facilities, utilities, interior or exterior building components, and other similar features with the Pierce County auditor. Any such private easements may be shown on the face of the proposed administrative lot split for courtesy review prior to approval.

8. It shall be the responsibility of the applicant to file the approved final lot split survey, bearing on its face all required signatures and certifications, with the county auditor and to complete the administrative lot split process and provide an approved copy of the signed and recorded document to the city.

Section 70. **New Section.** A new Section 17.20.060 is hereby added to the Bonney Lake Municipal Code to read as follows:

17.20.060 Procedures for unit lot subdivisions.

Commented [LB110]: Added to comply with ESSSB 5258, Laws of 2023, as amended by ESB 5559, Laws of 2025.

A. Purpose. The purpose of a unit lot subdivision is to allow for the more flexible creation of lots of varying sizes and types, including for attached and detached housing, and similar developments with multiple dwelling units on a parent lot, while applying only those site development standards applicable to the parent lot as a whole, rather than to individual unit lots resulting from the unit lot subdivision.

B. Applicability. A unit lot subdivision creates a relationship between the parent site and each lot created, referred to as a "child" lot.

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1. Unit lot subdivisions are allowed for residential development on parent lots of two acres or less in the R-1, R-3, C-2, DC, and DM zoning districts. Land division for commercial, mixed-use, or other non-residential uses must be approved through the subdivision or short subdivision procedures in this title.

2. A unit lot subdivision may be used for any development with two or more dwelling units meeting the standards of this section.

3. A unit lot subdivision may also be used to subdivide an existing or planned accessory dwelling unit from the principal structure, subject to the additional standards in subsection G.

C. Application.

1. The applicant shall submit for a unit lot subdivision using forms provided by the director.

   a. The director shall prepare a submittal checklist providing a list of the application materials that shall be considered the minimum necessary to constitute a complete application.

   b. A certificate of water availability and a certificate of sewer availability from the applicable utility for the newly created unit lots and dwelling unit(s) shall be included as part of any complete application.

2. An application for a unit lot subdivision with nine or fewer lots shall be processed as a Type 3 permit and an application for a unit lot subdivision with ten or more lots shall be processed as a Type 4 permit, pursuant to Title 14 BLMC.

D. Preliminary approval.

1. The city shall not approve a preliminary unit lot subdivision unless the director makes written findings that:

   i. The proposal is eligible for a unit lot subdivision pursuant to this section;

   ii. The proposal is consistent with the goals and policies of the city's comprehensive plan;

   iii. The proposal is found to be consistent with the development code; and

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iv. The proposal is consistent with the design standards in Chapter 17.50 BLMC and requirements of RCW 58.17.060.

2. Preliminary approval authorizes for the applicant to develop the required facilities and improvements, after review, approval, and issuance of construction permits by the director. All development shall be subject to any conditions imposed by the city on the preliminary approval.

E. Installation of improvements shall comply with BLMC 17.20.030.

F. Final approval.

1. Any person, having received preliminary unit lot subdivision approval, shall obtain final unit lot subdivision approval within the time frames specified in BLMC 14.10.100.A, if the unit lot subdivision is for nine or fewer lots, or in BLMC 14.10.100.B, if the unit lot subdivision is for ten or more lots.

2. The applicant shall submit for final unit lot subdivision using forms provided by the director. The director shall prepare a submittal checklist providing a list of the application materials that shall be considered the minimum necessary to constitute a complete application.

3. The final unit lot subdivision shall be approved, denied, or returned to the applicant within 30 days of filing a complete application, unless the applicant consents in writing to an extension. The city shall not approve a final unit lot subdivision unless:

a. The final unit lot subdivision is consistent with the approved preliminary unit lot subdivision, to include any conditions attached to the decision issued by the city; and

b. The construction of all improvements required by the city have been completed and accepted by the director; provided, that the city may accept as a condition of final unit lot subdivision approval a surety equal to 200 percent of the estimated cost of improvement(s) required by the city; provided, that the city will not accept a surety for water mains, hydrants, sewer mains, storm drains, or street paving. The surety shall be released upon completion of all required improvements and acceptance by the city.

4. The final unit lot subdivision shall conform to the requirements for notes on the face of the document in Chapter 58.17 RCW and the recording standards of the Pierce County auditor, including but not limited to the informational notes required in RCW 58.17.060(3)(a), as existing or as amended:

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a. The name of the unit lot subdivision shall include the phrase “Unit Lot Subdivision”.

b. Approval of the design and layout of the unit lot subdivision was granted based on detailed review of the parent lot, as a whole, under City of Bonney Lake File No. _____.

c. Access easements, common garage, parking and vehicle access areas; on-site recreation; landscaping; utilities; common open space; exterior building facades and roofs; and other similar features shall be shown on the face of the final unit lot subdivision.

d. A note that subsequent subdivision actions, additions, or modifications to the unit lot subdivision, including all structures, may not create or increase any nonconformity of the parent lot as a whole, and shall conform to the approved unit lot housing development project or to the land use and development standards.

e. A note that if a structure or portion of a structure within the unit lot subdivision has been damaged or destroyed, any repair, reconstruction, or replacement of any structure shall conform to the approved unit lot subdivision or to the land use and development standards in effect at the time the proposed repair, reconstruction, or replacement project's permit application becomes vested.

f. A note that additional development or redevelopment of the individual unit lots may be limited as a result of the application of development standards to the parent lot.

5. The director shall sign the final unit lot subdivision indicating the city's approval of the final unit lot subdivision.

G. Recording.

1. The unit lot subdivision shall not be recorded until after the appeal period has lapsed.

2. Upon recording, all easements and utilities as shown on the final unit lot subdivision shall be deemed dedicated to the public.

3. All streets, stormwater, and utility tracts shall be deeded to the city by either a statutory warranty deed or quit claim deed.

4. It shall be the responsibility of the applicant to execute and record any private easements or agreements identifying the rights and responsibilities

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of property owners and/or a homeowners' association for use and maintenance of common areas, facilities, utilities, interior or exterior building components, and other similar features with the Pierce County auditor. Any such private easements may be shown on the face of the proposed final unit lot subdivision for courtesy review prior to final approval.

5. It shall be the responsibility of the applicant to file the approved final unit lot subdivision, bearing on its face all required signatures and certifications, with the county auditor and to complete the unit lot subdivision process and provide an approved copy of the signed and recorded document to the city.

Section 71. **Amendment.** Section 17.40.010 of the Bonney Lake Municipal Code is amended to read as follows:

17.40.010 ~~Plat~~ Subdivision, short subdivision, and unit lot subdivision alterations.

A. When any person is interested in the alteration of any subdivision, unit lot subdivision, short subdivision, or the altering of any portion thereof, except as provided in Chapter 17.30 BLMC, that person shall submit:

1. An ~~an~~ application, on forms provided by the city and accompanied by any additional materials necessary for review~~, to the city~~.

2. For subdivisions or short subdivisions, said ~~Said~~ application shall contain the signatures of the majority of those persons having ownership interest of lots, tracts, parcels, sites, or divisions in the subject subdivision or short subdivision, or portion to be altered.

3. For unit lot subdivisions, said application shall contain the signatures of all persons having ownership interest of lots, tracts, parcels, sites, or divisions in the subject unit lot subdivision to be altered. The alteration of a unit lot subdivision thereof shall not result in a nonconforming parent lot.

4. If the subdivision, unit lot subdivision, or short subdivision is subject to restrictive covenants which were filed at the time of the approval of the subdivision, unit lot subdivision, or short subdivision, and the application for alteration would result in the violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the alteration of the subdivision, unit lot subdivision, short subdivision, or portion thereof.

B. If any land within the alteration contains a dedication to the general use of persons residing within the subdivision, unit lot subdivision, short

Commented [LB111]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), consistent with other land divisions.

Commented [LB112]: Must be signed by all persons because the entire unit lot subdivision is evaluated together.

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subdivision, such land may be altered and divided equitably between the adjacent properties.

C. The subdivision, unit lot subdivision, or short subdivision alteration shall be processed in accordance with Title 14 BLMC; provided, that notice shall be provided pursuant to RCW 58.17.215. After approval of the alteration, the applicant shall produce a revised drawing produced by a licensed surveyor ~~of the approved alteration of the final plat or short plat which, after approval by the council signified by the signature of the mayor, shall be filed with the Pierce County auditor to become the lawful plat of the property~~.

D. The director and city engineer shall sign the approved alteration of the final subdivision, final unit lot subdivision, or final short subdivision documents indicating the city's approval.

E. The approved alteration of the final subdivision, final unit lot subdivision, or final short subdivision shall not be recorded until after the appeal period has lapsed.

F. ~~D.~~ It shall be the responsibility of the ~~subdivider~~ applicant to file the approved ~~final plat or short plat~~ alteration of the final subdivision, final unit lot subdivision, or final short subdivision, bearing on its face all required signatures and certifications, with the Pierce County ~~county~~ auditor and to complete the ~~platting~~ alteration process and provide an approved copy of the signed and recorded ~~plat~~ document to the city.

Section 72. Amendment. Section 17.40.020 of the Bonney Lake Municipal Code is amended to read as follows:

17.40.020 ~~Plat~~ Subdivision, short subdivision, and unit lot subdivision vacations.

A. Whenever any person is interested in the vacation of any subdivision, unit lot subdivision, short subdivision, or portion thereof, or any area designated or dedicated for public use, that person shall submit:

1. An application, on forms provided by the city and accompanied by any additional materials necessary for review. ~~file an application for vacation with the city. The application shall be made on forms provided by the city, and accompanied by any supporting materials that the city deems necessary for adequate review.~~

2. For subdivisions or short subdivisions, said ~~The~~ application shall ~~bear the signature(s)~~ contain the signatures of all parties having an ownership interest in that portion of the subdivision or short subdivision subject to vacation.

Commented [LB113]: Updated to reflect change to Hearing Examiner approval under Ordinance No. 1600.

Commented [LB114]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), consistent with other land divisions.

Commented [LB115]: Updated to be consistent with alterations.

3. For unit lot subdivisions, said application shall contain the signatures of all persons having ownership interest of lots, tracts, parcels, sites, or divisions in the unit lot subdivision or portion to be vacated. The vacation of a unit lot subdivision or any portion thereof shall not result in a nonconforming parent lot.

4. If the subdivision, unit lot subdivision, or short subdivision is subject to restrictive covenants which were filed at the time of subdivision, unit lot subdivision, or short subdivision approval, and the application for vacation would result in the violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the vacation.

B. The subdivision, unit lot subdivision, or short subdivision alteration shall be processed in accordance with Title 14 BLMC. After approval of the vacation, the applicant shall produce a revised drawing produced by a licensed surveyor of the approved vacation ~~of the final plat or short plat which, after approval by the council signified by the signature of the mayor, shall be filed with the Pierce County auditor to become the lawful plat of the property~~.

C. The director and city engineer shall sign the approved vacation of the final subdivision, final unit lot subdivision, or final short subdivision documents indicating the city's approval.

D. The approved vacation of the final subdivision, final unit lot subdivision, or final short subdivision shall not be recorded until after the appeal period has lapsed.

E. ~~C.~~ It shall be the responsibility of the ~~subdivider~~ applicant to file the approved ~~final plat or short plat~~ final subdivision, final unit lot subdivision, or final short subdivision reflecting the vacation, bearing on its face all required signatures and certifications, with the Pierce County ~~county~~ auditor and to complete the ~~platting~~ vacation process and provide an approved copy of the signed and recorded ~~plat~~ document to the city.

Section 73. **Amendment.** Section 17.50.010 of the Bonney Lake Municipal Code is amended to read as follows:

17.50.010 Applicability.

This chapter shall apply to all administrative lot splits, preliminary subdivisions, ~~and~~ preliminary short subdivisions, and preliminary unit lot subdivisions.

Section 74. **Amendment.** Subsections "A" and "B" of Section 17.50.020 of the Bonney Lake Municipal Code are amended and a new Subsection "G" is hereby added to Section 17.50.020 of the Bonney Lake Municipal Code to read as follows:

Commented [LB116]: Must be signed by all persons because the entire unit lot subdivision is evaluated together.

Commented [LB117]: Updated to reflect change to Hearing Examiner approval under Ordinance No. 1600.

Commented [LB118]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

17.50.020 Lot layout standards.

A. Setback and bulk regulations.

1. Each lot resulting from the subdivision, ~~or~~ short subdivision, or administrative lot split shall conform to the applicable provisions of BLMC Title 18; provided, that corner lots shall be 10 feet wider than required by the provisions of BLMC Title 18.

2. For a unit lot subdivision, development as a whole on the parent lot, rather than individual unit lots, shall comply with the applicable density, setback, and bulk regulations of the underlying zoning district as adopted in BLMC Title 18. Portions of the parent lot not subdivided for individual unit lots shall be owned in common by the owners of the individual unit lots, or by a homeowners' association comprised of the owners of the individual unit lots.

B. The entire original tract (except adjacent platted or short platted land) shall be included within the preliminary land division ~~subdivision or short subdivision~~ application.

…

G. For a unit lot subdivision, portions of the parent lot not subdivided for individual unit lots shall be owned in common by the owners of the individual unit lots, or by a homeowners' association comprised of the owners of the individual unit lots.

Section 75. Amendment. The title of Section 17.50.030 of the Bonney Lake Municipal Code is amended to read as follows:

~~17.50.030~~ 17.50.070 Utilities.

….

Section 76. Amendment. Subsection "B" of Section 17.50.040 of the Bonney Lake Municipal Code is amended to read as follows:

17.50.040 Critical areas.

…

B. All undevelopable critical areas shall be placed in a separate tract owned in common by the lots within the ~~subdivision or short plat~~ land division. An easement shall be provided that provides permanent access to the city for the purpose of monitoring the preservation of the critical area.

Commented [LB119]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB120]: Corrects numbering error in Ordinance No. 1580.

Commented [LB121]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

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Section 77. **Amendment.** Subsections "A", "D.3" and "D.4" of Section 17.50.040 of the Bonney Lake Municipal Code are amended to read as follows:

~~17.50.040~~ 17.50.080 Street lighting.

As a condition to subdividing property into four or more lots or unit lots, the applicant shall be responsible for the cost of installation of street lights within the subdivision consistent with the following requirements:

A. Upon final ~~plat~~ approval, all residential street illumination systems shall be conveyed to the city. City will not accept dedication of street lights until at least 50 percent of housing units in a new development are occupied.

… D. A street lighting plan indicating the placement, type, power source, and number of street lights must be approved by the city as a condition to preliminary ~~plat~~ approval. In residential development, street lights shall be:

3. Located ~~located~~ at entrances to new ~~subdivisions~~ land divisions, as directed, at all interior intersections, cul-de-sacs, dead-end streets serving more than three homes.

4. ~~, and~~ Located no closer than 500 feet to other street lights along tangent road sections. ~~Any disagreement between the applicant and the public works director regarding the street lighting plan shall be resolved by the hearing examiner as part of the preliminary plat approval process.~~

Section 78. **Amendment.** Subsection "A" of Section 17.50.050 of the Bonney Lake Municipal Code is amended to read as follows:

~~17.50.050~~ 17.50.090 Playgrounds and open space.

A. In order to ensure appropriate provisions are made for playgrounds all new ~~subdivisions~~ land divisions that result in 10 or more lots or unit lots shall provide a minimum of 193 square feet of playground space, as defined in BLMC 18.04.160, per residential unit; provided, that division of lands within one-quarter mile of a public park that are connected to the public park via an improved pedestrian path and/or sidewalk shall be exempt from this requirement. All playground areas shall be placed in a separate tract owned in common by the lots or unit lots within the ~~subdivision~~ land division.

….

Section 79. **Amendment.** Subsection "B.4" of Section 17.50.060 of the Bonney Lake Municipal Code is amended to read as follows:

17.50.060 Transportation facilities.

Commented [LB122]: Corrects numbering error in Ordinance No. 1580.

Commented [LB123]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB124]: Corrects numbering error in Ordinance No. 1580.

Commented [LB125]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), consistent with other land divisions.

Commented [LB126]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023),

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… B. All lots proposed for development shall adjoin a public street; provided, that a ~~short subdivision~~ land division of six or fewer lots or unit lots may be allowed to provide access by a private street that meets the following:

… 4. The private street shall be placed in a separate tract owned in common by the lots within the land division ~~subdivision or short plat~~. ….

Section 80. **Amendment.** Section 17.50.060 of the Bonney Lake Municipal Code is renumbered to Section 17.50.100 and Subsection "A" of Section 17.50.060 (as renumbered to 17.50.100) is hereby repealed:

~~17.50.060~~ 17.50.100 Parks and recreation.

… A. ~~All divisions of land along the Fennel Creek Trail corridor shall dedicate trail right-of-way and develop the portions of the trail adjacent to the subdivision or short subdivision.~~ *Repealed.* ….

Section 81. **Amendment.** Section 17.50.070 of the Bonney Lake Municipal Code is renumbered to Section 17.50.110 as follows:

~~17.50.070~~ 17.50.110 Schools.

….

Section 82. **New Section.** A new Section 17.50.120 is hereby added to the Bonney Lake Municipal Code to read as follows:

17.50.120 Design standards for administrative lot splits.

Administrative lot splits shall comply with all design criteria in this chapter applicable to a short subdivision that results in two lots.

Section 83. **New Section.** A new Section 17.50.130 is hereby added to the Bonney Lake Municipal Code to read as follows:

17.50.130 Design standards for unit lot subdivisions.

A. The parent lot as a whole shall meet all applicable development standards, including but not limited to:

1. Density;

2. Setbacks;

3. Impervious surface;

4. The tree retention requirements of BLMC Title 16, Division IV, Urban Forestry Code; and

Commented [LB127]: Corrects numbering error in Ordinance No. 1580.

Commented [LB128]: Provision no longer needed; trail is constructed.

Commented [LB129]: Corrects numbering error in Ordinance No. 1580.

Commented [LB130]: Added to comply with ESSHB 1096, Laws of 2025, Sections 2(1).

Commented [LB131]: Added to comply with ESSSB 5258, Laws of 2023, as amended by ESB 5559, Laws of 2025.

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5. The design criteria in this chapter applicable to the number of lots proposed.

B. So long as the parent lot complies with the applicable standards, each child lot may deviate from the following development standards:

1. Setbacks;

2. Impervious surface;

3. The tree retention requirements of BLMC Title 16, Division IV, Urban Forestry Code.

C. Each child lot's area and width for purposes of a unit lot subdivision may be as small as the footprint of the dwelling unit situated upon it, subject to the requirements of Chapter 15.04 BLMC;

D. The parent lot and each child lot shall make adequate provisions for ingress, egress, and utility access to and from each unit lot.

E. Separation requirements for utilities shall be met.

Section 84. **Amendment.** Subsection "A.2" and "B.1" of Section 18.02.090 of the Bonney Lake Municipal Code are hereby repealed:

18.02.090 Establishment of districts.

A. Residential Districts:

… 2. ~~R-2, medium-density residential district;~~ *Repealed.*

… B. Commercial Districts:

1. ~~C-1, neighborhood commercial district;~~ *Repealed.* ….

Section 85. **Amendment.** Two new definitions are hereby added to Section 18.04.010 of the Bonney Lake Municipal Code to read as follows:

18.04.010 "A".

… "Affordable housing" means, unless the context clearly indicates otherwise, residential housing whose monthly costs, including utilities other than telephone, do not exceed 30 percent of the monthly income of a household whose income is:

A. For rental housing, 60 percent of the median household income adjusted for household size, for the county where the household is located, as reported by the United States Department of Housing and Urban Development; or

Commented [LB132]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB133]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB134]: Added to comply with ESSHB 1923, Laws of 2019, Section 2(24).

B. For owner-occupied housing, 80 percent of the median household income adjusted for household size, for the county where the household is located, as reported by the United States Department of Housing and Urban Development.

"Affordable housing development" means a proposed or existing structure in which one hundred percent of all single-family or multifamily residential dwelling units within the development are set aside for or are occupied by low-income households at a sales price or rent amount that may not exceed 30 percent of the income limit for the low-income housing unit ….

Commented [LB135]: Added to comply with SHB 1377, Laws of 2019, Section 2(6)(a).

Section 86. Amendment. Three new definitions are hereby added to Section 18.04.030 of the Bonney Lake Municipal Code to read as follows:

18.04.030 "C".

… "Carport" means a building for the purpose of parking automobiles or other vehicles that is open on two or more sides.

Commented [LB136]: Added to comply with SSB 6015, Laws of 2024. Definition is consistent with construction codes.

… "Child day care center" means a "child day care center" as defined in RCW 43.216.010. In addition to the regulations set forth in the development code, child care centers shall be state-licensed and conform to all applicable federal and state regulations.

Commented [LB137]: Added to comply with ESSB 5509, Laws of 2025, Section 2.

… "Co-living housing" means a residential development with lockable sleeping co-living units that are independently rented or owned and that provide living and sleeping space, with residents sharing kitchen facilities with other sleeping units in the building. Co-living housing also commonly known as congregate living facilities, single room occupancy, rooming house, boarding house, lodging house, or residential suites. ….

Commented [LB138]: Added to comply with ESHB 1998, Laws of 2024, Section 2(11).

Section 87. Amendment. Five new definitions are hereby added to Section 18.04.050 of the Bonney Lake Municipal Code, and the definition for "Essential Public Facilities" in Section 18.04.050 to read as follows:

18.04.050 "E".

… "Emergency housing" means temporary indoor accommodations for individuals or families who are homeless or at imminent risk of becoming homeless that is intended to address the basic health, food, clothing, and personal hygiene needs of individuals or families. Emergency housing may or may not require occupants to enter into a lease or an occupancy agreement.

Commented [LB139]: Added to comply with ESSHB 1220, Laws of 2021, Section 6(9).

"Emergency indoor shelter" means type of emergency shelter that is temporary or permanent and indoors, Emergency indoor shelter facilities may include day and warming centers that do not provide overnight accommodation.

Commented [LB140]: Added to comply with ESHB 1754, Laws of 2020

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"Emergency outdoor shelter" means type of emergency shelter that is temporary and outdoors, such as an outdoor encampment, small house community, or vehicle resident safe parking.

Commented [LB141]: Added to comply with ESHB 1754, Laws of 2020

"Emergency shelter" means a facility that provides a temporary shelter for individuals or families who are currently homeless. Emergency shelter may not require occupants to enter into a lease or an occupancy agreement.

Commented [LB142]: Added to comply with ESSHB 1220, Laws of 2021, Section 6(10).

… "Essential public facilities" means those facilities that are typically difficult to site, as defined in RCW 36.70A.200 ~~such as airports, state education facilities and state or regional transportation facilities as defined in RCW 47.06.140, regional transit authority facilities as defined in RCW 81.112.020, improvements to high capacity transportation systems as defined in RCW 81.104.015, bus rapid transit routes and stops or improvements to such routes and stops, state and local correctional facilities, solid waste handling facilities, and inpatient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities as defined in RCW 71.09.020~~.

Commented [LB143]: Updated to comply with ESSB 5801, Laws of 2025, Section 603; SESSSB 5536, Laws of 2023, Section 12; ESSB 5118, Laws of 2021, Section 2; and HB 2640, Laws of 2020, Section 1. Based on frequency of changes recommend simply referencing the RCW definition.

… "Extremely low-income household" means a single person, family, or unrelated persons living together whose adjusted income is at or below 30 percent of the median household income adjusted for household size, for the county where the household is located, as reported by the United States department of housing and urban development.

Commented [LB144]: Added to comply with ESSHB 1923, Laws of 2019, Section 2(25).

Section 88. Amendment. The definition of "Family day care home" in Section 18.04.060 of the Bonney Lake Municipal Code to read as follows:

18.04.060 "F".

… "Family day care ~~home~~" means: a "family day care provider" as defined in RCW 43.216.010. In addition to the regulations set forth in the development code, family day cares shall be state-licensed and conform to all applicable federal and state regulations.

Commented [LB145]: Updated to be consistent with definition in RCW 43.216.010 and help distinguish this type of child care from child care centers, consistent with ESSB 5509, Laws of 2025.

~~A. A person regularly providing care during part of the 24-hour day to six or fewer children in the family abode of the person or persons under whose direction the children are placed.~~

~~B. In addition to the regulations set forth in this chapter, day care centers/family day care homes shall be state-licensed and conform to all federal and state regulations applicable.~~

Section 89. Amendment. One new definition is hereby added to Section 18.04.070 of the Bonney Lake Municipal Code to read as follows:

18.04.070 "G".

"Garage" means a building for the purpose of parking automobiles or other vehicles that is enclosed on more than two sides. ….

Commented [LB146]: Added to comply with SSB 6015, Laws of 2024. Definition is consistent with construction codes.

Section 90. Amendment. One new definition is hereby added to Section 18.04.120 of the Bonney Lake Municipal Code to read as follows:

18.04.120 "L".

… "Low-income household" means a single person, family, or unrelated persons living together whose adjusted income is at or below 80 percent of the median household income adjusted for household size, for the county where the household is located, as reported by the United States department of housing and urban development.

Commented [LB147]: Added to comply with ESSHB 1923, Laws of 2019, Section 2(26).

Section 91. Amendment. One new definition is hereby added to Section 18.04.130 of the Bonney Lake Municipal Code and the definition of "Mobile home park" is amended to read as follows:

18.04.130 "M".

… "Mobile/manufactured home/recreational vehicle park" is a tract of land divided into lots or spaces, under the ownership or management of one person, firm or corporation, used or designated for the use of two or more mobile homes, manufactured homes, or recreational vehicles.

Commented [LB148]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h).

"Moderate-income household" means a single person, family, or unrelated persons living together whose adjusted income is at or below 120 percent of the median household income adjusted for household size, for the county where the household is located, as reported by the United States department of housing and urban development. ….

Commented [LB149]: Added to comply with ESSHB 1220, Laws of 2021, Section 6(18).

Section 92. Amendment. One new definition is hereby added to Section 18.04.150 of the Bonney Lake Municipal Code to read as follows:

18.04.150 "O".

… "Outdoor encampment" means any temporary tent or structure encampment, or both.

Commented [LB150]: Added to comply with ESHB 1754, Laws of 2020, Section 4(6)(b).

Section 93. Amendment. One new definition is hereby added to Section 18.04.160 of the Bonney Lake Municipal Code to read as follows:

18.04.160 "P".

… "Permanent supportive housing" means "permanent supportive housing" as defined in RCW 36.70A.030. ….

Commented [LB151]: Added to comply with ESSHB 1923, Laws of 2019, Section 2(27), and SHB 2343, Laws of 2020, Section 4(16).

Section 94. Amendment. Two new definitions are hereby added to Section 18.04.180 of the Bonney Lake Municipal Code to read as follows:

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18.04.180 "R".

… "Recreational vehicle" means a vehicular-type unit primarily designed for recreational camping or travel use that has its own motive power or is mounted on or towed by another vehicle. The units include travel trailers, fifth-wheel trailers, folding camping trailers, truck campers, and motor homes.

Commented [LB152]: Added in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h).

… "Religious organization" means the federally protected practice of a recognized religious assembly, school, or institution that owns or controls real property, registered as a religious organization with the Washington Secretary of State. ….

Commented [LB153]: Added to comply with SHB 1377, Laws of 2019, Section 2(6)(b).

Section 95. Amendment. One new definition is hereby added to Section 18.04.190 of the Bonney Lake Municipal Code to read as follows:

18.04.190 "S".

"Small house" means a type of temporary outdoor emergency shelter where a small structure provides all the necessary components of a dwelling unit, as defined by BLMC 18.04.040, which is not permanently affixed to the ground and is not permanently connected to utility services.

Commented [LB154]: Added to comply with ESHB 1754, Laws of 2020.

Section 96. Amendment. Two new definitions are hereby added to Section 18.04.200 of the Bonney Lake Municipal Code to read as follows:

18.04.200 "T".

"Temporary encampment" means a type of temporary emergency outdoor shelter in the form of an outdoor encampment where shelters are not affixed to the land permanently and are not using underground facilities.

Commented [LB155]: Added to comply with ESHB 1754, Laws of 2020, Section 4(6)(d).

"Temporary use" means a nonpermanent structure, use or activity involving minimal capital investment that does not result in the permanent alteration of the site and which is intended to exist or operate for a limited period of time. ….

Commented [LB156]: Added to clarify what temporary uses are generally, to support implementation of ESHB 1754, Laws of 2020, and in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h), as already permitted by BLMC 10.16.020.

Section 97. Amendment. Two new definitions are hereby added to Section 18.04.220 of the Bonney Lake Municipal Code to read as follows:

18.04.220 "V".

"Vehicle resident safe parking program" means a program for people who are experiencing homelessness and sleeping in their vehicles at night. Vehicle resident safe parking program can include locations open only for overnight use, or locations open during the daytime and overnight where persons experiencing homelessness reside in their vehicles on site.

Commented [LB157]: Added to comply with ESHB 1754, Laws of 2020.

"Very low-income household" means a single person, family, or unrelated persons living together whose adjusted income is at or below 50 percent of the median household income adjusted for household size, for the county where the

Commented [LB158]: Added to comply with ESSHB 1923, Laws of 2019, Section 2(28).

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household is located, as reported by the United States department of housing and urban development. ….

Section 98. **Amendment.** A new Subsection "F" is added and Subsections "F" – "H" of Section 18.08.010 of the Bonney Lake Municipal Code are amended to read as follows:

18.08.010 Interpretation of land use matrix.

… F. If the letter "T" appears in the box at the intersection of the column and the row, the use may be permitted with a temporary use permit.

G. If a footnote appears in the box at the intersection of the column and the row, the use may be permitted subject to the appropriate review process indicated above and the specific conditions indicated by the corresponding footnote.

H. ~~G.~~ All applicable requirements shall govern a use whether or not they are cross-referenced in the matrix. To determine whether a particular use is allowed in a particular zoning district and location, all relevant regulations must also be consulted in addition to this matrix.

I. ~~H.~~ If a use is not listed on the land use matrix that use is considered a prohibited use within the city of Bonney Lake.

Section 99. **Amendment.** Section 18.08.020 of the Bonney Lake Municipal Code is amended to read as follows:

18.08.020 Land use matrix.

Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Residential Uses												
Accessory dwelling unit[1]		A	A	~~A~~		~~A~~						
Adult family home		P	P	~~P~~	P	~~P~~	P			P	P	
~~Multifamily~~				~~-~~	~~P~~	~~-~~	~~P[2]~~			~~P[3]~~	~~P~~	
Co-living housing					P		P[2]			P	P	
Duplexes				~~P~~	P	~~-~~						
Family day cares		A	A	~~A~~	A	~~A~~	A			A	A	
Home occupations[4]		A	A	~~A~~	A	~~A~~	A			A	A	
Mobile/manufactured homes[5]		P	P	~~P~~		~~-~~						
Mobile/manufactured home/recreational vehicle parks[6],[26]				-	P	-	P					
Multifamily				-	P	-	P[2]			P[3]	P	
Private docks, mooring facilities and boathouses[7]		A	A	~~A~~	A	-						P

Commented [LB159]: Added to clarify what temporary uses are generally, to support implementation of ESHB 1754, Laws of 2020, and in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h), as already permitted by BLMC 10.16.020.

Commented [LB160]: Updated to clarify that the codes listed are from the 2017 NAICS. https://www.census.gov/naics/

Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB164]: Moved to alphabetical order.

Commented [LB163]: Added to comply with ESHB 1998, Laws of 2024, Section 2(1).

Commented [LB165]: Added to allow home occupations in all zones as an accessory use where dwelling units are permitted.

Commented [LB166]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Recreational vehicle[27]		T	T									
Residences in connection with a business establishment				-		~~P~~	C			P[3]	P	
Single-family residences		P	P	~~P~~		~~P~~						
Townhouses			P	~~P~~	P	~~C~~	C			P	P	
Educational Uses												
Dancing, music, art, drama and instructional schools	611610, 611620, 611630, 611691, 611692, and 611699	A[8]		-		~~P~~	P	P	P	P[3]	P	P
Elementary and secondary schools	611110		C	~~P~~	P	~~P~~	C					P
Business, technical, and trade schools	611410, 611420, 611430, 611511, 611512, 611513, and 611519		C	~~C~~	C	~~C~~	C		C	P	P	P
Cultural, Recreational, and Entertainment												
Adult entertainment facilities[9]	N/A			-		-		C				
Amphitheater	N/A			-		-	P					P
Arcade	713120			-		-			P			
Bars and taverns	722410			-		~~C~~	P		P	P	P	
Bed-and-breakfast inns[10]	721191	A	C	~~C~~	C	~~P~~						
Bowling alley	713950			-		-			P			
Campgrounds	712110			-		-						C
Caterers and mobile food service	722320 and 72233			-		-		P				
Cinema	512131			-		-	P		P			
Coffee shops and cafes	722515			-		~~P~~[11]	P	P	P	P[11]	P[11]	A[11]
Golf courses	713910	C		-		-						C
Fitness centers and recreational centers	713940			-		-	P	P	P			P
Libraries	519120			-	P	~~P~~	P			P	P	P
Museums	712110	C	C	-		~~P~~	P			P	P	P

Commented [LB160]: Updated to clarify that the codes listed are from the 2017 NAICS. https://www.census.gov/naics/

Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB167]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(2)(h), as already permitted by BLMC 10.16.020.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB168]: Added to fulfill a recommendation in the adopted Housing Action Plan to allow townhouses in more zoning districts, and to comply with ESSHB 1220, Laws of 2021, Section 1(4).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Parks, open space, and trails	712190	P	P	~~P~~	P	~~P~~	P			P	P	P
Public meeting halls	N/A		C	~~C~~	P	~~P~~	P	P	P			P
Recreation facilities	713990			-		-	P	P	P			P
Restaurants and eating establishments	722511, 722513, 722514, and 722515			-	A[11] [12]	~~C[11]~~	P	P	P	P[11]	P[11]	A[11] [13]
Theaters	711110, 711120, 711130, and 711190			-		-	P			P	P	
Public, Quasi-Public, and Social Service Facilities												
Adult day care centers and senior centers	624120			-		-	P		P			P
Executive, legislative, and other general government support	921130, 921140, and 921190		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Public safety facilities	922120, 922130, 922150, 922160, and 922190		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Administration of human resource programs	923110, 923120, 923130, and 923140		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Administration of environmental quality programs	924110 and 924120		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Administration of housing programs, urban planning, and community development	925110 and 925120		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Administration of economic programs	926110, 926130, 926140, and 926150		C[2]	~~C[2]~~	C[2]	~~P~~	P			P	P	P
Religious[25], [28], philanthropic, and civic organizations	813110, 813211, 813212, 813219, and 813410	C	C	~~C~~	C	~~P~~	P	P	P	P	P	P

Commented [LB160]: Updated to clarify that the codes listed are from the 2017 NAICS. https://www.census.gov/naics/

Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB169]: Added to comply with SHB 1377, Laws of 2019, Section 2(1).

Commented [LB170]: Added to comply with ESHB 1754, Laws of 2020, Section 4(1).

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Social advocacy, business, professional, labor, and political organizations	813311, 813312, 813319, 813910, 813920, 813930, 813940, and 813990			-		~~C~~	P	P	P	P	P	P
Manufacturing, Wholesale and Industrial												
Assembly or processing of previously prepared materials in a fully enclosed building	N/A			-		-		C[14]				
Bakeries	311811, 311812, 311813, 311821, 311824, and 311830			-		-		P				
Food manufacturing	311911, 311919, 311920, 311930, 311941, 311942, 311991, and 311999			-		-		P				
Breweries, wineries, and distilleries	312120, 312130, and 312140			-		~~C~~	P	P	P	P	P	
Cabinet and furniture shops	337110, 337121, 337122, 337124, 337125, 337127, 337211, 337212, and 337214			-		-		P				
Construction equipment and machinery sales	423810 and 423820			-		-		P				

Commented [LB160]: Updated to clarify that the codes listed are from the 2017 NAICS. https://www.census.gov/naics/

Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Metal fabrication and product manufacturing	332114, 332119, 332215, 332216, 332311, 332312, 332313, 332321, 332322, 332323, 332510, 332613, 332618, 332710, 332721, 332722, 332811, 332812, 332813, and 332999			-		-	C	P				
Apparel manufacturing	315110, 315190, 315210, 315220, 315240, 315280, 315990, 316210, 316992, and 316998			-		-		P				
Computer and electronics manufacturing	334111, 334112, 334118, 334210, 334220, 334290, and 334310			-		-		P				
Sporting and athletic goods manufacturing	339920			-		-		P				
Sign manufacturing	339950			-		-		P				
Medical equipment and pharmaceutical manufacturing	325411, 325412, 325413, 325414, 339112, 339113, 339114, 339115, and 339116			-		-		P				

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Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Storage or distribution of sand, gravel, top soil, or bark	484220			-		-		P				
Couriers and messenger services	492110 and 492210			-		-		P				
Warehousing, distribution, and storage	484110, 484121, 484122, 493110, 493120, 493130, and 493190			-		-		P				
Construction and Resource												
Agriculture and orchards	N/A	P		-		-						
Construction contractors	237110, 237120, 237130, 237310, 237990, 238110, 238120, 238130, 238140, 238150, 238160, 238170, 238190, 238910, and 238990			-		-		P				
Building construction contractors	236115, 236116, 236117, 236118, 236210, 236220, 237210, 238210, 238220, 238290, 238310, 238320, 238330, and 238390			-		-	P[23]	P	P[23]			
Tree farms	N/A	P		-		-						
Raising of livestock, small animals and fowl	N/A	P[15]		-		-						
Communication and Utilities												

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See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Public utility facility	N/A	P[16]	P[16]	~~P~~[16]	P[16]	~~P~~	P	P	P	P	P	P
WCF microcell	N/A	P	P	~~P~~	P	~~P~~	P	P	P	P	P	P
WCF mini	N/A			-		~~P~~	P	P	P	P	P	P
WCF macro	N/A			-		~~P~~	P	P	P	P	P	P
WCF monopole I	N/A	C	C	~~C~~	C	~~C~~	C	C	C	C	C	C
WCF monopole II and lattice tower	N/A			-		-	C	C	C	C	C	C
WCF small cell	N/A	P	P	~~P~~	P	~~P~~	P	P	P	P	P	P
Retail and Personal Services												
Antique and used merchandise shops	453310			-		~~C~~	P		P	P	P	
Automobile dealer	441110 and 441120			-		-		P	C			
Automobile fueling stations	447110 and 447190			-		-	P	P	P			
Automotive parts and repair	441310, 441320, 811111, 811112, 811113, 811118, 811121, 811122, 811191, and 811198			-		-	P	P	P			
Baked goods store	445291			-		~~P~~	P	A	P	P	P	
Barber shops and beauty shops	812111 and 812112			-	A[12]	~~P~~	P		P	P	P	
Beer, wine, and liquor stores	445310			-		~~P~~	P		P	P	P	
Boat dealer	441222			-		-			C			
Bookstores	451211			-	A	~~P~~	P		P	P	P	
Car washes	811192			-		-	P		P			
Apparel, jewelry, luggage, and leather goods stores	448110, 448120, 448130, 448140, 448150, 448190, 448210, 448310, 448320			-		~~C~~	P		P	P	P	
Convenience stores	445120			-	A[12]	~~P~~	P	A	P	P	P	

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See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Child day care centers ~~and preschools~~	624410			-	~~C~~ P	~~P~~	P		P	P	P	P
Department store, warehouse clubs, and supercenters	452111, 452112, 452910, and 452990			-		-	P		P			
Dry cleaning	812320			-		~~P~~	P		P	P	P	
Electric vehicle charging stations – Level 1 and 2	N/A	P	P	~~P~~	P	~~P~~	P	P	P	P	P	P
Electric vehicle charging stations – Level 3	N/A	C	C	~~C~~	C	~~P~~	P	P	P	P	P	P
Florists	453110			-	A[12]	~~P~~	P		P	P	P	
Food markets, delicatessen and specialty food stores	445210, 445220, 445230, 445291, 445292, and 445299			-	A[12]	~~P~~	P	P	P	P	P	
Furniture and small household appliance repair	811412 and 811420			-		-	P	P	P			
Grocery stores	445110			-	A[12]	~~C~~	P		P	P	P	
Hardware stores	444120 and 444130			-		-	P		P	P	P	
Lawn and garden equipment and supplies	444210 and 444220			-		-	P[18]	P[18]	P[18]	P	P	
Linen and uniform suppliers	812331 and 812332			-		-		P				
Health and personal care stores	446110, 446120, 446130, 446191, and 446199			-		~~P~~	P		P	P	P	
Home centers, lumber yards, and building material stores	444110 and 444190			-		-	P[18]	P[18]	P[18]			
Home furnishing, electronic, and appliance stores	442110, 442210, 442291, 442299, 443141, and 443142			-		-	P		P	P	P	

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See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB171]: Updated to allow as an outright permitted use in all zones except industrial consistent with ESSB 5509, Laws of 2025, Section 2.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Itinerant vendors	N/A	P	P	~~P~~	P	~~P~~	P	P	P	P	P	P
Kennels	812910	C		~~C~~	C	~~A~~	A		A			
Laundromats	812310			-		~~P~~	P		P			
Locksmiths and security alarm shops	561621 and 561622			-		~~P~~	P	P	P			
Massage therapy, day spas, nail salons, and tanning salons	812199			-		~~P~~	P		P	P	P	
Novelty, art, and souvenir stores	453220, 453920, and 453998			-		~~C~~	P		P	P	P	A[13]
Office supply stores	453210			-		-	P		P	P	P	
Parking garages	812930			-		-	C	A	C	C		
Personal and household goods repair	811490			-		~~P~~	P	P	P	P	P	
Pet shop, grooming and supplies	453910 and 812910			-		~~P~~	P	P	P	P	P	
Photographic processing and supply	812921 and 812922			-		-	P	P	P	P	P	
Rental stores	532210, 532220, 532230, 532291, 532292, 532299, and 532310			-		-	P	P	P			
Recreational vehicle, motorcycle, ATV, and trailer dealers	441210 and 441228			-		-		P	C			
Shoe repair	811430			-		~~P~~	P		P	P	P	
Skating rink				-		-	P		P			
Sporting, hobby, music and game stores	451110, 451120, 451130, and 451140			-		~~C~~	P		P	P	P	
Stables and riding schools		P		-		-						P
Tobacco store	453991			-		~~P~~	P		P	P	P	
Vehicle rental	532111, 532112, and 532120			-		-			P			
Vending machine operators	454210			-		-		P				

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See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Health Care												
Ambulance service	621910			-		-	C	P	C			
Hospitals	622110 and 622310			-		-	P		P			C
Offices of physicians	621111 and 621112			-	A[12]	~~P~~	P		P	P	P	
Offices of dentists	621210			-	A[12]	~~P~~	P		P	P	P	
Offices of health practitioners	621310, 621320, 621330, 621340, 621391, and 621399			-	A[12]	~~P~~	P		P	P	P	
Other health care services	621991 and 621999			-		-	P	P	P			
Outpatient care centers	621410, 621491, 621492, 621493, and 621498			-		-	P		P			
Medical and diagnostic laboratories	621511 and 621512			-		-	P	P	P			
Nursing and residential care facilities	623110, 623311, and 623312			-		-	C		P	P	P	
Finance, Insurance, Real Estate, and Professional Services												
Accounting and booking services	541211, 541213, 541214, and 541219			-		-	P	A	P	P	P	
Architectural, engineering, and related services	541310, 541320, 541330, 541340, 541350, 541360, 541370, and 541380			-		-	P	P	P	P	P	
Brokerage and investment offices	523110, 523120, 523140, 523910, 523920, 523930, 523991, and 523999			-		-	P		P	P	P	

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Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
Building and ground services	561710, 561720, 561730, 561740, and 561790			-		-		P				
Computer services	541511, 541512, 541513, and 541519			-		-	P	P	P	P	P	
Design services	541410, 541420, 541430, and 541490			-		-	P	P	P	P	P	
Financial institutions	522110, 522120, and 522130			-	A[11] [12]	~~P[11]~~	P		P	P[11]	P[11]	
Insurance services	524210, 524291, 524292, and 524298			-		-	P		P	P	P	
Legal services	541110, 541120, 541191, and 541199			-		-	P		P	P	P	
Management and consulting services	541611, 541612, 541613, 541614, 541618, 541620, and 541690			-		-	P	P	P	P	P	
Mortgage and financial services	522220, 522291, 522292, 522293, 522310, and 522390			-		-	P		P	P	P	
Music studios	512210, 512220, 512230, 512240, and 512290			-		-	P		P	P	P	
Printing, copying and mailing services	561431, 561439, and 561910			-		-	P	P	P	P	P	
Photography studios	541921 and 541922			-		-	P		P	P	P	

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See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	R-2	R-3	C-1	C-2	E	MC	DC	DM	PF
Property management	531110, 531120, 531190, 531311, and 531312			-		-	P		P	P	P	
Real estate agents, brokers, and appraisers	531210, 531320, and 531390			-		-	P		P	P	P	
Veterinary clinics, animal hospitals[19]	541940			-		-	P		P	P	P	
Essential Public Facilities												
Airports	481111, 481112, 481211, 481212, and 481219			-		-		C				
Correctional institutions	922140			-		-		C				C
Emergency shelter, permanent indoor[29]	N/A							P				P
Group homes[21] [24]	N/A	P	P	P	P	-	P[2]			P[3]	P	
Psychiatric and substance abuse facilities	622210, 623220, and 621420			-		-		C	C			
Public colleges and universities	611210 and 611310			-		-	P	P		P	P	P
Secure community transition facilities[22]	N/A							C				
Solid waste handling facilities	562111, 562112, 562119, 562211, 562212, 562213, and 562219			-		-		C				
State transportation facilities[20]	N/A			-		-		P	P	P	P	P
Transit facilities	485111, 485112, 485113, 485119		C	C	P	P	P	P	P	P	P	P
~~Correctional institutions~~	~~922140~~			-		-		C				C

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Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

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Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB172]: Moved to alphabetical order.

Commented [LB173]: Added to implement ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

Commented [LB174]: Added as a permitted use in DC and DM zones to comply with ESSHB 1923, Laws of 2019, Section 10, and ESSHB 1220, Laws of 2021, Section 3.

Commented [LB175]: Complies with ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

Commented [LB176]: Moved to alphabetical order.

Commented [LB177]: Moved to alphabetical order.

Commented [LB178]: Moved to alphabetical order.

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Zone Use	2017 NAICS Code(s)	RC-5	R-1	~~R-2~~	R-3	~~C-1~~	C-2	E	MC	DC	DM	PF
~~Solid waste handling facilities~~	~~562111, 562112, 562119, 562211, 562212, 562213, and 562219~~			-		-		~~C~~				
~~Psychiatric and substance abuse facilities~~	~~622210, 623220, and 621420~~			-		-		~~C~~	~~C~~			
~~Group homes~~[21] [24]	~~N/A~~	~~P~~	~~P~~	~~P~~	~~P~~	-	~~P~~					
~~Secure community transition facilities~~[22]	~~N/A~~							~~C~~				

The paragraphs listed below contain specific limitations that correspond with the bracketed [ ] superscript note numbers from land use matrix:

[1] Subject to compliance with BLMC 18.22.090.

[2] Subject to compliance with Chapter 18.31 BLMC, Commercial Development Standards.

[3] ~~A conditional use permit is required if residential units are located~~ Residential dwelling units are prohibited on the first floor of the building. This requirement does not apply to townhouses.

[4] Subject to compliance with ~~BLMC 18.22.010~~ Chapter 5.08 BLMC.

[5] Subject to compliance with Chapter 15.08 BLMC, Manufactured Homes.

[6] Provided, that the park was in existence at the time of annexation into the city, subject to compliance with BLMC 18.08.060.

[7] Subject to compliance with BLMC Title 16, Division III, Shoreline Code.

[8] Limited to stables and riding schools in association with a single-family home.

[9] Subject to compliance with Chapter 18.32 BLMC, Adult Entertainment Facilities.

[10] Subject to compliance with BLMC 18.22.030.

[11] Drive-through facilities, services, or windows are prohibited.

[12] Subject to compliance with BLMC 18.31.040.

[13] Business can be open for no more than 150 days per year unless it is within the building with a permitted use.

[14] Subject to compliance with BLMC 18.29.040.

[15] Subject to compliance with BLMC 6.04.130.

[16] Subject to the requirements of BLMC 18.22.050.

[17] Subject to the provisions of Chapter 18.40 BLMC, Electric Vehicle Infrastructure.

[18] Outdoor storage and sale of building materials and nursery stock is allowed as an accessory use.

[19] Outdoor kennel space and/or dog runs are prohibited.

[20] State transportation facilities are defined in RCW 47.06.140.

[21] As required to comply with the Federal Fair Housing Act Amendments of 1988 (42 U.S.C. 3601 et seq.), RCW 35A.21.430, and RCW 35A.63.240. Group homes also includes permanent supportive housing as defined in RCW 36.70A.030(19) and transitional housing as defined in RCW 84.36.043(2)(c).

[22] Secure community transition facilities are defined in RCW 71.09.020.

Commented [LB160]: Updated to clarify that the codes listed are from the 2017 NAICS. https://www.census.gov/naics/

Commented [LB161]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB162]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB179]: Removed requirement for time- and cost-intensive CUP process.

Commented [LB180]: Updated to reflect relocation of home occupation regulations in Ordinance No. 1739.

Commented [LB181]: Clarified in relation to anti-displacement regulations, to comply with ESSHB 1220, Laws of 2021, Section 2(h).

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB182]: Added to clarify compliance with ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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The paragraphs listed below contain specific limitations that correspond with the bracketed [ ] superscript note numbers from land use matrix:

[23] Exterior storage of materials or equipment is prohibited. All materials and equipment shall be stored in an enclosed building.

[24] Permanent supportive housing and transitional housing shall comply with the standards of BLMC 18.08.040.

[25] Housing on property owned by a religious organization shall comply with the standards of BLMC 18.08.050.

[26] A recreational vehicle may be placed in any mobile/manufactured home/recreational vehicle park, subject to compliance with BLMC 18.08.060.

[27] Subject to compliance with BLMC 10.16.020.

[28] Temporary indoor and outdoor emergency shelters are permitted, as required to comply with RCW 35A.21.360 and 430. These uses are subject to compliance with BLMC 18.08.050.

[29] Permanent indoor emergency shelters in the E or PF zoning districts are not required to be on property owned or controlled by a religious organization; provided, the proposal otherwise complies with the requirements in BLMC 18.08.050.

Commented [LB183]: Added to comply with SHB 1377, Laws of 2019, Section 2(1).

Commented [LB184]: Added to address displacement documented consistent with ESSHB 1220, Laws of 2021, Section 2(2)(e)-(h), consistent with the Housing Equity Report.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Commented [LB185]: Added to comply with ESHB 1754, Laws of 2020, Section 4(1).

Commented [LB186]: Added to implement ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

Section 100. New Section. A new Section 18.08.050 is hereby added to the Bonney Lake Municipal Code to read as follows:

18.08.050 Housing and emergency shelters on property owned or controlled by a religious organization.

A. This section applies to property owned or controlled by a religious organization, as defined in BLMC 18.04.180. As part of a complete application, the religious organization must demonstrate ownership or control of the land for the purposes of this section in the form of:

   1. A recorded deed with the religious organization as grantee; or

   2. A long-term lease with the religious organization as grantee that extends through the proposed term of the proposed housing or emergency shelter.

B. Affordable housing.

   1. This subsection applies to the construction of a new affordable housing development or the rehabilitation of an existing affordable housing development for low-income households on property owned or controlled by a religious organization.

   2. This subsection does not apply to affordable housing developments for very low-income or extremely low-income households.

   3. The residential density permitted by the underlying zoning district may be increased by up to 25 percent, provided that:

a. The affordable housing development is set aside for or occupied exclusively by low-income households;

b. The affordable housing development is part of a lease or other binding obligation that requires the development to be used exclusively for affordable housing purposes for at least fifty years, even if the religious organization no longer owns the property;

c. The affordable housing development does not discriminate against any person who qualifies as a member of a low-income household based on race, creed, color, national origin, sex, veteran or military status, sexual orientation, or mental or physical disability; or otherwise act in violation of the federal fair housing amendments act of 1988 (42 U.S.C. Sec. 3601 et seq.);

4. The religious organization developing the affordable housing development must pay all fees, mitigation costs, and other charges required through the development of the affordable housing development.

5. The maximum allowed number of new affordable housing units permitted by the city after January 1, 2026, whether for a religious organization or another entity, shall not exceed 213 units for low-income households.

C. Emergency housing and emergency shelters.

1. This subsection applies to:

a. All types of emergency housing and emergency shelters on property owned or controlled by a religious organization.

b. Permanent indoor emergency shelters located in the E or PF zoning districts.

2. Requirements applicable to all types of emergency housing and emergency shelters.

a. The maximum allowed number of emergency housing units and emergency shelter units on any given property shall not exceed the number of dwelling units that would be allowed under the zoning classification adopted for the property.

b. The total maximum allowed number of emergency housing units and emergency shelter units permitted by the city shall not exceed 89 units.

Commented [LB187]: Added to comply with SHB 1377, Laws of 2019, Section 2(1)(a).

Commented [LB188]: Added to comply with SHB 1377, Laws of 2019, Section 2(1)(b).

Commented [LB189]: Added to comply with SHB 1377, Laws of 2019, Section 2(1)(c).

Commented [LB190]: Added to comply with SHB 1377, Laws of 2019, Section 2(3).

Commented [LB191]: Added to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative.

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c. There shall be a minimum of 1,000 feet of separation between any emergency housing or emergency shelter, as defined in BLMC 18.04.050, that are operating at the same time.

Commented [LB192]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(f).

d. All operators of emergency housing and emergency shelters shall utilize the Pierce County Homeless Information Management System. For the purposes of this subsection, "operator" means an organization such as a religious organization or other organized entity that has the capacity to organize and manage emergency housing or an emergency shelter. This provision does not apply to temporary overnight emergency shelter provided for the purpose of extreme weather shelter.

Commented [LB193]: Added to comply with ESHB 1754, Laws of 2020, Section 4(5).

Commented [LB194]: Added to comply with ESHB 1754, Laws of 2020, Section 4(6)(a).

e. All operators of emergency housing and emergency shelters should partner with regional homeless service providers to develop pathways to permanent housing.

Commented [LB195]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(i)(viii).

f. All operators of emergency housing and emergency shelters shall keep the property free from nuisances as defined in Chapter 8.20 BLMC, including adequate trash receptables and trash service.

g. If the emergency shelter is not connected to water or sewer utilities, the religious organization shall provide:

Commented [LB196]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(g)(ii).

i. Adequate restrooms based on the number of units. If families with children will be housed, restrooms solely for families must also be provided.

ii. Adequate handwashing stations and potable running water, including accommodations for black water.

iii. Adequate facilities may be inside an existing structure or portable facilities on site, as long as those facilities are available at all times of day and night. For purposes of this section, the adequacy of the facilities shall be determined at the sole discretion of the city.

h. A memorandum of understanding signed by the city, the property owner (if different), and the operator (if different) is required prior to construction or operation of any temporary or permanent emergency shelter. Memorandums of understanding shall be processed in accordance with this section. The city shall charge a $1,000 fee to cover the review of the memorandum of understanding and the initial annual safety inspection.

Commented [LB197]: Added to comply with ESHB 1754, Laws of 2020, Section 4(3)(b).

Commented [LB198]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(c).

i. Any memorandum of understanding is in addition to any other permits normally required by the city to construct the proposed improvements.

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3. Public meeting required.

   a. Prior to the opening of an temporary indoor overnight shelter, temporary encampment, temporary small house on site or temporary vehicle resident safe parking program, a religious organization hosting the homeless on property owned or controlled by the religious organization shall host a meeting open to the public for the purpose of providing a forum for discussion of related neighborhood concerns, unless the use is in response to a declared emergency by the city.

   b. The religious organization shall contact the city at least seven calendar days prior to the date and time of the meeting and provide the meeting details to the city.

   c. The city must provide community notice of the meeting, based on the notification provided to the city in subsection B of this section, by taking at least two of the following actions at any time prior to the time of the meeting:

      i. Delivering to each local newspaper of general circulation and local radio or television station that has on file with the governing body a written request to be notified of special meetings;

      ii. Posting notice on the city's website;

      iii. Prominently displaying, on signage at least two feet in height and two feet in width, one or more meeting notices that can be placed on or adjacent to the main arterials in proximity to the location of the meeting; or

      iv. Prominently displaying the notice at the meeting site.

4. Additional requirements for temporary indoor shelters. Temporary indoor shelters:

   a. May operate for up to six months (182 days), per location, per year.

   b. Facilities shall have a minimum of two accessible exits to host an indoor overnight shelter.

   c. Religious organizations seeking to use a facility for a temporary indoor overnight shelter that was not originally designed for housing, or that does not have an installed sprinkler system in rooms where people will be sleeping, shall either:

Commented [LB199]: Added to comply with ESHB 1754, Laws of 2020, Section 4(10).

Commented [LB200]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(h).

Commented [LB201]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(h).

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i. Install fire sprinklers as required by Chapter 15.16. BLMC; or

ii. Provide an alternate plan for fire and life safety as part of the Temporary Use Permit application. At a minimum, this plan shall contain:

A. A provision allowing the city and local fire district to conduct inspections during reasonable hours during the term of the Temporary Use Permit;

B. An agreed-upon set of appropriate emergency procedures;

C. An emergency exit floor plan, including the most viable means to evacuate occupants from inside the host site with appropriate illuminated exit signage, panic bar exit doors; and

D. An overnight fire watch plan that:

1. Complies with the requirements of the International Fire Code, as adopted in Chapter 15.04 BLMC;

2. Indicates the posted safe means of egress;

3. Indicates the location of operable smoke detectors, carbon monoxide detectors as necessary, and fire extinguishers; and

4. Contains a plan for monitors who spend the night awake and are familiar with emergency protocols, who have suitable communication devices, and who know how to contact the local fire district.

E. The alternate plan shall be reviewed and approved by the fire marshal prior to approval or issuance of the Temporary Use Permit.

5. Additional requirements for temporary small houses. Temporary small houses:

a. May operate for up to six months (182 days), per location, per year, with a temporary use permit. The religious organization may extend this time period to up to a year (365 days), in renewable one-year terms, with a memorandum of understanding that complies with this section.

Commented [LB202]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(i).

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b. The units must be a minimum of 120 gross square feet, and a maximum of 400 gross square feet, not including any lofts.

c. If more than one unit is on site, each unit needs to be set a minimum of six feet apart from any other units. Units must be set a minimum of six feet apart from any other structures or facilities at the site and are required to comply with the setback requirements for the zoning classification adopted for the property.

d. Any utilities provided to the temporary small houses shall be inspected by the city, or the utility provider. If space heaters are provided, they must be approved by the city.

e. Doors and windows of the temporary small house must be included and be lockable. The religious organization and the operator shall also possess keys to each unit.

f. Every unit shall have its own fire extinguisher. Said fire extinguishers shall be inspected per the manufacturer's instructions.

g. If more than one temporary small house is located at a site, the religious organization should consider placing at least one accessible temporary small house at the site.

6. Additional requirements for temporary encampments and temporary vehicle resident safe parking programs. A temporary encampment or temporary vehicle resident safe parking program:

a. May operate for up to six months (182 days) in one location per calendar year.

b. Religious organizations using parking spaces shall continue to provide the minimum number of parking spaces required for the existing uses on site, as required by the zoning classification adopted for the property.

c. If recreational vehicles are hosted at the vehicle resident safe parking program site, provision must be made by the religious organization or managing agency for proper disposal of waste from the recreational vehicle.

d. The religious organization or operator shall inform vehicle residents how to comply with laws regarding the legal status of vehicles and drivers, and provide a written code of conduct consistent with area standards.

Commented [LB203]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(g).

Commented [LB204]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(g)(iii).

Commented [LB205]: Added to comply with ESHB 1754, Laws of 2020, Section 4(2)(g)(ii).

Commented [LB206]: Added to comply with ESHB 1754, Laws of 2020, Section 4(4).

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7. Additional requirements for permanent indoor emergency shelters. Permanent indoor emergency shelters:

   a. May be located on property owned or controlled by a religious organization, or on any property in the E or PF zoning districts.

   b. May operate indefinitely with an approved memorandum of understanding.

   c. Operators seeking to use a facility for permanent indoor overnight shelter that was not originally designed for housing, or that does not have an installed sprinkler system in rooms where people will be sleeping, shall install fire sprinklers as required by Chapter 15.16. BLMC.

8. Memorandum of understanding. Any religious organization that desires to operate a small house site for longer than six months or a permanent indoor emergency shelter shall enter into a memorandum of understanding with the city before beginning construction and/or operation. Said memorandum of understanding will address issues that will protect the public health and safety of both the residents of the temporary emergency housing facility and the residents of the city. At a minimum, the memorandum of understanding must include information regarding:

   a. The right of a resident of the facility to seek public health and safety assistance;

   b. How the residents will be able to access social services on site;

   c. Ensure the residents have the ability to directly interact with the organization or entity, including how residents can express concerns regarding the operator to the organization or entity (if applicable);

   d. A written code of conduct agreed to by the operator (if applicable), the organization or entity, and all volunteers working with the residents of the facility;

   e. If the operator is publicly funded, that the organization or entity has the ability to interact with residents of the facility using a release of information;

   f. An agreement that the adult residents of the facility shall be subject to a sex offender check by local law enforcement, with an acknowledgement that the organization or entity retains the authority to allow such an offender to remain on the property;

Commented [LB207]: Added subsection to comply with ESHB 1754, Laws of 2020, Section 4(3)(b).

Commented [LB208]: Added to comply with ESHB 1754, Laws of 2020, Section 4(4).

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g. If the facility is a vehicle resident safe parking program facility, a requirement that the host organization or entity or its operator shall inform vehicle residents of how to comply with laws regarding the legal status of vehicles and drivers, and provide relevant requirements in the code of conduct consistent with area standards;

h. A requirement to work with the local agencies administering the homeless client management information system if the organization or entity works with a publicly funded operator, or, if the organization or entity does not work with a publicly funded operator, an encouragement to work with the local agencies administering the homeless client management information system. This is not a requirement or recommendation for temporary overnight extreme weather shelters operated out of organization or entity buildings;

i. That the organization or entity and operator (if applicable) will not refuse to host any resident or prospective resident because of age, sex, marital status, sexual orientation, race, creed, color, national origin, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability, as those terms are defined in RCW 49.60.040, if the organization or entity and/or operator receive funding from any government agency;

Commented [LB209]: Added to comply with ESHB 1754, Laws of 2020, Section 4(9).

j. A site plan of the temporary emergency housing facility, including, but not limited to, ingress and egress, emergency access, location of sanitary facilities and number of facilities, location of utilities, temporary fencing locations, and the layout of the locations of the individual housing units or parking spaces to be used, and any other temporary emergency housing facilities and services.

Section 101. **New Section.** A new Section 18.08.060 is hereby added to the Bonney Lake Municipal Code to read as follows:

18.08.060 Mobile/manufactured home/recreational vehicle park standards.

Commented [LB210]: Added to address displacement documented consistent with ESSHB 1220, Laws of 2021, Section 2(2)(e)-(h), consistent with the Housing Equity Report.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

A. This section shall apply to the placement of mobile homes, manufactured homes, and recreational vehicles in a mobile/manufactured home/recreational vehicle park.

B. Development standards. The following standards shall be applicable to the development of mobile home parks, manufactured housing community, or manufactured/mobile home community:

1. The maximum number of units at the mobile/manufactured home/recreational vehicle park shall be equal to what was in existence at the time of annexation into the city.

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2. Only one dwelling shall be permitted per designated residential space.

3. All dwellings and buildings shall be located at least 15 feet from the perimeter of the park.

4. All structures shall comply with the fire separation requirements of the International Residential Code, as adopted in Chapter 15.04 BLMC.

5. All street networks and improvements shall provide ready access for fire and other emergency vehicles and equipment and route of escape for inhabitants, in accordance with the provisions of the International Fire Code, as adopted in Chapter 15.04 BLMC.

6. Maximum lot coverage by impervious surfaces is 80 percent.

7. All mobile homes, manufactured homes, and recreational vehicles shall be placed on a foundation or a concrete pad in accordance with the applicable provisions of:

    a. National Manufactured Housing Construction and Safety Standards Act of 1974 and rules and regulations adopted thereunder;

    b. Regulations and interpretations of the Washington State Department of Labor and Industries adopted pursuant to United States Department of Housing and Urban Development rules; and

    c. Information supplied by the manufacturer.

8. Manufactured homes must also comply with the requirements of Chapter 15.08 BLMC.

9. All manufactured and mobile homes not placed on a permanent foundation shall be attached to the ground and the space from the bottom of the home to the ground is enclosed with weather resistant skirting as specified by the manufacturer and approved by the city.

10. Use of recreational vehicles is permitted provided that all utility hookups meet the requirements in BLMC 10.16.020, the requirements of the applicable utility, and applicable state or federal health standards for recreational vehicle parks.

11. A recreational vehicle must contain at least one internal toilet and at least one internal shower. If the park owner or manager permits the use of recreational vehicles that do not have at least one internal toilet and

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shower the park owner must provide adequate sewer utilities, including sinks, toilets and showers.

C. Maintenance. It shall be the responsibility of the mobile/manufactured home/recreational vehicle park owner or manager to:

1. Assure that all required landscape and common areas are perpetually maintained.

2. Keep the park free of debris such as brush, leaves, weeds, trash, and rubbish, which increase the fire hazard to manufactured homes and other improvements.

3. Keep the park free from nuisances as defined in Chapter 8.20 BLMC.

4. Assure that all private stormwater facilities are perpetually maintained.

D. Notice of requested changes. All residents in mobile/manufactured home/recreational vehicle parks shall be given at least six months' notice by the park property owner in advance of requested or proposed zoning changes, changes to development standards, and/or to variances from development standards.

E. Notice of sale. Residents, park homeowners' association and eligible organizations must be given an opportunity to purchase or lease the mobile/manufactured home/recreational vehicle park. Prior to any sale, lease, or transfer:

1. The park owner must provide written notice to all residents and any homeowners' association on or before the date the owner advertises or lists or otherwise proffers the park for sale, lease, or transfer, a notice of opportunity to purchase or lease.

2. The notice of opportunity to purchase or lease must include a statement that residents, homeowners' association and eligible organizations have 45 days from the date on which the notice of opportunity to purchase was personally delivered or postmarked to provide the park owner with notice of intent to consider purchasing or leasing the manufactured/mobile home park. The notice must also provide the address where the notice of intent to consider purchase or lease must be delivered and the name of the person to whom it must be delivered.

3. Resident(s), homeowners' association or eligible organization must provide the park owner written notice of intent to consider purchase (if for sale) or lease (if for lease) the park within 45 days of receipt of the owner's notice of opportunity to purchase or lease. “Eligible organizations” include

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community land trusts, resident nonprofit cooperatives, local governments, local housing authorities, nonprofit community or neighborhood-based organizations, federally recognized Indian tribes in the state of Washington, and regional or statewide nonprofit housing assistance organizations.

4. If the park owner receives notice of intent to consider purchase or lease from a resident(s), homeowners' association or eligible organization, owner must negotiate in good faith to sell or lease the park to the resident(s), homeowners' association or eligible organization and park owner must not sell, lease, or transfer the property or accept an offer to lease or purchase from any other party for a period of 120 days after receipt of notice of intent to consider purchase or lease from the resident(s), homeowners' association or eligible organization.

5. The park owner is not required to wait 120 days to sell, lease, or transfer the property if all timely notice(s) of intent to consider purchase or lease is withdrawn in writing.

6. A notice of opportunity to purchase or lease is not required with respect to a sale, transfer, conveyance, or lease of the mobile/manufactured home/recreational vehicle park or the property on which it sits where the transaction is:

    a. Due to foreclosure;

    b. Incidental to financing the park;

    c. Pursuant to a tax sale;

    d. Between joint tenants or tenants in common;

    e. Among the partners or shareholders who own the manufactured/mobile home community;

    f. To a member of the owner's family or to a trust for the sole benefit of members of the owner's family; or

    g. Pursuant to eminent domain; provided that if an eminent domain action by a federal, state, or local agency causes closure of a mobile/manufactured home/recreational vehicle park and the procedures set forth in the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, 42 U.S.C. 4601 et seq., and the regulations of 49 CFR Part 24 or the Relocation Assistance – Real Property Acquisition Policy Act of Chapter 8.26 RCW and the regulations of Chapter 468-100 WAC are followed, the requirements

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of those acts and regulations will supersede the requirements of this section.

Section 102. Amendment. Section 18.12.010 of the Bonney Lake Municipal Code is amended to read as follows:

18.12.010 Official zoning map.

The map filed in the city clerk's office and marked Attachment C to Ordinance No. ~~1597~~ INSERT NEW ORDINANCE NUMBER and adopted ~~May 8, 2018,~~ MONTH DAY, YEAR, constitutes the official zoning map for the city. The map referenced herein supersedes all previously adopted maps. If the zoning classifications of the map are found to be in conflict with other zoning classifications or land use designations, the map is deemed to control. Zoning reclassifications or other special zoning designations shall be clearly outlined on the map along with the associated ordinance number.

Commented [LB211]: Zoning map and this section are amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative.

Section 103. Amendment. The title of Chapter 18.14 of the Bonney Lake Municipal Code is amended to read as follows:

Chapter 18.14 R-1 LOW-DENSITY RESIDENTIAL DISTRICT

Commented [LB212]: Added for clarification (all other zoning districts are named, consistent with BLMC 18.02.090.

Section 104. Amendment. Section 18.14.060 and Subsection "A" of 18.14.060 of the Bonney Lake Municipal Code are amended to read as follows:

18.14.060 Setback and bulk regulations.

The following bulk regulations shall apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 18.22.080 and BLMC 15.04.098:

Commented [LB213]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

A. ~~Required density at the conclusion of any short plat or subdivision:~~ Density shall be a minimum of four ~~to~~ and a maximum of five dwelling units per net acre. ~~For example, the subdivision of a parcel of three net acres must result in between 12 and 15 dwelling units.~~

Section 105. Repealed. Chapter 18.16 of the Bonney Lake Municipal Code, R-2 Medium-Density Residential Districts, is hereby repealed in its entirety.

Commented [LB214]: Amended to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the R-2 into the R-1 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

Section 106. Amendment. Subsection "A" of Section 18.18.050 of the Bonney Lake Municipal Code is amended to read as follows:

18.18.050 Setback and bulk regulations.

The following bulk regulations shall apply to the uses permitted in ~~the~~ this district, subject to the provisions for yard projections included in BLMC 18.22.:

Commented [LB215]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

… A. Density shall be a minimum of 10 units and a maximum of 12 units per net acre ~~for residential uses, exclusive of public rights-of-way.~~ ; provided that:

1. If new dwelling units are constructed entirely within a legally conforming or legally nonconforming existing building, the density may be increased by up to 50 percent. For the purpose of this subsection "existing building" means a building that received a valid certificate of occupancy at least three years prior to the permit application to add housing units. Any such dwelling unit shall also be subject to the provisions of BLMC 15.04.098.

2. Each co-living unit shall be treated as 0.25 dwelling units for the purpose of calculating density.

3. Density may be increased up to a maximum of 24 units per net acre when the following are met:

   a. The first 12 units may be market rate.

   b. For each additional unit after 12, one unit must be affordable to a very low-income household or an extremely low-income household and one may be market rate. For 24 units, this would result in a minimum of 6 affordable dwelling units and a maximum of 18 market rate dwelling units.

   c. The applicant shall record a covenant or deed restriction that ensures the affordable housing unit(s) remain affordable to very low-income and/or extremely low-income households for a minimum period of 30 years, and to notify future owner(s) of the annual compliance review requirements.

   d. Annual compliance review. Within 30 days after the first anniversary of the date of certificate of occupancy, the owner of each affordable unit shall file a notarized declaration sworn under penalty of perjury with the director indicating the following:

      i. A statement of occupancy and vacancy of the affordable unit(s) during the previous year;

      ii. A certification that the property has not changed use and it continues to be in compliance with the affordable housing requirements in this subsection;

      iii. A description of any subsequent improvements or changes to the property and the affordable unit(s); and

Commented [LB216]: Added to comply with HB 1757, Laws of 2025, Section 1(1)(a).

Commented [LB217]: Added to comply with ESHB 1998, Laws of 2024, Section 2(7).

Commented [LB218]: Added to accommodate housing withing the deficient economic segments, consistent with ESSHB 1220, Laws of 2021, Section 1(4), and consistent with the chosen growth alternative.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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iv. The annual household income and household size for each of the affordable units;

e. The maximum allowed number of new housing units affordable to a very low-income household or an extremely low-income household permitted by the city after January 1, 2026, whether for a religious organization or another entity, shall not exceed 456 units.

Section 107. Repealed. Chapter 18.19 of the Bonney Lake Municipal Code, R-3 High-Density Residential District Overlay, is hereby repealed in its entirety.

Commented [LB219]: This amendment is to repeal the R-3 High-Density Residential District Overlay, consistent with the chosen growth alternative.

Section 108. Amendment. Subsection "A" of Section 18.20.050 of the Bonney Lake Municipal Code is amended to read as follows:

18.20.050 Setback and bulk regulations.

Commented [LB220]: Updated to add unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

The following bulk regulations shall apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 18.22.080:

…

A. ~~Maximum density:~~ Density shall be a maximum of one residential unit per five acres; provided, lots may be clustered to preserve open space. Where lots designated for residential development are clustered and any lot is smaller than five acres, agricultural or open space tract(s) shall be recorded within the ~~subdivision~~ land division in acreage(s) sufficient to preserve the maximum overall residential density of one unit per five acres.

….

Section 109. Amendment. Subsections "B", "D", "F", "G", "H" and "I" of Section 18.22.020 of the Bonney Lake Municipal Code are amended and a new Subsection "J" is added to read as follows:

18.22.020 Fences, walls, and ~~or~~ hedges.

Commented [LB221]: Amended to address provision in BLMC 18.22.080 that allows walls in yard projections, when consistent with this section.

…

B. Fences, walls, and hedges shall not exceed four feet in height within 10 feet of sidewalk or within 15 feet of the paved edge of a street or along a property line abutting a street, whichever distance is greater; except as provided below:

1. Fences, walls, and hedges that are no more than 60 percent sight obscuring, such as chain link, wrought iron or similar material, may be six feet in height;

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2. Fences, walls, and hedges may be six feet in height if there is not vehicular access from the street along the lot line and the fence or hedge complies with subsection F of this section;

3. Fences, walls, and hedges may be six feet in height along the front lot line; provided, that the adjacent street is classified as a principal or minor arterial and the fence or hedge complies with subsection F of this section.

…

D. Fences, walls, and hedges shall not be constructed or grown:

…

F. Fences, walls, and hedges that are more than 60 percent sight obscuring shall not exceed 42 inches in height within a "clear view triangle."

G. The height of a fence, wall, or a hedge shall be measured as the vertical distance between the top hedge or the top fence material excluding the fence posts to the lowest grade within three feet of the fence or hedge.

H. A fence, wall, or hedge shall not be placed on a berm or fill unless the total height of the fence to include the berm or the fill does not exceed the maximum allowed height.

I. The director may allow fences or walls that do not conform to the regulations of this section if the director finds that such fences or walls are needed to protect the public health and safety in the following situations:

…

J. Nothing in this section permits the construction or placement of a fence, wall, or hedge within the right-of-way, as authorized under Chapter 12.08 or Chapter 12.32 BLMC, nor permit construction of a fence or wall without a permit when required by Chapter 15.04 BLMC.

Section 110. Amendment. A new Subsection "I" is hereby added to Section 18.22.080 of the Bonney Lake Municipal Code to read as follows:

18.22.080 Yard projections.

…

I. Any encroachment into a setback as authorized by BLMC 15.04.098.

Section 111. Repealed. Chapter 18.24 of the Bonney Lake Municipal Code, C-1 Neighborhood Commercial District, is hereby repealed in its entirety.

Commented [LB222]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

Commented [LB223]: Repealed to comply with ESSHB 1220, Laws of 2021, Section 1(4), consistent with the chosen growth alternative. Consolidation of the C-1 Neighborhood Commercial District, into the R-3 zone.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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Section 112. Amendment. The first sentence of Section 18.26.050 of the Bonney Lake Municipal Code is amended to read as follows:

18.26.050 Setback and bulk regulations.

The following bulk regulations shall apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 15.04.098:

Commented [LB224]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

….

Section 113. Amendment. The first sentence of Section 18.27.030 of the Bonney Lake Municipal Code is amended to read as follows:

18.27.030 Setback and bulk regulations.

The following bulk regulations apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 15.04.098:

Commented [LB225]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

….

Section 114. Amendment. Subsections "A" and "C" of Section 18.29.030 of the Bonney Lake Municipal Code are amended to read as follows:

18.29.030 Building design standards.

…

A. Building design elements shall be used to reduce the visual bulk and height of large structures or facades facing the street as approved by the director ~~with concurrence of the design commission~~ or by employing at least three of the following articulation features along the facade facing the street at articulation intervals of no wider than 75 feet:

Commented [LB226]: Design commission repealed by Ordinance No. 1688; updating decision authority consistent with ESHB 1293, Laws of 2023.

…

C. Building entrances shall be delineated through architectural design and distinctively differentiated from the remainder of the building as approved by the director ~~with concurrence of the design commission.~~ Options include, but are not limited to: wall modulation, gables, window clusters, landscape treatment, material/color/texture change, awnings, moldings, signage, paving texture, planters, and pedestrian amenities such as benches and tables.

Commented [LB227]: Design commission repealed by Ordinance No. 1688; updating decision authority consistent with ESHB 1293, Laws of 2023.

Section 115. Amendment. A new Subsection "D" is hereby added to Section 18.29.050 of the Bonney Lake Municipal Code to read as follows:

18.29.050 Setback and bulk regulations.

… D. Maximum density.

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1. Emergency shelters shall have a maximum density of 30 units or beds per net acre.

2. Emergency housing shall have a maximum density of 60 units or beds per net acre.

Commented [LB228]: Added to implement ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

Section 116. Amendment. Subsections "E" and "I" of Section 18.31.010 of the Bonney Lake Municipal Code are amended and a new Subsection "N" is hereby added to read as follows:

18.31.010 Parking requirements.

… E. 1. ~~Two or more bedrooms units: two stalls per unit~~ Units with 2 or more bedrooms: 2.0 stalls per unit;

2. ~~One bedroom units: one and one-half stalls per unit~~ Units with 1 bedroom: 1.5 stalls per unit;

3. Studio units: ~~one stall~~ 1.0 stalls per unit;

4. ~~One visitor parking stall for every five residential units.~~ Visitor parking: 1.0 stalls per 5 residential units. This requirement does not apply to co-living units.

Commented [LB229]: Updated to make it easier for customers and staff to use.

Commented [LB230]: Added to comply with ESHB 1998, Laws of 2024, Section 2(3)(ii).

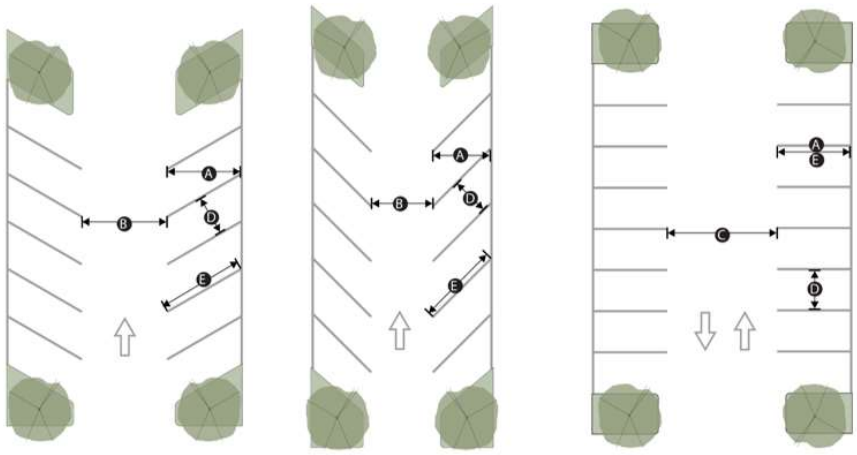
5. When new dwelling units are constructed entirely within a legally conforming or legally nonconforming existing building, no additional parking shall be required than was legally required at the time of original construction or a prior addition, remodel, or tenant improvement. For the purpose of this subsection, "existing building" means a building that received a valid certificate of occupancy at least three years prior to the permit application to add housing units.

Commented [LB231]: Added to comply with ESHB 1042, Laws of 2023, Section 1(2)(b).

… I. Parking stalls in all areas of the city shall meet the following dimensions:

Minimum Dimensional Requirements					
	Parking Row Depth	Drive Aisle Width		Space Width	Space Length
Angle	Ⓐ	One-Way Ⓑ	Two-Way Ⓒ	Ⓓ	Ⓔ
45 Degrees	20 Feet	13 Feet	24 Feet	9.5 Feet	22 Feet
60 Degrees	21 Feet	18 Feet	24 Feet	9.5 Feet	22 Feet
90 Degrees	20 ~~18~~ Feet	24 Feet	24 Feet	9 Feet	20 Feet

Commented [LB232]: Updated to correct an error in the table.



… N. As an alternative to the provisions above, residential development otherwise required to comply with this section may demonstrate compliance with the requirements of RCW 36.70A.622; provided that:

1. Parking shall only be provided parallel or 90 degrees to the drive aisle.

2. Parking spaces provided in a garage or carport shall be assigned to a dwelling unit and shall not be used for any purpose other than vehicle parking and storage of non-motorized transportation such as bicycles.

Commented [LB233]: Added to comply with SSB 6015, Laws of 2024.

Section 117. Amendment. Subsection "A.6" of Section 18.32.040 of the Bonney Lake Municipal Code is amended to read as follows:

18.32.040 Separation requirements.

A. …

6. A public or private ~~preschool or nursery school~~ family day care or child day care center; ….

Commented [LB234]: Updated to be consistent with definitions in BLMC 18.04.050 and 18.04.060, and to help distinguish this type of child care from child care centers, consistent with ESSB 5509, Laws of 2025.

….

Section 118. Amendment. Subsection "G" of Section 18.34.050 of the Bonney Lake Municipal Code is amended to read as follows:

18.34.050 Setback and bulk regulations.

The following bulk regulations shall apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 15.04.098:

Commented [LB235]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

…

G. All buildings and structures on the site shall have a floor area ratio of no more than 35 percent of the area of the site; except that:

1. Emergency shelters shall have a maximum density of 30 units or beds per net acre.

2. Emergency housing shall have a maximum density of 60 units or beds per net acre.

Commented [LB236]: Added to implement ESSHB 1220, Laws of 2021, Section 2(2)(a)(ii), consistent with the chosen growth alternative.

Section 119. Amendment. The first sentence of Section 18.34.060 of the Bonney Lake Municipal Code is amended to read as follows:

18.34.060 Off-street automobile parking requirements.

Commented [LB237]: Updated to be consistent with other non-residential zoning district references to parking standards.

Except as provided below, parking and vehicular use areas shall comply with BLMC 18.31.010, BLMC 18.31.020, and Chapter 16.68 BLMC ~~For off-street automobile parking requirements~~:

….

Section 120. Amendment. Subsection "B.4" of Section 18.36.020 of the Bonney Lake Municipal Code is amended to read as follows:

18.36.020 Permitted uses.

…

B. …

4. Home occupations, provided the provisions of ~~BLMC 18.22.010~~ Chapter 5.08 BLMC are met;

Commented [LB238]: Updated to reflect relocation of home occupation regulations in Ordinance No. 1739.

….

Section 121. Amendment. A new first sentence is hereby added to Section 18.36.040 of the Bonney Lake Municipal Code to read as follows:

18.36.040 Setback and bulk regulations.

The following bulk regulations apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 15.04.098:

Commented [LB239]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

A. ….

Section 122. Amendment. Subsections "A.4" and "A.6" of Section 18.37.020 of the Bonney Lake Municipal Code are amended to read as follows:

18.37.020 Permitted uses.

A. The following uses shall be allowed outright in all cases:

…

4. Apartments, condominiums, co-living units, and townhouses at any density;

…

6. Home occupations, provided the provisions of ~~BLMC 18.22.010~~ Chapter 5.08 BLMC are met;

….

Section 123. Amendment. A new first sentence is hereby added to Section 18.37.040 of the Bonney Lake Municipal Code and Subsection "B.3" of Section 18.37.040 of the Bonney Lake Municipal Code is amended to read as follows:

18.37.040 Setback and bulk regulations.

The following bulk regulations apply to the uses permitted in this district, subject to the provisions for yard projections included in BLMC 15.04.098:

…

B. …

3. Buildings must comply with the downtown design standards, as adopted in Chapter 18.35 BLMC, plus include one of the following features that appear to reduce the scale of the building and add visual interest:

….

Section 124. Amendment. Subsections "F" and "N" of Section 19.02.030 of the Bonney Lake Municipal Code are amended to read as follows:

19.02.030 Definitions.

…

F. "Director" means the ~~director of community development department of the city or the director's designee~~ Public Services Director or designee.

…

Commented [LB240]: Added to comply with ESHB 1998, Laws of 2024, Section 2(7).

Commented [LB241]: Updated to reflect relocation of home occupation regulations in Ordinance No. 1739.

Commented [LB242]: Added to comply with SSHB 1183, Laws of 2025, Section 1.

Commented [LB243]: Clarified consistent with ESHB 1293, Laws of 2023.

Commented [LB244]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

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N. "Development permit" means building permit application (including remodel or tenant improvement), ~~planned unit development application,~~ preliminary short ~~plat~~ subdivision application, preliminary ~~plat~~ subdivision application, preliminary unit lot subdivision application, administrative lot split application, and project rezone application.

….

Section 125. Amendment. Subsection "G" of Section 19.02.090 of the Bonney Lake Municipal Code is amended to read as follows:

19.02.090 Certificate of concurrency.

…

G. Upon subdivision, short subdivision, unit lot subdivision, or administrative lot split of a parcel that has obtained a certificate of concurrency, the director shall replace the certificate of concurrency by issuing a separate certificate of concurrency to each subdivided parcel, assigning to each a pro rata portion of the concurrency capacity rights of the original certificate. The director may modify such assignment upon petition of the owner, or may reject such petition. Any change of use of such subdivided parcels shall require a new determination of concurrency.

….

Section 126. Amendment. Subsection "G" of Section 19.04.060 of the Bonney Lake Municipal Code is amended to read as follows:

19.04.060 Calculation of impact fees.

…

G. As applies to residential development activity, the amount of the impact fee calculated pursuant to this section shall be charged:

1. ~~for~~ For each single-family residential unit, and for each dwelling unit included in a multifamily residential development (e.g., duplex, apartment, condominium, mobile home park), the rate shall be 100 percent of the fee for a single-family residential unit.

2. ~~The amount of the impact fee calculated pursuant to this section for~~ For each accessory dwelling unit, the rate shall be shall be 50 percent of the fee for a single-family residential unit.

3. For each dwelling unit affordable to a very low-income or extremely low-income household, as defined in Chapter 18.04 BLMC, the rate shall be 20 percent of the fee for a single-family residential unit, until

Commented [LB245]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Commented [LB246]: Updated to encourage construction of housing affordable to very low and extremely low-income households, consistent with ESSHB 1220, Laws of 2021, Section 2(2) and the chosen growth alternative.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

such time that the affordable housing sales tax fund, adopted in Chapter 3.32 BLMC, is depleted. The remaining 80 percent shall be transferred from the affordable housing sales tax fund to the streets capital improvement fund, established in Chapter 3.30 BLMC.

Once the affordable housing sales tax fund is depleted, the rate for each dwelling unit affordable to a very low-income or extremely low-income household shall be 100 percent of the fee for a single-family residential unit.

….

Section 127. Amendment. Subsection "G" of Section 19.06.060 of the Bonney Lake Municipal Code is amended to read as follows:

19.06.060 Calculation of impact fees.

… G. As applies to residential development activity, the amount of the impact fee calculated pursuant to this section shall be charged:

1. ~~for~~ For each single-family residential unit, and for each dwelling unit included in a multifamily residential development (e.g., duplex, apartment, condominium, mobile home park), the rate shall be 100 percent of the fee for a single-family residential unit.

2. ~~The amount of the impact fee calculated pursuant to this section for~~ For each accessory dwelling unit, the rate shall be shall be 50 percent of the fee for a single-family residential unit.

3. For each dwelling unit affordable to a very low-income or extremely low-income household, as defined in Chapter 18.04 BLMC, the rate shall be 20 percent of the fee for a single-family residential unit, until such time that the affordable housing sales tax fund, adopted in Chapter 3.32 BLMC, is depleted. The remaining 80 percent shall be transferred from the affordable housing sales tax fund to the parks capital improvement fund, established in Chapter 3.34 BLMC.

   Once the affordable housing sales tax fund is depleted, the rate for each dwelling unit affordable to a very low-income or extremely low-income household shall be 100 percent of the fee for a single-family residential unit.

   ….

Section 128. Amendment. Subsection "L" of Section 19.08.020 of the Bonney Lake Municipal Code is amended to read as follows:

Commented [LB247]: Updated to encourage construction of housing affordable to very low and extremely low-income households, consistent with ESSHB 1220, Laws of 2021, Section 2(2) and the chosen growth alternative.

See also Futurewise et. al. v. City of Mercer Island, GMHB Case No. 25-3-0003.

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19.08.020 Definitions.

…

L. "Director" means the ~~director of planning and community development or the director's designee~~ Public Services Director or designee.

….

Section 129. Amendment. Subsection "A.8" of Section 19.08.040 of the Bonney Lake Municipal Code is amended to read as follows:

19.08.040 Exemptions.

A. …

8. Any development activity for which school impacts have been mitigated pursuant to a condition of ~~plat~~ subdivision, short subdivision, unit lot subdivision, or administrative lot split ~~or PUD~~ approval to pay fees, dedicate land or construct or improve school facilities, unless the condition of the ~~plat~~ subdivision, short subdivision, unit lot subdivision, or administrative lot split ~~or PUD~~ approval provides otherwise; provided, that the condition of the ~~plat~~ subdivision, short subdivision, unit lot subdivision, or administrative lot split ~~or PUD~~ approval predates the effective date of fee imposition; or

….

Commented [LB248]: Updated to make applicable to unit lot subdivisions (ESSSB 5258, Laws of 2023), Section 11(3), and administrative lot splits (ESSHB 1096, Laws of 2025) consistent with other land divisions.

Section 130. Periodic Review. The adoption of this ordinance signifies that the City of Bonney Lake has completed the periodic review and update of the City's development regulations as required by RCW 36.70A.130.

Section 131. Direction to Clerk. The City Clerk is directed to maintain one copy of this Ordinance and one copy of each of the statutes, regulations, or standards referenced herein on file at the City Clerk's office for use and examination by the public during regular business hours.

Section 132. Direction to Public Services Director. The Public Services Director is directed to transmit one copy of the approved Ordinance to the Washington State Department of Commerce within ten days after final adoption, consistent with RCW 36.70A.106 and WAC 365-196-630. The Public Services Director is further directed to transmit a copy of this Ordinance together with copies of other Ordinances amending development regulations adopted within the preceding twelve months, the Pierce County Assessor pursuant to RCW 35A.63.260.

Section 133. Severability. If any section, sentence, clause, or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction,

such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 134. Publication. This Ordinance shall be published by an approved summary consisting of the summary attached to this Ordinance.

Section 135. Corrections. Upon the approval of the city attorney, the city clerk, and/or the code publisher is authorized to make any necessary technical corrections to this ordinance, including but not limited to the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any reference thereto. Provided, however, that nothing in this section allows the city attorney, the city clerk, and/or the code publisher to change the intent of this Ordinance.

Section 136. Effective Date. This Ordinance shall take effect and be in full force on January 1, 2026, a minimum of five days after publication as provided by law.

ADOPTED by the City Council of the City of Bonney Lake and attested by the City Clerk in authentication of such passage on this ___ day of _____, 20___.

APPROVED by the Mayor this ___ day of _____, 20___.

_____
Terry Carter, Mayor

AUTHENTICATED:

_____
Sadie A. Schaneman, MMC, City Clerk

AB____
Passed:
Valid:
Published:
Effective Date:
This Ordinance totals ____ page(s)

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SUMMARY OF ORDINANCE NO. D25-80

City of Bonney Lake

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, REGARDING IMPLEMENTING ACTIONS ASSOCIATED WITH THE 2024 COMPREHENSIVE PLAN PERIODIC UPDATE; AMENDING THE OFFICIAL ZONING DISTRICT FOR REAL PROPERTY COMMONLY KNOWN AS PARCEL NUMBERS 2925000210 AND 2925000220; AMENDING THE OFFICIAL ZONING MAP; AMENDING SECTIONS 14.10.070, 14.10.100, 14.10.110, 14.30.020, 14.40.010, 14.40.030, AND 14.105.010, AND SUBSECTIONS 2.18.090.A.1, 2.18.180.A, 14.30.030.A, 14.30.030.B, 14.30.030.C, 14.30.030.D, 14.40.020.B, 14.40.090.A.7, 14.50.030.E, 14.110.010.A, 14.120.020.A, 15.20.120.A, AND 15.36.050.B OF THE BONNEY LAKE MUNICIPAL CODE (BLMC) FOR THE PURPOSE OF COMPLYING WITH SSSB 5290, LAWS OF 2023; AMENDING SECTIONS 12.04.030, 12.28.020, AND 17.50.010, AND SUBSECTIONS 12.04.005.B, 12.004.005.F.1, 12.04.040.A.1, 12.28.030.C, 12.28.030.E, 13.16.060.E, 15.36.020.E, 15.36.040.H, 15.36.040.I, 16.20.130.F.3, 16.20.130.K, 16.64.070.E.3, 17.50.020.A, 17.50.020.B, 17.50.040.B (CRITICAL AREAS), 19.02.030.F, 19.02.030.N, 19.02.090.G, AND 19.08.040.A.8, AND ADDING SUBSECTION 17.50.020.G BLMC FOR THE PURPOSE OF COMPLYING WITH ESSSB 5258, LAWS OF 2023, AND ESSHB 1096, LAWS OF 2025; AMENDING SUBSECTIONS 13.04.030.C, 13.04.030.M, 15.14.020.C, AND ADDING NEW SUBSECTION 15.14.035.C BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, AND ESHB 1998, LAWS OF 2024; AMENDING SUBSECTIONS 13.04.070.D.2.D, 13.04.070.D.2.E, 13.04.070.D.2.F, 13.04.070.D.2.G, 13.04.100.C.1.B, 13.12.082.D.1, AND 13.12.100.D.6 BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1998, LAWS OF 2024; AMENDING SUBSECTIONS 13.12.010.C.2, 13.12.010.C.3, 13.12.010.C.4, 13.12.010.C.5, 13.12.010.C.6, 13.12.010.C.7, 13.12.010.L, 13.12.010.N, 13.12.130.A, 13.12.130.D.1, AND 13.12.130.D.3 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSSB 5258, LAWS OF 2023, ESHB 1998, LAWS OF 2024, AND ESSHB 1096, LAWS OF 2025; AMENDING SECTION 14.10.010 BLMC FOR EASE OF USE; AMENDING SECTIONS 14.10.030 AND 14.40.080 BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1293, LAWS OF 2023, AND SSSB 5290, LAWS OF 2023; AMENDING SECTION 14.10.040 BLMC FOR THE PURPOSE OF CLARIFYING HOW WORDS NOT DEFINED IN THE DEVELOPMENT CODE SHOULD BE DEFINED; AMENDING SECTIONS 14.30.010 AND SUBSECTIONS 14.30.040.B,

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14.30.040.C, 14.30.040.I, AND 14.30.040.L BLMC FOR THE PURPOSE OF COMPLYING WITH SSSB 5290, LAWS OF 2023, ESSSB 5258, LAWS OF 2023, AND ESSHB 1096, LAWS OF 2025; AMENDING SECTION 14.40.050 AND SUBSECTIONS 18.29.030.A AND 18.29.030.C BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1293, LAWS OF 2023; AMENDING SECTION 14.50.040 BLMC FOR THE PURPOSE OF COMPLYING WITH SHB 1105, LAWS OF 2024; AMENDING SECTIONS 15.08.020, 15.08.125, 18.04.130, 18.12.010, AND SUBSECTIONS 9.07.030.B, 14.80.030.B.4, 16.68.040.F, 18.02.090.A.2, 18.02.080.B.1, 19.04.060.G, AND 19.06.060.G, AND ADDING NEW SUBSECTION 18.29.050.D, AND TABLES 16.68A AND 16.68B OF SECTION 16.68.040 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, CONSISTENT WITH THE PREFERRED GROWTH ALTERNATIVE; AMENDING SUBSECTIONS 14.95.020.A, 14.95.020.B, 14.95.020.C, 14.95.020.D, AND 14.95.020.E, AND ADDING NEW SUBSECTIONS 14.95.020.I AND 14.95.020.J BLMC FOR THE PURPOSE OF COMPLYING WITH ESSSB 5259, LAWS OF 2023, SSSB 5290, LAWS OF 2023, ESHB 1998, LAWS OF 2024, AND HB 1757, LAWS OF 2025; AMENDING SECTION 15.20.060 BLMC FOR THE PURPOSE OF CLARIFYING THE PROCESS FOR DEVIATIONS FROM THE GRADING AND FILLING STANDARDS; AMENDING SUBSECTIONS 15.28.070.B AND 15.28.070.D BLMC FOR THE PURPOSE OF UPDATING THE REFERENCE FOR HOME OCCUPATION REGULATIONS AND COMPLYING WITH ESSSB 5258, LAWS OF 2023, AND ESB 5559, LAWS OF 2025; AMENDING SUBSECTIONS 16.20.115.A AND 16.20.115.B BLMC FOR THE PURPOSE OF CLARIFYING WHEN A FINANCIAL GUARANTEE IS REQUIRED FOR SMALLER PROJECTS ON SITES THAT CONTAIN CRITICAL AREAS; AMENDING SUBSECTIONS 16.68.070.E.2 AND 16.68.090.B.3 BLMC FOR THE PURPOSE OF PROVIDING A NATIVE TREE SPECIES LIST APPROPRIATE FOR PROPERTIES IN PIERCE COUNTY; AMENDING SUBSECTIONS 17.10.030.C.1, 17.10.030.C.4, AND 17.10.030.C.5, AND ADDING NEW SUBSECTIONS 17.10.030.A.8, 17.10.030.A.9, 17.10.030.A.10, 17.10.030.C.7, AND 17.10.030.C.8 BLMC FOR THE PURPOSE OF COMPLYING WITH ESB 5559, LAWS OF 2025, AND ESSHB 1096, LAWS OF 2025; AMENDING SECTIONS 17.20.030 AND 17.20.040, AND SUBSECTIONS 17.20.020.B, 17.20.020.C, 17.20.020.D, BLMC FOR THE PURPOSE OF CLARIFYING PROCEDURES FOR SUBDIVISIONS AND SHORT SUBDIVISIONS IN RELATION TO ADMINISTRATIVE LOT SPLITS AND UNIT LOT SUBDIVISIONS; AMENDING SECTIONS 17.40.010 AND 17.40.020, AND SUBSECTION 17.50.060.B.4 (TRANSPORTATION FACILITIES) BLMC FOR THE PURPOSE OF COMPLYING WITH ESSSB 5258,

LAWS OF 2023; AMENDING SECTIONS 17.50.030 AND 17.50.070 (SCHOOLS) FOR THE PURPOSE OF CORRECTING A SECTION NUMBERING ERROR; AMENDING SUBSECTIONS 17.50.040.A (STREET LIGHTING, 17.50.040.D.3 (STREET LIGHTING), AND 17.50.040.D.4 (STREET LIGHTING) BLMC FOR THE PURPOSE OF CORRECTING A SECTION NUMBERING ERROR AND COMPLYING WITH ESSSB 5258, LAWS OF 2023, AND ESSHB 1096, LAWS OF 2025; AMENDING SUBSECTION 17.50.050.A (PLAYGROUNDS AND OPEN SPACE) AND BLMC FOR THE PURPOSE OF CORRECTING A SECTION NUMBERING ERROR AND COMPLYING WITH ESSSB 5258, LAWS OF 2023; AMENDING SECTION 17.50.060 (PARKS AND RECREATION) BLMC FOR THE PURPOSE OF CORRECTING A SECTION NUMBERING ERROR AND REMOVING THE REQUIREMENT TO DEDICATE LAND FOR FENNEL CREEK TRAIL; AMENDING SECTION 18.04.010 BLMC FOR THE PURPOSE OF ADDING TWO NEW DEFINITIONS TO COMPLY WITH EHB 1337, LAWS OF 2019, AND ESSHB 1923, LAWS OF 2019; AMENDING SECTION 18.04.030 BLMC FOR THE PURPOSE OF ADDING THREE NEW DEFINITIONS TO COMPLY WITH ESHB 1998, LAWS OF 2024, SSB 6015, LAWS OF 2024, AND ESSB 5509, LAWS OF 2025; AMENDING SECTION 18.04.050 BLMC FOR THE PURPOSE OF ADDING FIVE NEW DEFINTIONS AND AMENDING THE DEFINITION OF "ESSENTIAL PUBLIC FACILITY" TO COMPLY WITH ESSHB 1923, LAWS OF 2019, ESHB 1754, LAWS OF 2020, HB 2640, LAWS OF 2020, ESB 5118, LAWS OF 2021, ESSHB 1220, LAWS OF 2021, SESSSB 5536, LAWS OF 2023, AND ESSB 5801, LAWS OF 2025; AMENDING SECTIONS 18.04.060 AND 18.32.040 AND SUBSECTION 18.32.040.A.6 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSB 5509, LAWS OF 2025; AMENDING SECTION 18.04.070 BLMC FOR THE PURPOSE OF ADDING ONE NEW DEFINITION TO COMPLY WITH SSB 6015, LAWS OF 2024; AMENDING SECTION 18.04.120 BLMC FOR THE PURPOSE OF ADDING ONE NEW DEFINITION TO COMPLY WITH ESSHB 1923, LAWS OF 2019; AMENDING SECTIONS 18.04.150, 18.04.190, AND 18.04.200 BLMC FOR THE PURPOSE OF ADDING A TOTAL OF FOUR NEW DEFINITIONS TO COMPLY WITH ESHB 1754, LAWS OF 2020; AMENDING SECTION 18.04.160 BLMC FOR THE PURPOSE OF ADDING ONE NEW DEFINITION TO COMPLY WITH ESSHB 1923, LAWS OF 2019, AND SHB 2343, LAWS OF 2020; AMENDING SECTION 18.04.180 BLMC FOR THE PURPOSE OF ADDING TWO NEW DEFINITIONS TO COMPLY WITH ESSHB 1220, LAWS OF 2021, AND EHB 1377 LAWS OF 2019; AMENDING SECTION 18.04.220 BLMC FOR THE PURPOSE OF ADDING TWO NEW DEFINITIONS TO COMPLY WITH ESSHB 1923, LAWS OF 2019, AND ESHB 1754, LAWS OF 2020; ADDING

NEW SUBSECTION 18.08.010.F AND RENUMBERING SUBSECTIONS 18.08.010.F, 18.08.010.G, AND 18.08.010.H BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, AND ESHB 1754, LAWS OF 2020; AMENDING SECTION 18.08.020 BLMC FOR THE PURPOSE OF CLARIFYING THE NAICS VERSION BEING REFERENCED, TO ALPHABETIZE SUBSECTIONS FOR EASE OF USE, CLARIFY TABLE NOTES, UPDATING THE REFERENCE FOR HOME OCCUPATION REGULATIONS, AND FOR COMPLYING WITH EHB 1377, LAWS OF 2019, ESSHB 1923, LAWS OF 2019, ESHB 1754, LAWS OF 2020, ESSHB 1220, LAWS OF 2021, AND ESHB 1998, LAWS OF 2024; AMENDING THE TITLE OC CHAPTER 18.14 BLMC FOR THE PURPOSE OF BEING CONSISTENT WITH SECTION 18.02.090 BLMC; AMENDING SECTIONS 18.14.060, 18.26.050, 18.27.030, AND 18.36.040, SUBSECTIONS 18.14.060.A, 18.20.050.A, AND ADDING A NEW SUBSECTION 18.22.080.I BLMC FOR THE PURPOSE OF COMPLYING WITH SSHB 1183, LAWS OF 2025; AMENDING SUBSECTION 18.18.050.A BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, ESHB 1998, LAWS OF 2024, HB 1757, LAWS OF 2025, AND SSHB 1183, LAWS OF 2025; AMENDING SUBSECTIONS 18.22.020.B, 18.22.020.D, 18.22.020.F, 18.22.020.G, 18.22.020.H, AND 18.22.020.I BLMC FOR THE PURPOSE OF CONSISTENCY WITH A PROVISION IN SECTION 18.22.080 BLMC THAT ALLOWS WALLS IN YARD PROJECTIONS; AMENDING SUBSECTIONS 18.31.010.E AND 18.31.010.I, AND ADDING NEW SUBSECTION 18.31.010.N FOR THE PURPOSE OF EASE OF USE, CORRECTING AN ERROR IN THE MINIMUM PARKING STALL DIMENSIONAL REQUIREMENTS, AND COMPLYING WITH ESHB 1042, LAWS OF 2023, ESHB 1998, LAWS OF 2024, AND SSB 6015, LAWS OF 2024; AMENDING SUBSECTION 18.34.050.G BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, AND SSHB 1183, LAWS OF 2025; AMENDING SECTION 18.34.060 BLMC FOR THE PURPOSE OF TREATING PARKING REQUIREMENTS CONSISTENTLY ACROSS NON-RESIDENTIAL ZONING DISTRICTS; AMENDING SUBSECTION 18.36.020.B.4 BLMC FOR THE PURPOSE OF UPDATING THE REFERENCE FOR HOME OCCUPATION REGULATIONS; AMENDING SUBSECTIONS 18.37.020.A.4 AND 18.37.020.A.6 FOR THE PURPOSE OF UPDATING THE REFERENCE FOR HOME OCCUPATION REGULATIONS AND COMPLYING WITH ESHB 1998, LAWS OF 2024; AMENDING SECTION 18.37.040 AND SUBSECTION 18.37.040.B.3 BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1293, LAWS OF 2023, AND SSHB 1183, LAWS OF 2025; AMENDING SUBSECTION 19.08.020.L BLMC TO UPDATE THE CURRENT TITLE OF THE DIRECTOR; ADDING A

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NEW SECTION 12.04.025 BLMC FOR THE PURPOSE OF CLARIFYING THE PROCESS FOR DEVIATIONS FROM THE PUBLIC WORKS DESIGN STANDARDS; ADDING A NEW SECTION 14.40.045 BLMC FOR THE PURPOSE OF DESCRIBING THE REVIEW PROCESS FOR APPLICATIONS REQUIRING CORRECTIONS AND FOR COMPLYING WITH SSSB 5290, LAWS OF 2023; ADDING A NEW SUBSECTION 15.04.082.R BLMC FOR THE PURPOSE OF COMPLYING WITH SSB 5655, LAWS OF 2025; ADDING A NEW SECTION 15.04.098 BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1042, LAWS OF 2023, HB 1757, LAWS OF 2025, AND SSHB 1183, LAWS OF 2025; ADDING A NEW SECTION 15.13.045 BLMC FOR THE PURPOSE OF CLARIFYING THE PROCESS FOR DEVIATIONS FROM THE STANDARDS IN THE ADOPTED STORMWATER MANUAL; ADDING NEW SECTIONS 17.20.050 AND 17.50.120 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1096, LAWS OF 2025; ADDING NEW SECTIONS 17.20.060 AND 17.50.130 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSSB 5258, LAWS OF 2023, AND ESB 5559, LAWS OF 2025; ADDING NEW SECTION 18.08.050 BLMC FOR THE PURPOSE OF COMPLYING WITH EHB 1377, LAWS OF 2019, ESHB 1754, LAWS OF 2020, AND ESSHB 1220, LAWS OF 2021; ADDING NEW SECTION 18.08.060 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021; REPEALING SECTION 14.95.030 BLMC FOR THE PURPOSE OF COMPLYING WITH ESHB 1293, LAWS OF 2023; REPEALING CHAPTERS 18.16, 18.19, AND 18.24 BLMC FOR THE PURPOSE OF COMPLYING WITH ESSHB 1220, LAWS OF 2021, CONSISTENT WITH THE PREFERRED GROWTH ALTERNATIVE; PROVIDING FOR SEVERABILITY AND CORRECTIONS; AND ESTABLISHING AN EFFECTIVE DATE.

The above is a summary of Ordinance No. D25-80 for publication as certified by the City Clerk on December ____, 2025.

CITY OF BONNEY LAKE

_____

Sadie Schaneman, City Clerk

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printing purposes.

Attachment A

Findings of Fact and Conclusions

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printing purposes.

FINDINGS OF FACT AND CONCLUSIONS

Having considered in detail both the oral and documentary evidence received concerning the updates to the Official Zoning Map and the City of Bonney Lake Municipal Code (BLMC) , the Bonney Lake City Council now makes and adopts the following Findings of Fact and Conclusions:

FINDINGS OF FACT

1) The proposed ordinance will repeal and replace the Official Zoning Map and amend the Bonney Lake Municipal Code (BLMC), consistent with *Envision Bonney Lake*. The update responds to guidance and requirements established under the Growth Management Act (GMA) and other recently passed legislation and implements the changes in the 2024 Periodic Update to the Comprehensive Plan.

Background

2) In 2021, the Washington State Legislature passed Engrossed Second Substitute House Bill 1220 (ESSHB 1220), Laws of 2021, related to supporting emergency shelters and housing through local development regulations. ESSHB amended the GMA to introduce new requirements for the Housing Element of each jurisdiction's comprehensive plan, and required that jurisdictions plan for the number of housing units as provided by the Washington State Department of Commerce, including the number of housing units needed by moderate, low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

3) On June 30, 2022, the City prepared an analysis of the comprehensive plan and development regulations currently in effect in Bonney Lake for consistency with the requirements of the GMA, other applicable state laws, Growth Management Hearings Board Decisions, the Multicounty Planning Policies in Puget Sound Regional's Council's *Vision 2050*, and the Pierce County Countywide Planning Policies.

   (a) Based on this analysis, the City prepared the *Comprehensive Plan Update and Policy Gap Analysis*, which identified mandatory changes that the City would have to address during the periodic update process.

   (b) This analysis was presented to the Bonney Lake Planning Commission on July 6, 2022, and to the Bonney Lake City Council on August 16, 2022.

4) On August 16, 2022, Pierce County Council adopted population, housing and employment targets for the cities, towns, and unincorporated areas of Pierce County, based in part on the *2021 Buildable Lands Report* and the recommendation of the Pierce County Growth Management Coordinating Committee (GMCC) and

Pierce County Regional Council (PCRC), under Pierce County Ordinance No. 2022-46s.

5) On March 1, 2023, the Washington State Department of Commerce issued formal guidance of housing unit targets and the Housing for All Planning Tool (HAPT). The HAPT used the adopted population targets to calculate countywide housing unit targets and distribute housing unit needs amongst the cities, towns, and unincorporated areas of Pierce County for the year 2044. As a result, the HAPT identified different housing unit targets than the housing unit targets adopted under Pierce County Ordinance No. 2022-46s.

6) On June 20, 2023, Pierce County Council repealed Pierce County Ordinance No. 2022-46s and adopted Pierce County Ordinance No. 2023-22s, which amended the housing targets and housing unit needs amongst the cities, towns, and unincorporated areas of Pierce County.

7) As a result, Bonney Lake needed to restart work completed under the previous population, housing, and employment targets to evaluate local land capacity, growth alternatives, and transportation modeling.

8) On March 29, 2024, the City completed its analysis of two growth alternatives: Alternative One "Stay the Course", which evaluated achieving housing targets under the existing development pattern, and Alternative Two "Bend the Trend", which evaluated achieving housing targets through smaller-scale development with sufficient land capacity dedicated to low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

9) On April 3, 2024, the growth alternatives and associated land capacity analysis was presented to the Bonney Lake Planning Commission. The Planning Commission recommended that City Council move forward with Growth Alternative Two "Bend the Trend".

10) The City Council reviewed the growth alternatives, associated land capacity analysis, and Planning Commission recommendations on April 16 and April 23, 2024. On April 23, 2024, City Council moved to approve Motion M24-33, identifying Growth Alternative Two as the City's Council's preferred growth alternative.

11) On June 13, 2023, the City of Bonney Lake passed Resolution 3151 adopting *Envision Bonney Lake: 2024 Comprehensive Plan Update and Public Participation Plan (May 30, 2023)* establishing a public participation program in accordance with RCW 36.70A.130(2) that identified procedures and schedules for reviewing and revising the City's comprehensive plan and development regulations.

12) In June 2024, the City completed an initial draft of the *Housing Equity Report* to analyze disparate impacts, exclusion, and displacement in Bonney Lake, consistent

with ESSHB 1220. The findings of the *Housing Equity Report* were used to draft the Community Development Element of *Envision Bonney Lake*.

13) In September 2024, the City completed an initial draft of the Community Development Element. The Future Land Use Map was updated consistent with the Preferred Growth Alternative Two, the findings of the *Comprehensive Plan Update and Policy Gap Analysis*, the findings of the *Housing Equity Report*, and the *Land Capacity Analysis* in order to ensure sufficient land capacity was dedicated to employment, low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

14) The Official Zoning Map and the proposed amendments to the BLMC were drafted to be consistent with and implement *Envision Bonney Lake* and to improve internal consistency of the BLMC, as required by Revised Code of Washington (RCW) 36.70A.040(3), Washington Administrative Code (WAC) 365-196-800 and WAC 365-196-810.

Recently Passed Legislation

15) The Washington State Legislature passed Engrossed Second Substitute House Bill 1923 (ESSHB 1923), Laws of 2019, related to increasing urban residential building capacity. Compliance with ESSHB 1923 was required by December 31, 2024. The City has proposed the following amendments to the BLMC to comply with ESSHB 1923:

    (a) Amended BLMC Sections 18.04.010, 18.04.050, 18.04.120, 18.04.160, 18.04.220, and 18.08.020.

16) The Washington State Legislature passed Substitute House Bill 1377 (SHB 1377), Laws of 2019, related to affordable housing development on religious property. SHB 1377 was effective on July 1, 2019. The City has proposed the following amendments to the BLMC to comply with SHB 1377:

    (a) Amended BLMC Sections 18.04.010, 18.04.180, and 18.08.020.

    (b) Added new BLMC Section 18.08.050.

17) The Washington State Legislature passed Engrossed Substitute House Bill 1754 (ESHB 1754), Laws of 2020, related to the hosting of the homeless by religious organizations. ESHB 1754 was effective on June 11, 2020. The City has proposed the following amendments to the BLMC to comply with ESHB 1754:

    (a) Amended BLMC Sections 18.04.050, 18.04.150, 18.04.190, 18.04.200, 18.04.220, 18.08.010, and 18.08.020.

    (b) Added new BLMC Section 18.08.050.

18) The Washington State Legislature passed Engrossed Substitute Senate Bill 5235 (ESSB 5235), Laws of 2021, related to increasing housing unit inventory by removing arbitrary limits on housing options. ESSB 5235 was effective on July 25, 2021. The City completed the required amendments in Ordinance No. 1737, effective June 22, 2025.

19) The Washington State Legislature passed Engrossed Second Substitute House Bill 1220 (ESSHB 1220), Laws of 2021, related to supporting emergency shelters and housing through local development regulations. Compliance with ESSHB 1220 was required by December 31, 2024. The City has proposed the following amendments to the BLMC to comply with ESSHB 1220, specifically to ensure adequate housing supply for low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing, and to add anti-displacement requirements consistent with *Envision Bonney Lake*:

   (a) Amended BLMC Sections 13.04.030, 14.80.030, 15.08.020, 15.08.125, 16.68.040, 18.02.090, 18.04.050, 18.04.130, 18.04.180, 18.04.200, 18.08.010, 18.08.020, 18.12.010, 18.14.060, 18.18.050, 18.29.050, 18.34.050, 19.04.060, and 19.06.060.

   (b) Added new BLMC Sections 18.08.050 and 18.08.060.

   (c) Repealed Chapters 18.16, 18.19, and 18.24 BLMC.

20) The Washington State Legislature passed Engrossed House Bill 1337 (EHB 1337), Laws of 2023, related to expanding housing options by easing barriers to the construction and use of accessory dwelling units. Compliance with EHB 1337 was required by June 30, 2025. The City completed the required amendments in Ordinance No. 1737, effective June 22, 2025.

21) The Washington State Legislature passed Engrossed Substitute House Bill 1042 (ESHB 1042), Laws of 2023, related to the creation of additional housing units in existing buildings. Compliance with ESHB 1042 was required by June 30, 2025. The City has proposed the following amendments to the BLMC to comply with ESHB 1042:

   (a) Amended BLMC Section 18.31.010.

   (b) Added new BLMC Section 14.04.098.

22) The Washington State Legislature passed Engrossed Substitute House Bill 1293 (ESHB 1293), Laws of 2023, related to streamlining development regulations, specifically related to design review. Compliance with ESHB 1293 was required by June 30, 2025. The City has proposed the following amendments to the BLMC to comply with ESHB 1293:

   (a) Amended BLMC Sections 14.10.030, 14.40.050, 14.40.080, 14.95.020, 18.29.030, and 18.37.040.

(b) Repealed Section 14.95.030 BLMC.

23) The Washington State Legislature passed Engrossed Second Substitute Senate Bill 5258 (ESSSB 5258), Laws of 2023, related to increasing the supply and affordability of condominium units and townhomes as an option for homeownership. Compliance with ESSSB 5258 was required by June 30, 2025. The City has proposed the following amendments to the BLMC to comply with ESSSB 5258:

(a) Amended BLMC Sections 12.04.005, 12.04.030, 12.04.040, 12.28.020, 12.28.030, 13.12.010, 13.12.130, 13.16.060, 14.30.040, 14.95.020, 15.28.070, 15.36.020, 15.36.040, 16.20.130, 16.64.070, 17.40.010, 17.40.020, 17.50.010, 17.50.020, 17.50.040, 17.50.040, 17.50.050, 17.50.060, 19.02.030, 19.02.090, and 19.08.040.

(b) Added new BLMC Sections 17.20.060 and 17.50.130.

24) The Washington State Legislature passed Second Substitute Senate Bill 5290 (SSSB 5290), Laws of 2023, related to consolidating local permit review processes. Compliance with SSSB 5290 was required in part by July 23, 2023, and in part by January 1, 2025. The City has proposed the following amendments to the BLMC to comply with SSSB 5290:

(a) Amended BLMC Sections 2.18.090, 2.18.180, 9.07.030, 14.10.030, 14.10.070, 14.10.100, 14.10.110, 14.30.010, 14.30.020, 14.30.030, 14.30.040, 14.40.010, 14.40.020, 14.40.030, 14.40.080, 14.40.090, 14.50.030, 14.95.020, 14.105.010, 14.110.010, 14.120.020, 15.20.120, and 15.36.050.

(b) Added new BLMC Section 14.40.045.

25) The Washington State Legislature passed Engrossed Substitute House Bill 1998 (ESHB 1998), Laws of 2024, related to legalizing inexpensive housing choices through co-living housing. Compliance with ESHB 1998 is required by December 31, 2025. The City has proposed the following amendments to the BLMC to comply with ESHB 1998:

(a) Amended BLMC Sections 13.04.030, 13.04.070, 13.04.100, 13.12.010, 13.12.082, 13.12.100, 13.12.130, 14.95.020, 14.95.020, 15.14.020, 15.14.035, 18.04.030, 18.08.020, 18.18.050, 18.31.010, and 18.37.020.

26) The Washington State Legislature passed Substitute House Bill 1105 (SHB 1105), Laws of 2024, related to requiring public agencies to provide notice for public comment that includes the first and last date and time by which such comments must be submitted. Compliance with SHB 1105 was required by June 6, 2024. The City has proposed the following amendments to the BLMC to comply with SHB 1105:

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(a) Amended BLMC Section 14.50.040.

27) The Washington State Legislature passed Substitute Senate Bill 6015 (SSB 6015), Laws of 2024, related to parking configurations for residential uses. Compliance with SSB 6015 was required by June 6, 2024. The City has proposed the following amendments to the BLMC to comply with SSB 6015:

(a) Amended BLMC Sections 18.04.030, 18.04.070, and 18.31.010.

28) The Washington State Legislature passed Engrossed Senate Bill 5559 (ESB 5559), Laws of 2025, related to streamlining the subdivision process inside urban growth areas. Compliance with ESB 5559 is required by July 26, 2027. The City has proposed the following amendments to the BLMC to comply with ESB 5559:

(a) Amended BLMC Sections 14.30.010, 15.28.070, 17.10.030, and 17.50.130.

(b) Added new BLMC Sections 17.20.060 and 17.50.130.

29) The Washington State Legislature passed Engrossed Substitute Senate Bill 5509 (ESSB 5509), Laws of 2025, relating to the siting of child care centers. Compliance with ESSB 5509 is required by July 26, 2027. The City has proposed the following amendments to the BLMC to comply with ESSB 5509:

(a) Amended BLMC Sections 18.04.030, 18.04.060, 18.08.020, and 18.32.040.

30) The Washington State Legislature passed a series of updates that amended the definition of an "essential public facility" in RCW 36.70A.200, including Engrossed Substitute Senate Bill 5801 (ESSB 5801), Laws of 2025, Second Engrossed Second Substitute Senate Bill 5536 (SESSSB 5536), Laws of 2023, Engrossed Substitute Senate Bill 5118 (ESSB 5118), Laws of 2021, and House Bill 2640 (HB 2640), Laws of 2020. ESSB 5801 was effective on July 27, 2025. The City has proposed the following amendments to the BLMC to comply with ESSB 5801, SESSSB 5536, ESSB 5118, and HB 2640:

(a) Amended BLMC Section 18.04.050.

31) The Washington State Legislature passed Engrossed Second Substitute House Bill 1096 (ESSHB 1096), Laws of 2025, related to increasing housing options through lot splitting. Compliance with ESSHB 1096 is due by July 26, 2027. The City has proposed the following amendments to the BLMC to comply with ESSHB 1096:

(a) Amended BLMC Sections 12.04.005, 12.04.030, 12.04.040, 12.28.020, 12.28.030, 13.12.010, 13.12.130, 13.16.060, 15.36.020, 15.36.040, 16.20.130, 16.64.070, 17.10.030, 17.50.010, 17.50.020, 17.50.040, 17.50.040, 17.50.120, 19.02.030, 19.02.090, and 19.08.040.

(b) Added new BLMC Section 17.20.050 and 17.50.120.

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32) The Washington State Legislature passed House Bill 1757 (HB 1757), Laws of 2025, related to modifying regulations for existing buildings used for residential purposes. Compliance with HB 1757 is required by June 30, 2026. The City has proposed the following amendments to the BLMC to comply with HB 1757:

(a) Amended BLMC Sections 14.95.020 and 18.18.050.

(b) Added new BLMC Section 15.04.098.

33) The Washington State Legislature passed Substitute Senate Bill 5655 (SSB 5655), Laws of 2025, relating to child care centers operated in existing buildings, specifically related to how occupant load is calculated. SSB 5655 was effective on July 27, 2025. The City has proposed the following amendments to the BLMC to comply with SSB 5655:

(a) Amended BLMC Section 15.04.082.

34) The Washington State Legislature passed Second Substitute House Bill 1183 (SSHB 1183), Laws of 2025, relating to incentivizing affordable and sustainable building practices through building code and development regulation reform. Compliance with SSHB 1183 is required by the next comprehensive plan implementation progress report, or by December 31, 2029. The City has proposed the following amendments to the BLMC to partially comply with SSHB 1183, to the extent necessary to ensure consistency with ESHB 1042 and HB 1757:

(a) Amended BLMC Sections 18.14.060, 18.18.050, 18.22.080, 18.26.050, 18.27.030, 18.34.050, 18.36.040, and 18.37.040.

(b) Added new BLMC Section 15.04.098.

Public Participation

35) The City of Bonney Lake followed public participation program adopted pursuant to Resolution 3151 during the comprehensive plan periodic update process.

36) The City maintained both an email list of and a mailing list of stakeholders and individuals that requested notification of hearings related to periodic update process. Notices of all public hearings were either mailed or emailed to all stakeholders and parties that requested notification of public hearings.

37) Notice of the public hearing was mailed to all property owners with a proposed zoning change.

Public Meetings

38) The Bonney Lake Planning Commission held a meeting to discuss the proposed amendments on November 5, 2025.

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39) The Bonney Lake City Council held meetings to discuss the proposed amendments on October 21 and October 28, 2025.

Public Hearing

40) The City issued an official notice of the public hearing on November 3, 2025, which is 17 days prior to the hearing.

41) The notice of public hearing provided a comment period, which concluded on November 19, 2025.

42) Notice of the hearing was also published in the newspaper on November 5 and November 12, 2025, as required by BLMC 14.140.040(D).

43) The Bonney Lake Planning Commission held a public hearing on November 19, 2025, to discuss the proposed Official Zoning Map and amendments to the Bonney Lake Municipal Code. The public hearing for this matter was conducted in accordance with City of Bonney Lake rules and regulations governing such matters for the Planning Commission and in conformance with the Growth Management Act (Chapter 36.70A RCW).

44) The City prepared comment matrix, which included the comment provided and the City's response. This comment matrix attached as **Attachment B** to this Ordinance is hereby incorporated as part of the City's Findings of Fact.

Planning Commission Deliberations

45) RCW 36.70A.040(3), WAC 365-196-800 and WAC 365-196-810 require cities to adopt development regulations that implement and are consistent with *Envision Bonney Lake*, Growth Management Act periodic update requirements, and recently passed state legislation.

46) Stamps Docket Request.

(a) On April 25, 2023, Gary and Karen Stamps applied for a Comprehensive Plan Amendment (PLN-2023-02837) and concurrent rezone (PLN-2023-02838) for Pierce County Tax Parcel Nos. 2925000210 and 2925000220, commonly known as 19401 94th St E and 19405 94th St E. The requested amendment is to change the future land use designation from High-Density Residential to Midtown Core with a concurrent reclassification of the zoning district from R-3 to Midtown Core.

(b) On April 26, 2023, the application was deemed complete. The application materials are attached as **Attachment C** to this Ordinance.

(c) The City chose to complete modeling and analysis for the proposal as part of the growth alternatives analysis, land capacity analysis, and transportation analysis for *Envision Bonney Lake*. This analysis determined

that the Midtown Core future land use designation should be consolidated into the Commercial – General future land use designation.

(d) Based on the foregoing analysis, the Stamps proposal was incorporated into the draft Community Development Element and Future Land Use Map of *Envision Bonney Lake* for deliberation by Planning Commission and decision by City Council for redesignation to the Commercial – General future land use designation.

(e) The Planning Commission finds that the Stamps docket request to change the zoning classification of Pierce County Tax Parcel Nos. 2925000210 and 2925000220 from R-3 to Midtown Core meets the criteria for approval in BLMC 14.140.090, including that the proposal:

- Is consistent with the Future Land Use Map in *Envision Bonney Lake*; and
- Is consistent with the goals and policies of *Envision Bonney Lake*.

47) The Official Zoning Map, attached as **Attachment D** to this Ordinance, includes updates zoning classifications throughout the City, consistent with the Future Land Use Map in *Envision Bonney Lake*. The Planning Commission finds that the updates ensure that there is adequate land capacity to accommodate future population, employment, and low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

48) A completed Department of Commerce *Critical Areas Checklist* is attached as **Attachment E** to this Ordinance and was considered as part of the Planning Commission's deliberations. The Planning Commission finds that the critical area regulations contained in BLMC Title 16, Article II, are consistent with the Growth Management Act and did not require amendment as part of this 2024 Periodic Update to the comprehensive plan, zoning map, and development regulations, and **Attachment E** is hereby incorporated as part of the City's Findings of Fact.

49) Section II of the completed Department of Commerce *Periodic Update Checklist for Fully-Planning* and Section II of the completed Department of Commerce *Expanded Housing Element Checklist* are attached as **Attachment F** to this Ordinance and were considered as part of the Planning Commission's deliberations. The Planning Commission finds that the Official Zoning Map and amendments to the BLMC are consistent with *Envision Bonney Lake* and the requirements of the Growth Management Act and **Attachment F** is hereby incorporated as part of the City's Findings of Fact.

50) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSHB 1923, Laws of 2019, in the adoption of this ordinance.

51) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in SHB 1377, Laws of 2019, in the adoption of this ordinance.

52) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESHB 1754, Laws of 2020, in the adoption of this ordinance.

53) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSB 5235, Laws of 2021, in the adoption of Ordinance No. 1737, effective June 22, 2025.

54) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSHB 1220, Laws of 2021, in the adoption of this ordinance.

55) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in EHB 1337, Laws of 2023, in the adoption of Ordinance No. 1737, effective June 22, 2025.

56) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESHB 1042, Laws of 2023, in the adoption of this ordinance.

57) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESHB 1293, Laws of 2023, in the adoption of this ordinance.

58) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSSB 5258, Laws of 2023, in the adoption of this ordinance.

59) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in SSSB 5290, Laws of 2023, in the adoption of this ordinance.

60) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESHB 1998, Laws of 2024, in the adoption of this ordinance.

61) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in SHB 1105, Laws of 2024, in the adoption of this ordinance.

62) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in SSB 6015, Laws of 2024, in the adoption of this ordinance.

63) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESB 5559, Laws of 2025, in the adoption of this ordinance.

64) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSB 5509, Laws of 2025, in the adoption of this ordinance.

65) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSB 5801, Laws of 2025, SESSSB 5536, Laws of 2023, ESSB 5118, Laws of 2021, and HB 2640, Laws of 2020, in the adoption of this ordinance.

66) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in ESSHB 1096, Laws of 2025, in the adoption of this ordinance.

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67) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in HB 1757, Laws of 2025, in the adoption of this ordinance.

68) The Planning Commission finds that the City of Bonney Lake has complied with the amendments in SSB 5655, Laws of 2025, in the adoption of this ordinance.

69) The Planning Commission finds that the City of Bonney Lake has partially complied with the amendments in SSHB 1183, Laws of 2025, to the extent necessary to ensure consistency with ESHB 1042, Laws of 2023, and HB 1757, Laws of 2025, in the adoption of this ordinance.

70) The Planning Commission finds that the following amendments further improve the internal consistency of the Bonney Lake Municipal Code, implement and are consistent with *Envision Bonney Lake*, and implement the Growth Management Act:

(a) Amended BLMC Sections 12.04.030, 12.28.030, 13.12.010, 14.10.010, 14.10.030, 14.10.040, 14.30.010, 14.30.040, 14.95.020, 15.20.060, 15.28.070, 16.20.115, 16.68.070, 16.68.090, 17.10.030, 17.20.020, 17.20.030, 17.20.040, 17.50.030, 17.50.040, 17.50.060, 17.50.070, 18.08.020, 18.14.060, 18.20.050, 18.22.020, 18.31.010, 18.34.060, 18.36.020, 18.37.020, 19.02.030, and 19.08.020.

(b) Added new BLMC Sections 12.04.025 and 15.13.045.

State Environmental Policy Act

71) The adoption of the Official Zoning Map and amendments to the Bonney Lake Municipal Code and associated adoption of *Envision Bonney Lake* are considered a non-project action as defined in WAC 197-11-704(2)(b) under the Washington State Environmental Policy Act (SEPA).

72) This non-action is not categorically exempt from the SEPA pursuant to WAC 197-11-800; therefore, the City was required to prepare a SEPA Checklist.

73) Pursuant to WAC 197-11-926, the City of Bonney Lake is the lead agency for the SEPA review.

74) The Public Services Director acting as the SEPA Responsible Official reviewed the SEPA Checklist and issued a threshold Determination of Non-Significance under BLMC 16.10.040 on November 3, 2025.

75) A comment period on the Determination of Non-Significance was provided from November 3, 2025, to November 19, 2025.

76) There was [appeal status] of the Determination of Non-Significance and the threshold determination is final.

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77) The City further issued a Notice of Adoption of Environmental Documents on November 3, 2025.

State Agency Review

78) The City submitted a Notice of Intent to Adopt the Official Zoning Map and amendments to the Bonney Lake Municipal Code to the Washington State Department of Commerce on October 9, 2025, for review and comment by the Department and other State agencies required by RCW 36.70A.106.

79) The 60-day notice period ends on December 8, 2025.

CONCLUSIONS

80) The Stamps docket request to change the zoning classification of Pierce County Tax Parcel Nos. 2925000210 and 2925000220 from R-3 to Midtown Core meets the criteria for approval in BLMC 14.140.090 and should be approved.

81) The recommended version of the Official Zoning Map, as amended through Planning Commission discussion and deliberation, establishes land use zoning designations throughout the City of Bonney Lake that are responsive to and consistent with the recommended version of *Envision Bonney Lake* the Future Land Use Map (FLUM). The update to the Official Zoning Map will ensure that there is adequate land capacity to accommodate future population, employment, and low, very low, and extremely low-income households and emergency housing, emergency shelters, and permanent supportive housing.

82) The proposed amendments to the Bonney Lake Municipal Code meet the criteria for approval in BLMC 14.140.090, including that the proposal:

(a) Is consistent with the goals and policies of *Envision Bonney Lake*; and

(b) Is consistent with the laws of the state of Washington.

83) The recommended version of the Official Zoning Map and amendments to the Bonney Lake Municipal Code have been drafted, noticed, reviewed by the public, and considered by the Planning Commission in accordance with all applicable laws of the State of Washington and the City of Bonney Lake.

84) The recommended version of the Official Zoning Map and amendments to the Bonney Lake Municipal Code are necessary to comply with the Growth Management Act periodic update requirements and recently passed state legislation.

85) The recommended version of the Official Zoning Map and amendments to the Bonney Lake Municipal Code are in the best interest of the public health, safety, and welfare.

Attachment B

Response to Comments

{to be updated as comments are received}

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Lauren Balisky

From: Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>
Sent: Friday, November 7, 2025 10:55 AM
To: Lauren Balisky
Cc: Sears, Tricia (DNR); Guida, Eric (COM); DNR RE SEPACENTER
Subject: Bonney Lake's Comprehensive Plan and Development Regulations Amendments (2025-S-10981A): WGS comments

Hello Lauren,

In keeping with the interagency correspondence principles, I am providing you with comments on Bonney Lake's Comprehensive Plan and Development Regulations Amendments (2025-S-10981A).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining, climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed Chapter 1 Introduction, Chapter 2 Community Development, Chapter 7 Environmental Stewardship Element, Chapter 8 Shoreline Element Reformatted, and AB25-80 Ordinance D-25-80-Development Code.

Chapter 1 Introduction
Exhibit 2 is very nice. Great to see the mention of the plans. Suggest mentioning plans like the climate plan and natural hazard mitigation plan. Suggest adding a paragraph that further explains and supports Exhibit 2.

Chapter 2 Community Development
Great information! Good to see critical areas mentioned multiple times. Suggest mentioning the connections of plans like the comprehensive plan, the climate plan, the natural hazard mitigation plan, etc to further interweave the topics. There could be a reference to chapter 1 for additional details on the plans.

Chapter 7 Environmental Stewardship Element
The geologically hazardous areas hazards are erosion, landslide, seismic (earthquake), and volcanic. Great to see exhibits 1-6 related to geologically hazardous areas! Page 7 edits show that the use of the term geologically hazardous areas replaces the term geological hazards. Suggest checking the other chapters to also replace the existing with new language. Chapter 8, for example, refers to geological hazards. On page 9, the last bullet point uses the term geological hazardous areas and geologically hazardous areas. Suggest revising to use geologically hazardous areas throughout the text.

Suggest moving and adding this sentence on page 15 "These categories are designed to protect citizens and their private property from damage during natural disasters" to follow this sentence on page 14 "The City categorizes landslide hazard areas into two categories." Great to see the mention of shallow and deep landslides, and the maps related to them. Great to see the volcanic hazards and lahar impact areas maps.

Good to see the resiliency provisions and the goals and policies. Goal ES-2 is interesting with "Protect the environment, public health, and property from erosion, landslides and unnecessary scars on the land that could occur as part of development." What are the unnecessary scars that are referenced?

Chapter 8 Shoreline Element Reformatted

There are no proposed changes by staff, it appears, but the format has been revised. The provision, "Policy SL-3.2: Manage development to avoid risk of damage to property and loss of life from geological hazards" is great to see. The subsequent paragraphs mention earthquake and landslide hazards. There is no mention of other geological hazards. Chapter 7 also identifies volcanic and erosion hazards. Suggest mentioning these two hazards in addition to the two described here.

AB25-80 Ordinance D-25-80-Development Code
The ordinance with code changes and staff comments.

Below, I include our usual language for this and future endeavors.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in current or future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to the definition of geologically hazardous areas, WAC 365-190-120, in other areas besides the CAO. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- Consider adding in other areas besides the CAO. If you have not checked our interactive database, the Washington Geologic Information Portal, lately, you may wish to do so. Geologic Information Portal | WA - DNR
- If you have not checked out our Geologic Planning page, you may wish to do so. Geologic Planning | WA - DNR

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 12/14/25.

Have a great day!
Tricia

Tricia R. Sears (she/her/hers)
Geologic Planning Liaison
Washington Geological Survey (WGS)
Washington Department of Natural Resources (DNR)
Cell: 360-628-2867 | Email: tricia.sears@dnr.wa.gov

Attachment C

Stamps Zoning Reclassification Request

Application Materials (PLN-2023-02838)

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printing purposes.

Master Land Use Application

City of Bonney Lake-Permit Center

Submitted On:
Apr 25, 2023, 11:50AM PDT

Project Information

Project Name:	Zoning reclassification Request for Gary and Karen Stamps for Expanded Collision Center
Tax Parcel Number(s):	2925000210 and 2925000220
Site Address:	19401 94th Street East and 19405 94th Street East
Project Description:	Request a Zoning designation change from R-3 To MC for both parcels.
Type of Land Use Approval requested (a separate application is required for each land use type):	~~Comprehensive Plan Map Amendment~~ **Zoning Reclassification**

Property Owner

Name:	Gary and Karen Stamps
Address:	**Street Address:** 19402 State Route 410 East, D Street SE **City:** Bonney Lake, **State:** WA **Zip:** 98391

Project Contact/Applicant

Name:	**First Name:** ALAN C. **Last Name:** KEIMIG*
Full Address	**Street Address:** 307 D Street SE D Street SE **City:** Auburn **State:** WA **Zip:** 98002
Phone Number:	253-939-3232
Email:	ackeimig@msn.com

Property Information

Zoning:	High-Density Residential (R-3)
Land Use Designation:	Residential - High Density

Current Use:	Parcel 2925000210 is vacant land; Parcel 2925000220 is a single family home
Total Acres:	1.155 acres
Upload Documents for Review (1-10)	Stamps Zoning worksheet.pdf Stamps Owner authorization.pdf Stamps Zoning request.pdf
Upload Documents for Review (11-20)	Collision 1 SITE 042523.pdf

Notices:

1. VESTED RIGHTS: In order for a short plat application or a plat application to vest, a complete application must be submitted the City. Land uses applications, to include plats and short plats do not vest the subsequent building permits to the development regulations in effect at the time the land use application was submitted. Pursuant to RCW 19.27.095, building permits are reviewed under the land use regulations in effect at the time that a complete application for a building permit is submitted to the City.
2. COMPLETENESS: Your application will be deemed complete 29 days after submittal, unless otherwise notified.
3. RIGHT OF ENTRY: By signing this application, the applicant grants unto the City and its agents the right to enter upon the premises for purpose of conducting all necessary inspection to determine compliance with applicable laws, codes and regulations. This right of entry shall continue until a certificate of occupancy is issued for the property.
4. BALD EAGLE PROTECTION: By signing this application, the applicant agrees to adhere to the Bald and Golden Eagle Protection Act and the U.S. Fish and Wildlife Service National Bald Eagle Management Guidelines (2007).
5. OWNERSHIP: The Owner of the property as identified on the Pierce County Tax Assessor's website must either sign this application form or submit a notarized letter stating that the Applicant and/or Project Contact to act as the Owners agent regarding the property at the above-referenced address for the purpose of filing land use applications and have full power and authority to perform on behalf of the Owner all acts required to enable the City to process and review such applications. If the property was recently purchased and sale is not reflected on the Pierce County Assessor's website, the new Owner must submit documentation demonstrating that he/she has purchased the property.

Certification

I am the:	Project Contact/Applicant
Signature Data	First Name: ALAN C. Last Name: Keimig Email Address: ackeimig@msn.com



Signed at: April 25, 2023 11:50am America/Los_Angeles

BONNEY Lake

Submittal Worksheet

ZONING RECLASSIFICATION

WHAT IS THE PURPOSE OF THIS WORKSHEET?

This worksheet is to help prospective applicants prepare the required documentation needed to submit a complete application. Please note that this is not the official application, but a tool to assist in the compilation of the materials required for the review by the City. It is important that prospective applicants contact the Planning and Building Division prior to submitting an application as some projects may not require the submittal of all the materials listed or may require additional materials not listed. In order to help work out any potential problems before the formal submittal, the City of Bonney Lake encourages applicants to attend a pre-application meeting.

DIGITAL SUBMITTAL REQUIRED

The City has implemented a paperless permit system for all planning permits. All required application materials are required to be submitted electronically to the Bonney Lake Permit Center. Please contact the Bonney Lake Permit Center at (253) 447-4344 regarding the submittal process. All submittal documents are required to be consistent with the Digital Submittal Requirements.

- ☑ **Land Use Application:** The Land Use Application must be signed by the property owner or the applicant must also submit a notarized copy of the Agent Authorization Form.
- ☑ **Fee:** $2,000 plus $135 per acre
- ☑ **Project Narrative:** The project narrative must include the following information:
  1. An explanation of the project.
  2. A written explanation of how the proposal complies the intent of the zoning code and comprehensive plan of the City (*Bonney Lake 2035*).
  3. A written explanation regarding the municipal services such as water, sewer, roads, fire and police protection that will be required as a result of the proposed zoning reclassification.

NOTE:

Zoning reclassifications may require a separate comprehensive plan amendment application. If the comprehensive plan amendment application is required, it will be processed concurrently with the zoning reclassification application. Comprehensive plan amendments and the concurrent zoning reclassifications are processed every other year. Complete applications received by April 30th of an odd-numbered year shall be processed that year. In addition to the comprehensive plan amendment, a SEPA review is required, which a separate SEPA application shall be submitted concurrently with the zoning reclassification and comprehensive plan amendment applications.

THE KEIMIG ASSOCIATES
ARCHITECTS–PLANNERS
307 D STREET SE, AUBURN, WA 98002
(253) 939-3232, FAX (253) 735-1309

April 25, 2023

Zoning Reclassification
Application for Gary and Karen Stamps of Collision 1, Inc.
Also known as Bonney Lake Collision Center
19402 State Route 410 East, Bonney lake WA

Zoning
Project Narrative:

1. An explanation of the project

Once the Comprehensive Plan Land Use designation of the two parcels, #2925000210, 19401 94th Street East and #2925000220, 19405 94th Street East adjacent to the existing Collision 1 business location is amended from High Density Multi Family to Midtown Core District and the zoning is changed from R-3 to MC, the Owners of Collision 1 will apply for permits to construct a new expansion of their facilities to accommodate the generations of new vehicles recently produced. The intent is to design and construct a vehicles repair facility that has the capabilities to work with the new systems and materials and require differing processes than reworking the older generation vehicles. The different materials cannot be mixed under the best practices of the industry. By constructing adjacent to the existing Collision 1 operation there is the added convenience of using many of the existing plant processes such as the paint booths and other apparatuses that would have to be duplicated in a remote location. Using the adjacent parcels will save both the owner and the City resources and in impacts on utility and public services infrastructure, duplications a remote plant would require. The consolidation further offers greater environmental protections in one manageable locality.

2. A written explanation of how the proposal complies the intent of zoning codes and comprehensive plan of the City (Bonney Lake 2035)

The two parcels border on the current Collision 1 business property, a functioning vehicle repair facility already in the designated Midtown Core District. The property to the West, situated at a lower elevation, also has a land use designation as Midtown Core District. It is occupied by a big box retailer, Target with CVS Pharmacy and several sit-down venues for food and entertainment establishments. The subject parcel's property north property lines border 94th Street East, a city collector, with property north of the street currently zoned R-3 under the High Density Multifamily designation but developed years ago as individual single family residences. Similarly the adjacent parcel to the east is designated as High Density Multifamily use. This adjacent parcel is owned by the individuals seeking the zoning change and they are the Owners of the Bonney Lake Collision Center. It is their intention to redevelop the existing east parcel as a multifamily lot and move the current family residing at that parcel number 2925000220 to the new location allowing the redevelopment of the lot with the expanded vehicular repair facility. In order to accomplish the new construction the design will need to provide the setback and buffer protections consistent with the Zoning Ordnance under the new designation MD with design considerations of the facade, the incorporation of the landscaping and the particular attention focused in creating a pleasant visual barrier for the Multi Family properties and streetscape. By adopting the Midtown Core District for the two subject parcels greater protections are afforded the remaining High Density Multifamily parcels, which would remain. The

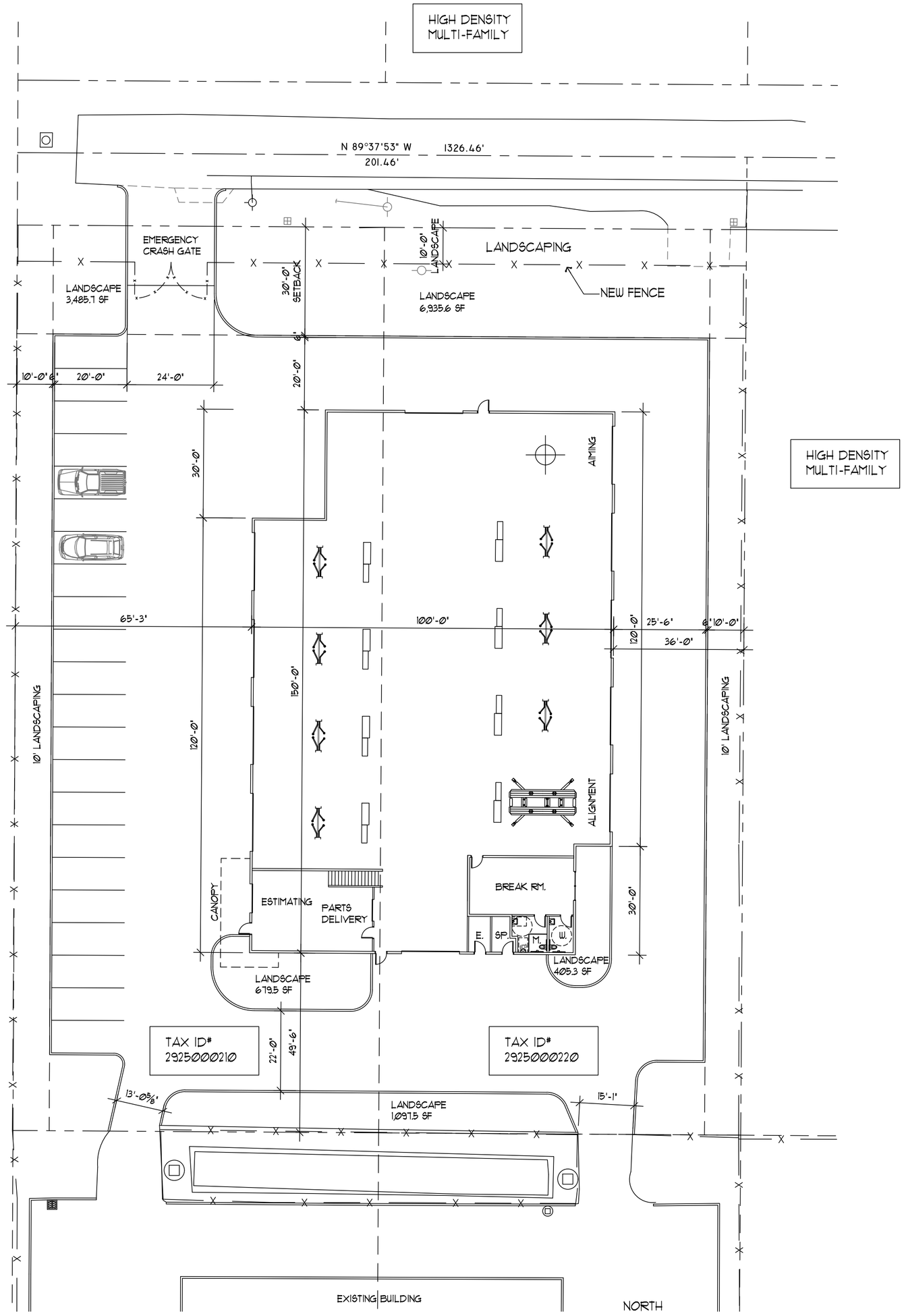
commercial development can be tailored to accommodate the adjacent potential maintaining the Comprehensive Plan Visions and Policy goals.

3. A written explanation of how the municipal services such as water, sewer, roads, fire and police protection that will be required as a result of the proposed zoning reclassification.

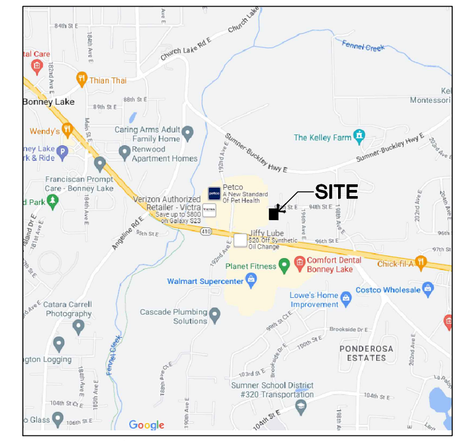
The current Collision 1 business is located on the north side of State Route 410 East with an already established access from the State highway. This will be considered the major access to the expanded operation. The existing physical plant is already connected to the public utility infrastructure and these can potentially be extended though to the new improvements. Doing this will have less impact to the existing city facilities, water, storm system, and sanitary sewer and the requirements for public safety, fire and police than would be possible at other isolated locations having to connect to the existing city infrastructure. The use of the established business in Midtown and the use of its existing facilities allows for a reasonable expansion with the least interference to the existing infrastructure. It is also less strenuous to the remaining land uses and city services than would otherwise be possible.

It can be stated that in all the years of operation the current business has not had any public safety service calls for fire or had any police required interventions in its history. It is reasonable therefore to infer that the expanded facility would enjoy the same quality laid stewardship in its attention and operation to the use of these services. In other words, it would continue to require little of the public services as they exist and would continue to be a model citizen in the use of the city resources. This should be a welcome association in the best interest of Bonney Lake residents with this respectful regard to the health, welfare and need for safety with the public services within the community under this operation. It is believed and should be considered that the major public utility infrastructure already connected for the existing site can be extended though to the two subject adjacent sites. The expansion would definitely have less impact to the existing city facilities than another isolated location could achieve. Any other location would required completely new connections and would not benefit from the existing. Any new location would generate greater use within the city where all the services would fully be required.

Prepared by Alan C Keimig, Architect
The Keimig Associates



SITE PLAN
SCALE: 1" = 20'



N

VICINITY MAP
SCALE: N.T.S.

CONTACTS

OWNER:
Gary Stamps
233 West Main Street
Auburn, Washington 98001

ARCHITECT:
The Keimig Associates
307 D Street SE
Auburn, WA 98002
(253) 939-3232
FAX: (253) 735-1309

SITE DATA

SITE ADDRESSES:
19401 94TH ST East
Bonney Lake, WA

ASSESSOR PARCEL NUMBER:
2925000210 25,000 SF (0.574 ac.)

RTSQQ:
05-20-33-44

LEGAL DESCRIPTION:
Section 33 Township 20 Range 05 Quarter 44
CEDAR GROVE TO BONNEY LAKE: CEDAR
GROVE TO BONNEY LAKE L 21 T/E 1969 KIT KIT
SP2315A2315B 48X24 (P42130-12000) AFN
20030124031 1 RF 01/03

SITE ADDRESSES:
19405 94TH ST East
Bonney Lake, WA

ASSESSOR PARCEL NUMBER:
2925000220 25,000 SF (0.574 ac.)

RTSQQ:
05-20-33-44

LEGAL DESCRIPTION:
Section 33 Township 20 Range 05 Quarter 44
CEDAR GROVE TO BONNEY LAKE: CEDAR
GROVE TO BONNEY LAKE L 22

TOTAL LOT SIZE:	50,303.75 S.F.
75% MAX. IMPERVIOUS AREA 50,303.75 S.F. x 75% =	37,727.81 S.F. MAXIMUM
25% MIN. PERVIOUS AREA 50,303.75 S.F. x 25% =	12,575.94 S.F. MINIMUM

PROPOSED LANDSCAPED AREAS
6,935.6 S.F.
3,485.7 S.F.
679.5 SF 679.5 SF
405.3 SF
1,097.5 S.F.
12,603.6 S.F. TOTAL

REVISIONS

Request for COMPREHENSIVE PLAN and a REZONE
AMENDMENT CHANGE for Gary Stamps on Tax
Parcel #2925000210 and #2920000220

2051 REGISTERED ARCHITECT ALAN C. KEIMIG STATE OF WASHINGTON
4/25/2023

307 D STREET SE
AUBURN, WASHINGTON
98002
PHONE: 253.939.3232
THE KEIMIG ASSOCIATES
ARCHITECTS
PLANNERS

JOB NUMBER:

DATE 4-25-23

SHT A-1.1

1 OF 1

Form

Owner Authorization

LETTER FROM PROPERTY OWNER GRANTING AUTHORIZATION TO ACT

A copy of this letter must be submitted for each property owner involved

I, **Gary W and Karen L Stamps** (PROPERTY OWNER), being duly sworn declare that I am the owner of the property involved in this application. I hereby grant **Alan C Keimig, Architect** (AGENT) of **DBA; The Keimig Associates** (CORPORATION) to act on my behalf. I further declare that all statements, answers, and information herein submitted are in all respects true and correct to the best of my knowledge and belief.

Gary W Stamps
SIGNATURE

4-4-23
DATE

Karen L Stamps

19402 State Route 410

Bonney Lake, WA 98391

ADDRESS

Subscribed and sworn to before me this 4th day of April 2023

Notary Public in and for the State of Washington,

Residing at Pierce County

ALLEN M HAN
Notary Public
State of Washington
Commission # 180025
My Comm. Expires Feb 8, 2024

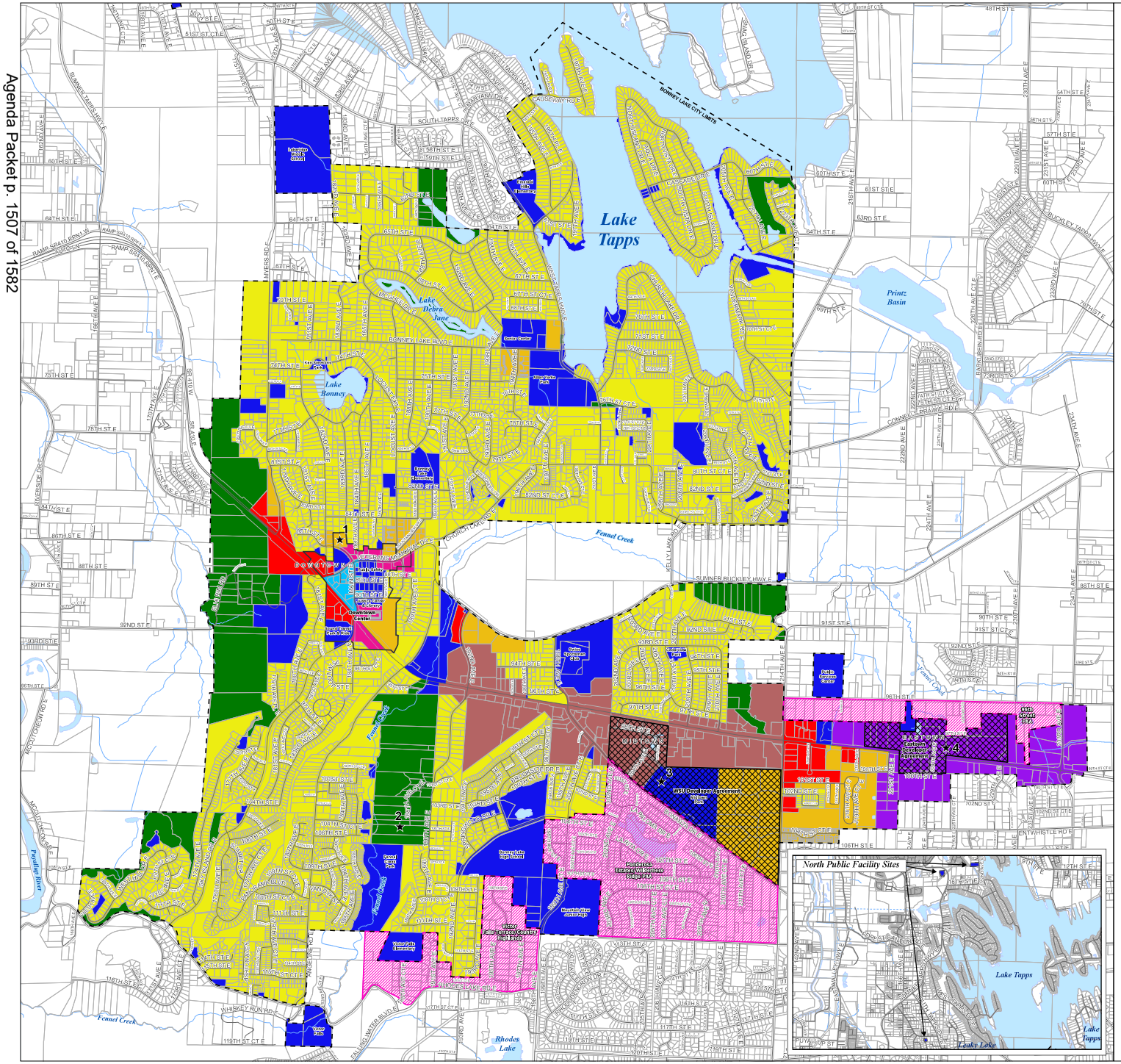
Save Form

Attachment D

Official Zoning Map

DRAFT

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BONNEY Lake

Zoning Map 2025

Draft

Legend

- Commercial (C-2)
- Downtown Core (DC)
- Downtown Mixed District (DM)
- Eastown (E)
- Midtown Core (MC)
- Public Facilities (PF)
- Residential (R-1)
- High Density Residential (R-3)
- Residential/Conservation District (RC-5)
- Downtown Center
- Developer Agreement
- Potential Annexation Area
- Tax Parcels
- City Limits Boundary - Bonney Lake

Special Zoning Conditions

1. Ordinance 1257
2. Ordinance 1665
3. WSU Development Agreement Resolution 1991
4. Eastown Development Agreement Resolution 3074

This Zoning map was compiled and integrated from the most current and accurate sources available at the time of publication. Information portrayed on this map is approximate and is not intended to serve as a legal record. Original survey notes, legal descriptions and on-site investigation should be utilized to determine exact property boundaries and locations of other features. Please contact the City of Bonney Lake Public Services Department for an interpretation of zoning boundaries when in question.

N

0 0.25 0.5 0.75 1

Miles

October 30, 2025

This is not a survey. Orthophotos and other data may not align. Pierce County assumes no liability for variations ascertained by actual survey. All data is expressly provided "as is" and with all faults.

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printing purposes.

Attachment E

Department of Commerce

Critical Areas Checklist

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printing purposes.

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

Critical Areas Checklist

A Technical Assistance Tool from Growth Management Services – updated November 2022

Name of city or county:	Bonney Lake
Staff contact, phone, and e-mail address:	
Russ Schaub, 253-447-3108, schaubr@cobl.wa	

INSTRUCTIONS

This checklist is intended to help local governments update their development regulations, pursuant to the schedule in **RCW 36.70A.130(5)** (updated in 2022). **We strongly encourage but do not require jurisdictions to complete the checklist and return it to Growth Management Services (GMS), along with their updates.** This checklist may be used by all jurisdictions, including those local governments planning for resource lands and critical areas only. For general information on update requirements, refer to A Guide to the Periodic Update Process Under the Growth Management Act – Fully Planning Counties & Cities, 2022 and Keeping your Comprehensive Plan and Development Regulations Current: A Guide to the Periodic Update Process under the Growth Management Act, August, 2016 and WAC 365-196-610 (updated in 2015).

Bold items are a GMA requirement or may be related requirements of other state or federal laws. Underlined items are links to Internet sites and may include best practices or other ideas to consider.

Commerce WAC provisions are advisory under Commerce's statutory mandate to provide technical assistance, **RCW 43.330.120** which states that the Department of Commerce "*...**shall help local officials interpret and implement the different requirements of the act through workshops, model ordinances, and information materials.***" If you have questions, call GMS at (360) 725-3066.

Updates to Commerce WAC – Revisions to the Commerce WAC relating to critical areas have been provided in a table with dates of changes on the Growth Management Act Periodic Update web site. The table can be used with this checklist to determine what changes have been made since the last update of your critical areas regulations.

Contents

Instructions.....1

Overall Requirements.....2

Wetlands.....3

Critical Aquifer Recharge Areas.....4

Frequently Flooded Areas.....5

Geologically Hazardous Areas.....6

Fish and Wildlife Habitat Conservation Areas.....7

Designating and Protecting Waters of the State.....8

Anadromous Fisheries.....8

Reasonable Use Exceptions.....8

Agricultural Activities.....9

Forest Practices Regulations.....9

Good Ideas.....9

How to fill out the checklist Using the current version of your critical areas regulations, fill out each item in the checklist. Select the check box or type in text fields, answering the following question: **Is this item addressed in your current Critical Areas Ordinance (CAO)?** If YES, fill in the form with citation(s) to where in the plan or code the item is addressed. We recommend using citations rather than page numbers because they stay the same regardless of how the document is printed. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Growth Management Services Web page or contact one of the Commerce planners assigned to your region.	

CRITICAL AREAS Regulations protecting critical areas are required by **RCW 36.70A.060(2)** and **RCW 36.70A.172(1)**. WAC 365-195-900 through 925 provide guidelines**.** Guidance can also be found in Commerce's Critical Areas Handbook (Updated June, 2018); the Minimum Guidelines WAC 365-190-080 – 130; Best Available Science, Chapter 365-195 WAC; and Procedural Criteria, WAC 365-196-485 and WAC 365-196-830, and on Growth Management's Critical Areas webpage.	
Regulations required to protect critical areas	**Addressed in current plan or regulations? If yes, note where**
OVERALL REQUIREMENTS **The CAO includes best available science to clearly designate and protect all critical areas that might be found within the jurisdiction.** **1. Designation of Critical Areas** **RCW 36.70A.170(1)(d)** required all counties and cities to designate critical areas. **RCW 36.70A.170(2)** requires that counties and cities consider the Commerce Minimum Guidelines pursuant to RCW 36.70A.050. **RCW 36.70A.050** directed Commerce to adopt the Minimum Guidelines to classify critical areas. WAC 365-190-080 through 130 (updated in 2010) provide guidance on defining or "designating" each of the five critical areas. WAC 365-190-040 (updated in 2010) outlines the process to classify and designate natural resource lands and critical areas. **2. Definition of Critical Areas** **RCW 36.70A.030(6)** provides definitions for critical areas. Sections (6) regarding fish and wildlife habitat conservation areas; (14) regarding geologically hazardous areas; and (31) regarding wetlands were updated in 2010. WAC 365-190-030 (updated 2010) provides definitions in the Minimum Guidelines.	

3. Protection of Critical Areas **RCW 36.70A.060 (2)** required counties and cities to adopt development regulations that protect the critical areas required to be designated under **RCW 36.70A.170**. **RCW 36.70A.172(1)** requires the inclusion of best available science in developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-196-830 (updated 2017) provides guidance on protection of critical areas. **4. Inclusion of Best Available Science** **RCW 36.70A.172(1)** requires inclusion of the best available science (BAS). Chapter 365-195 WAC outlines recommended criteria for determining which information is the BAS, for obtaining the BAS, for including BAS in policies and regulations, for addressing inadequate scientific information, and for demonstrating "special consideration" to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-195-915 provides criteria for including BAS in the record. **5. No net loss** of critical area functions and values is a requirement for development regulations in WAC 365-196-830(4). If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm.	Was BAS documented in the record for the review and updates to the critical areas regulations? ☑ Yes ☐ No Location in Text: 16.20.045.A. Do your regulations address no net loss and require compensatory mitigation? ☑ Yes ☐ No Location in Text: 16.20.030 & 16.20.045.C.
WETLANDS DEFINITION **The definition of wetlands is consistent with RCW 36.70A.030(31)** (updated in 2012).	Is the wetland definition consistent with RCW 36.70A.030(21)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.030
WETLANDS DELINEATION **Wetlands are delineated using the approved federal wetland delineation manual and applicable regional supplements** in accordance with WAC 173-22-035 (updated in 2011).	Are wetlands delineated using the approved Federal Wetland Delineation

See Ecology's Wetland Delineation page and WAC 365-190-090 (updated in 2010) for additional assistance.	Manual and Regional Supplements? ☑ Yes ☐ No ☐ N/A Location in Text: 16.22.010
WETLANDS PROTECTION **Policies and regulations protect the functions and values of wetlands. RCW 36.70A.172(1)** Counties and cities are encouraged to make their actions consistent with the intent and goals of "protection of wetlands", Executive Order 89-10 as it existed on September 1, 1990. WAC 365-190-090(3) recommends using a wetlands rating system that evaluates the existing wetland functions and values to determine what functions must be protected. Ecology updated its recommended wetlands rating systems effective January 2015. For information on the rating system, including the July 2018 adjustments to ranges for habitat scores, see: • 2014 Updates to the Washington State Wetland Rating Systems • Washington State Wetland Rating System for Western Washington • Washington State Wetland Rating System for Eastern Washington For other resources and guidance on protecting wetlands, go to Ecology's Local Wetland Regulations: Growth Management Act technical assistance and see: • Wetland Guidance for Critical Areas Ordinance (CAO) Updates: Western and Eastern Washington (2022)	Do the regulations use a rating system to determine wetlands protection? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.020
CRITICAL AQUIFER RECHARGE AREAS **Policies and regulations protect the functions and values of critical aquifer recharge areas. RCW 36.70A.172(1).** **Policies and regulations protect the quality and quantity of groundwater used for public water supplies. RCW 36.70A.070(1)** and WAC 365-196-485(1)(d). The following references also relate to protection of groundwater resources: **RCW 90.44** – Regulation of Public Groundwaters **RCW 90.48** – Water Pollution Control **RCW 90.54** – Water Resources Act of 1971 **RCW 36.36.020** - Creation of aquifer protection area (1988) WAC 365-190-100 Critical Aquifer Recharge Areas (2010) WAC 173-100 Groundwater Management Areas and Programs (1988) WAC 173-200 Water Quality Standards for Groundwaters of the State of Washington (1990)	If groundwater is used for potable water, do regulations protect the quality and quantity of ground water? ☑ Yes ☐ No ☐ N/A Location in text: 15.13.080 16.24.040 16.24.070

WAC 365-196-735 Consideration of state and regional planning provisions (list) (2010) The Critical Aquifer Recharge Areas Guidance Document (updated 2021) provides information on protecting functions and values of critical aquifer recharge areas, best available science, how to work with state and local regulations and adaptive management. Also, consider the following: • Prohibiting or strictly regulating hazardous uses in critical aquifer recharge areas (CARAs) and designating and protecting wellhead areas. See Ecology's guidance on Critical Aquifer Recharge Areas. • Limiting impervious surfaces to reduce stormwater runoff, as required under Phase I and II municipal stormwater permits. Ecology's Stormwater Manual for Western Washington (updated in 2012) includes low impact development (LID) related definitions, requirements, and an LID performance standard. See Stormwater Management and Design Manuals on Ecology's web page. • For additional guidance on LID resources, see Commerce's Incentivizing low-impact development guidebook.	Are the critical aquifer recharge regulations consistent with current mapping of these critical areas? ☑ Yes ☐ No ☐ N/A Location in text: 16.24.030 16.24.040 16.24.060 15.13.060

FREQUENTLY FLOODED AREAS **Regulations protect the functions and values of frequently flooded areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1)** WAC 365-196-830 provides: "'Protection' in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety." WAC 365-190-110 (updated in 2010) directs counties and cities to consider the following when designating and classifying frequently flooded areas: (a) Effects of flooding on human health and safety, and to public facilities and services; (b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in **RCW 36.70A.110**; (c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out; (d) The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change; (e) Greater surface runoff caused by increasing impervious surfaces.	Are frequently flooded areas designated and regulated using FEMA and Ecology guidance? ☑ Yes ☐ No ☐ N/A Location in Text: 16.26.040.D.2.

Classification of and regulations for frequently flooded areas should not conflict with the FEMA requirements for the National Flood Insurance Program (NFIP). See Ecology's Frequently Flooded areas: Critical Areas Ordinance webpage and 44 CFR 60. Communities that are located on Puget Sound or the Strait of San Juan de Fuca, or have lakes, rivers or streams that directly or indirectly drain to those water bodies, are subject to the NFIP Biological Opinion (BiOp) for Puget Sound. The biological opinion required changes to the implementation of the NFIP in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed. FEMA Region X has developed an implementation plan that allows communities to apply the performance standards contained in the Biological Opinion by implementing: 1) a model ordinance; 2) a programmatic Checklist; or 3) on a permit by permit basis as long as it can be demonstrated that there is no adverse effect to listed species. Communities have the option of utilizing their CAOs as part of a programmatic response to address the requirements of the biological opinion. FEMA must approve a community's biological opinion compliance strategy. Additional resources: **RCW 86.12** Flood Control by Counties **RCW 86.16** Floodplain Management **RCW 86.26** State Participation in Flood Control Maintenance **RCW 86.16.041** Floodplain Management Ordinance and Amendments WAC 173-158-070 Requirements for construction in Special Flood Hazard Areas	Are you utilizing your CAO as part of a programmatic response to the BiOp? ☑ Yes ☐ No ☐ N/A Location in Text: 16.26.030

DEFINITION OF GEOLOGICALLY HAZARDOUS AREAS **The definition of geologically hazardous areas is consistent with RCW 36.70A.030(14)** (updated 2012) and WAC 365-190-120(1). "Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.	Is the geologically hazardous areas definition consistent with RCW 36.70A.030(14)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.030

PROTECTION OF GEOLOGICALLY HAZARDOUS AREAS
Regulations protect the functions and values of geologically hazardous areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1) WAC 365-196-830 (2010) provides:" "Protection" in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety."
 	
Geologically hazardous areas are designated, and their use is regulated or limited consistent with public health and safety concerns. RCW 36.70A.030(14) provides a definition (updated in 2012) and WAC 365-190-120 describes the different types of hazardous areas (2010):
• Geologically hazardous areas include:
  • seismic hazards
  • tsunami hazards
  • landslide hazards
  • areas prone to erosion hazards
  • volcanic hazards
  • channel migration zones
  • areas subject to differential settlement from coal mines or other subterranean voids.
 	
The Department of Natural Resource's Washington Geological Survey *Geologic Hazards and the Environment* website includes information on earthquakes and faults, landslides, volcanoes and lahars, tsunamis, hazardous minerals, emergency preparedness, historic mines and includes geologic hazard maps that can be accessed from the Geologic Information Portal.
	Are uses in geologically hazardous areas designated and regulated or limited consistent with public health and safety?
	☑ Yes
	☐ No
	☐ N/A
	Location in Text:
	16.28.010

DEFINITION OF FISH AND WILDLIFE HABITAT AND CONSERVATION AREAS **The definition of fish and wildlife habitat conservation areas is consistent with RCW 36.70A.030(6)** (updated 2012) and WAC 365-190-030 (updated in 2015). The definition of fish and wildlife habitat conservation areas was amended to state that they do not include: "***such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company***".	Is the FWHCA definition consistent with RCW 36.70A.030(6)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.30.010

PROTECTION OF FISH AND WILDLIFE HABITAT AND CONSERVATION AREAS
Policies and regulations protect the functions and values of fish and wildlife habitat conservation areas. RCW 36.70A.172(1) and **RCW 36.70A.030(6)** (updated 2012).
WAC 365-190-130(4) says local jurisdictions should consult WDFW's Priority Habitat and Species webpage. BAS regarding biodiversity areas and corridors has advanced significantly since 2015. Recent updates and resources include:
• Aquatic Habitat Guidelines (2010, 2014)
• Priority Habitat and Species maps (updated daily)
• Priority Habitats and Species List (updated March 2022)
• Priority Habitats and Species: Management recommendations:
  • Landscape Planning for Washington's Wildlife (2009)
  • Land Use Planning for Salmon, Steelhead and Trout (2011)
  • Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications (2020)
  • Riparian Ecosystems, Volume 2: Management Recommendations (2020)
  • Shrub-Steppe Management Recommendations (2020)
  • Oregon White Oak Woodlands Ecosystems Management Recommendations (1998)
  • Management recommendations for Washington's Priority Species (by taxa)
• Puget Sound Kelp Conservation and Recovery Plan (2020)
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Areas "with a primary association with listed species" should be considered per WAC 365-190-130(2)(a). Consult WDFW's Threatened and Endangered Species list and U.S. Fish and Wildlife Service's Information for Planning and Consultation resources for up to date information on all state and federal listed species.
 	
Also see the Puget Sound Partnership's Salmon Recovery website for Water Resource Inventory Area (WRIA) Plans in Puget Sound.
	Have you reviewed your regulations regarding any applicable changes in management recommendations for priority habitats and species?
	☑ Yes
	☐ No
	☐ N/A
	Location in Text
	16.30.020
	
	Have you reviewed your regulations regarding any changes in species listings?
	☑ Yes
	☐ No
	☐ N/A
	Location in Text
	16.30.010

DESIGNATING AND PROTECTING WATERS OF THE STATE **RCW 90.48.020** defines waters of the state, which include all surface waters, salt waters, groundwater and all other water courses in Washington. WAC 365-190-130(2) (updated in 2010) recommends designating all waters of the state as fish and wildlife habitat conservation areas (FWHCAs). Stream types are classified in WAC 222-16-030 (updated in 2006) with field verification, or an alternate system that considers factors listed in WAC 365-190-130(4)(f)(iii). See http://www.dnr.wa.gov/forest-practices-water-typing to use Washington State Department of Natural Resources (DNR)'s stream typing system. Establish riparian management zones to maintain no net loss of riparian ecosystem functions and values. Designate areas that risk contaminating or harming shoreline resources including tidelands and bedland suitable for shellfish harvest, kelp and eelgrass beds and forage fish spawning areas.	Do you designate waters of the state as FWHCAs? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.130 Do your regulations protect waters of the state? ☑ Yes ☐ No ☐ N/A Location in Text: 16.24.060
ANADROMOUS FISHERIES **Policies and regulations for protecting critical areas give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. RCW 36.70A.172(1)** is the requirement and WAC 365-195-925 (updated in 2000) lists criteria involved. This requirement applies to all five types of critical areas. WAC 365-190-130(4)(i) recommends sources and methods for protecting fish and wildlife habitat conservation areas, including salmonid habitat. Counties and cities may use information prepared by the United States Department of the Interior Fish and Wildlife Service, National Marine Fisheries Service, the Washington State Department of Fish and Wildlife, the State Recreation and Conservation Office, and the Puget Sound Partnership to designate, protect and restore salmonid habitat. Counties and cities should consider recommendations found in the regional and watershed specific salmon recovery plans (see the Governor's Salmon Recovery Office webpage and the Puget Sound Partnership's Salmon Recovery webpage). Land Use Planning for Salmon, Steelhead and Trout: A land use planner's guide to salmonid habitat protection and recovery (October 2009) is an excellent resource.	Do your regulations give special consideration to anadromous fisheries? ☑ Yes ☐ No ☐ N/A Location in Text: 16.30.010

REASONABLE USE EXCEPTIONS **The Critical Areas Ordinance (CAO) allows for "reasonable use" if the CAO would otherwise deny all reasonable use of property.** Reasonable use provisions should limit intrusions into critical areas to the greatest extent possible and apply the mitigation sequence as needed for no net loss of ecosystem functions and values **RCW 36.70A.370** (1991). Common exemptions include emergencies, remodels that do not further extend into critical areas, surveying, walking, and development that has already been completed with critical areas review under a previous permit. See *Critical Areas Handbook, Chapter 3: Structuring Critical Areas Regulations, p.9 (Updated June, 2018).*	Do you have reasonable use provisions? ☑ Yes ☐ No Location in Text: 16.20.145
AGRICULTURAL ACTIVITIES (COUNTIES ONLY) **Non-VSP Counties** Critical areas regulations as they specifically apply to agricultural activities in counties or watersheds not participating in the Voluntary Stewardship Program (VSP) have been reviewed, and if needed, revised pursuant to **RCW 36.70A.130**. **RCW 36.70A.710(6)** "Agricultural activities" means all agricultural uses and practices as defined in **RCW 90.58.065.** **VSP Counties** After watershed work plan approval, VSP counties are encouraged to reference and describe their participation in the program within their critical areas development regulations (WAC 365-196-832). See Critical Areas Handbook, Chapter 5: Protecting Critical Areas in Natural Resource Lands (Updated June, 2018).	Did you review your regulations as they apply to agricultural activities? ☐ Yes ☐ No ☑ N/A Location in Text:
FOREST PRACTICES APPLICATION REGULATIONS ***If applicable*, regulations for forest practices have been adopted: RCW 36.70A.570** (adopted in 2007). **RCW 76.09.240**, amended in 2011, requires many counties over 100,000 in population, and the cities and towns within those counties to adopt regulations for forest practices. These are often included in clearing and grading ordinances.	Have you adopted forest practices regulations? ☑ Yes ☐ No ☐ N/A Location in Text: 16.28.030
GOOD IDEAS **Non-regulatory measures** to protect or enhance functions and values of critical areas may be used to complement regulatory methods. These may include: • public education • stewardship programs • pursuing grant opportunities • water conservation • joint planning with other jurisdictions and non-profit organizations • stream and wetland restoration activities • transfer of development rights	Are you using non-regulatory measures to protect critical areas? ☑ Yes ☐ No Location in Text: 16.30.020

Monitoring and adaptive management is encouraged in WAC 365-195-905(6) to improve implementation of your regulations. See Commerce's Monitoring and Adaptive Management chapter in the Critical Areas Handbook (June 2018).	Do you have a monitoring and adaptive management program for your CAO? ☑ Yes ☐ No Location in Text: 16.24.040 16.24.050 16.24.060 16.24.080

Critical Areas Checklist

A Technical Assistance Tool from Growth Management Services – updated November 2022

Name of city or county:	Bonney Lake
Staff contact, phone, and e-mail address:	
Russ Schaub, 253-447-3108, schaubr@cobl.wa	

INSTRUCTIONS

This checklist is intended to help local governments update their development regulations, pursuant to the schedule in **RCW 36.70A.130(5)** (updated in 2022). **We strongly encourage but do not require jurisdictions to complete the checklist and return it to Growth Management Services (GMS), along with their updates.** This checklist may be used by all jurisdictions, including those local governments planning for resource lands and critical areas only. For general information on update requirements, refer to A Guide to the Periodic Update Process Under the Growth Management Act – Fully Planning Counties & Cities, 2022 and Keeping your Comprehensive Plan and Development Regulations Current: A Guide to the Periodic Update Process under the Growth Management Act, August, 2016 and WAC 365-196-610 (updated in 2015).

Bold items are a GMA requirement or may be related requirements of other state or federal laws. Underlined items are links to Internet sites and may include best practices or other ideas to consider.

Commerce WAC provisions are advisory under Commerce's statutory mandate to provide technical assistance, **RCW 43.330.120** which states that the Department of Commerce "…***shall help local officials interpret and implement the different requirements of the act through workshops, model ordinances, and information materials.***" If you have questions, call GMS at (360) 725-3066.

Updates to Commerce WAC – Revisions to the Commerce WAC relating to critical areas have been provided in a table with dates of changes on the Growth Management Act Periodic Update web site. The table can be used with this checklist to determine what changes have been made since the last update of your critical areas regulations.

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Frequently Flooded Areas……5

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How to fill out the checklist Using the current version of your critical areas regulations, fill out each item in the checklist. Select the check box or type in text fields, answering the following question: **Is this item addressed in your current Critical Areas Ordinance (CAO)?** If YES, fill in the form with citation(s) to where in the plan or code the item is addressed. We recommend using citations rather than page numbers because they stay the same regardless of how the document is printed. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Growth Management Services Web page or contact one of the Commerce planners assigned to your region.	

CRITICAL AREAS Regulations protecting critical areas are required by **RCW 36.70A.060(2)** and **RCW 36.70A.172(1)**. WAC 365-195-900 through 925 provide guidelines**.** Guidance can also be found in Commerce's Critical Areas Handbook (Updated June, 2018); the Minimum Guidelines WAC 365-190-080 – 130; Best Available Science, Chapter 365-195 WAC; and Procedural Criteria, WAC 365-196-485 and WAC 365-196-830, and on Growth Management's Critical Areas webpage.	
Regulations required to protect critical areas	**Addressed in current plan or regulations? If yes, note where**
OVERALL REQUIREMENTS **The CAO includes best available science to clearly designate and protect all critical areas that might be found within the jurisdiction.** **1. Designation of Critical Areas** **RCW 36.70A.170(1)(d)** required all counties and cities to designate critical areas. **RCW 36.70A.170(2)** requires that counties and cities consider the Commerce Minimum Guidelines pursuant to RCW 36.70A.050. **RCW 36.70A.050** directed Commerce to adopt the Minimum Guidelines to classify critical areas. WAC 365-190-080 through 130 (updated in 2010) provide guidance on defining or "designating" each of the five critical areas. WAC 365-190-040 (updated in 2010) outlines the process to classify and designate natural resource lands and critical areas. **2. Definition of Critical Areas** **RCW 36.70A.030(6)** provides definitions for critical areas. Sections (6) regarding fish and wildlife habitat conservation areas; (14) regarding geologically hazardous areas; and (31) regarding wetlands were updated in 2010. WAC 365-190-030 (updated 2010) provides definitions in the Minimum Guidelines.	

3. Protection of Critical Areas **RCW 36.70A.060 (2)** required counties and cities to adopt development regulations that protect the critical areas required to be designated under **RCW 36.70A.170**. **RCW 36.70A.172(1)** requires the inclusion of best available science in developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-196-830 (updated 2017) provides guidance on protection of critical areas. **4. Inclusion of Best Available Science** **RCW 36.70A.172(1)** requires inclusion of the best available science (BAS). Chapter 365-195 WAC outlines recommended criteria for determining which information is the BAS, for obtaining the BAS, for including BAS in policies and regulations, for addressing inadequate scientific information, and for demonstrating "special consideration" to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-195-915 provides criteria for including BAS in the record. **5. No net loss** of critical area functions and values is a requirement for development regulations in WAC 365-196-830(4). If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm.	Was BAS documented in the record for the review and updates to the critical areas regulations? ☑ Yes ☐ No Location in Text: 16.20.045.A. Do your regulations address no net loss and require compensatory mitigation? ☑ Yes ☐ No Location in Text: 16.20.030 & 16.20.045.C.

WETLANDS DEFINITION **The definition of wetlands is consistent with RCW 36.70A.030(31)** (updated in 2012).	Is the wetland definition consistent with RCW 36.70A.030(21)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.030
WETLANDS DELINEATION **Wetlands are delineated using the approved federal wetland delineation manual and applicable regional supplements** in accordance with WAC 173-22-035 (updated in 2011).	Are wetlands delineated using the approved Federal Wetland Delineation

See Ecology's Wetland Delineation page and WAC 365-190-090 (updated in 2010) for additional assistance.	Manual and Regional Supplements? ☑ Yes ☐ No ☐ N/A Location in Text: 16.22.010
WETLANDS PROTECTION **Policies and regulations protect the functions and values of wetlands. RCW 36.70A.172(1)** Counties and cities are encouraged to make their actions consistent with the intent and goals of "protection of wetlands", Executive Order 89-10 as it existed on September 1, 1990. WAC 365-190-090(3) recommends using a wetlands rating system that evaluates the existing wetland functions and values to determine what functions must be protected. Ecology updated its recommended wetlands rating systems effective January 2015. For information on the rating system, including the July 2018 adjustments to ranges for habitat scores, see: • 2014 Updates to the Washington State Wetland Rating Systems • Washington State Wetland Rating System for Western Washington • Washington State Wetland Rating System for Eastern Washington For other resources and guidance on protecting wetlands, go to Ecology's Local Wetland Regulations: Growth Management Act technical assistance and see: • Wetland Guidance for Critical Areas Ordinance (CAO) Updates: Western and Eastern Washington (2022)	Do the regulations use a rating system to determine wetlands protection? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.020

CRITICAL AQUIFER RECHARGE AREAS **Policies and regulations protect the functions and values of critical aquifer recharge areas. RCW 36.70A.172(1).** **Policies and regulations protect the quality and quantity of groundwater used for public water supplies. RCW 36.70A.070(1)** and WAC 365-196-485(1)(d). The following references also relate to protection of groundwater resources: **RCW 90.44** – Regulation of Public Groundwaters **RCW 90.48** – Water Pollution Control **RCW 90.54** – Water Resources Act of 1971 **RCW 36.36.020** - Creation of aquifer protection area (1988) WAC 365-190-100 Critical Aquifer Recharge Areas (2010) WAC 173-100 Groundwater Management Areas and Programs (1988) WAC 173-200 Water Quality Standards for Groundwaters of the State of Washington (1990)	If groundwater is used for potable water, do regulations protect the quality and quantity of ground water? ☑ Yes ☐ No ☐ N/A Location in text: 15.13.080 16.24.040 16.24.070

WAC 365-196-735 Consideration of state and regional planning provisions (list) (2010) The Critical Aquifer Recharge Areas Guidance Document (updated 2021) provides information on protecting functions and values of critical aquifer recharge areas, best available science, how to work with state and local regulations and adaptive management. Also, consider the following: • Prohibiting or strictly regulating hazardous uses in critical aquifer recharge areas (CARAs) and designating and protecting wellhead areas. See Ecology's guidance on Critical Aquifer Recharge Areas. • Limiting impervious surfaces to reduce stormwater runoff, as required under Phase I and II municipal stormwater permits. Ecology's Stormwater Manual for Western Washington (updated in 2012) includes low impact development (LID) related definitions, requirements, and an LID performance standard. See Stormwater Management and Design Manuals on Ecology's web page. • For additional guidance on LID resources, see Commerce's Incentivizing low-impact development guidebook.	Are the critical aquifer recharge regulations consistent with current mapping of these critical areas? ☑ Yes ☐ No ☐ N/A Location in text: 16.24.030 16.24.040 16.24.060 15.13.060

FREQUENTLY FLOODED AREAS **Regulations protect the functions and values of frequently flooded areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1)** WAC 365-196-830 provides: "'Protection' in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety." WAC 365-190-110 (updated in 2010) directs counties and cities to consider the following when designating and classifying frequently flooded areas: (a) Effects of flooding on human health and safety, and to public facilities and services; (b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in **RCW 36.70A.110**; (c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out; (d) The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change; (e) Greater surface runoff caused by increasing impervious surfaces.	Are frequently flooded areas designated and regulated using FEMA and Ecology guidance? ☑ Yes ☐ No ☐ N/A Location in Text: 16.26.040.D.2.

Classification of and regulations for frequently flooded areas should not conflict with the FEMA requirements for the National Flood Insurance Program (NFIP). See Ecology's Frequently Flooded areas: Critical Areas Ordinance webpage and 44 CFR 60. Communities that are located on Puget Sound or the Strait of San Juan de Fuca, or have lakes, rivers or streams that directly or indirectly drain to those water bodies, are subject to the NFIP Biological Opinion (BiOp) for Puget Sound. The biological opinion required changes to the implementation of the NFIP in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed. FEMA Region X has developed an implementation plan that allows communities to apply the performance standards contained in the Biological Opinion by implementing: 1) a model ordinance; 2) a programmatic Checklist; or 3) on a permit by permit basis as long as it can be demonstrated that there is no adverse effect to listed species. Communities have the option of utilizing their CAOs as part of a programmatic response to address the requirements of the biological opinion. FEMA must approve a community's biological opinion compliance strategy. Additional resources: **RCW 86.12** Flood Control by Counties **RCW 86.16** Floodplain Management **RCW 86.26** State Participation in Flood Control Maintenance **RCW 86.16.041** Floodplain Management Ordinance and Amendments WAC 173-158-070 Requirements for construction in Special Flood Hazard Areas	Are you utilizing your CAO as part of a programmatic response to the BiOp? ☑ Yes ☐ No ☐ N/A Location in Text: 16.26.030

DEFINITION OF GEOLOGICALLY HAZARDOUS AREAS **The definition of geologically hazardous areas is consistent with RCW 36.70A.030(14)** (updated 2012) and WAC 365-190-120(1). "Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.	Is the geologically hazardous areas definition consistent with RCW 36.70A.030(14)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.030

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	Are uses in geologically hazardous areas designated and regulated or limited consistent with public health and safety?
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DEFINITION OF FISH AND WILDLIFE HABITAT AND CONSERVATION AREAS **The definition of fish and wildlife habitat conservation areas is consistent with RCW 36.70A.030(6)** (updated 2012) and WAC 365-190-030 (updated in 2015). The definition of fish and wildlife habitat conservation areas was amended to state that they do not include: "***such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company*".**	Is the FWHCA definition consistent with RCW 36.70A.030(6)? ☑ Yes ☐ No ☐ N/A Location in Text: 16.30.010

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Also see the Puget Sound Partnership's Salmon Recovery website for Water Resource Inventory Area (WRIA) Plans in Puget Sound.
	Have you reviewed your regulations regarding any applicable changes in management recommendations for priority habitats and species?
	☑ Yes
	☐ No
	☐ N/A
	Location in Text
	16.30.020
	
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DESIGNATING AND PROTECTING WATERS OF THE STATE **RCW 90.48.020** defines waters of the state, which include all surface waters, salt waters, groundwater and all other water courses in Washington. WAC 365-190-130(2) (updated in 2010) recommends designating all waters of the state as fish and wildlife habitat conservation areas (FWHCAs). Stream types are classified in WAC 222-16-030 (updated in 2006) with field verification, or an alternate system that considers factors listed in WAC 365-190-130(4)(f)(iii). See http://www.dnr.wa.gov/forest-practices-water-typing to use Washington State Department of Natural Resources (DNR)'s stream typing system. Establish riparian management zones to maintain no net loss of riparian ecosystem functions and values. Designate areas that risk contaminating or harming shoreline resources including tidelands and bedland suitable for shellfish harvest, kelp and eelgrass beds and forage fish spawning areas.	Do you designate waters of the state as FWHCAs? ☑ Yes ☐ No ☐ N/A Location in Text: 16.20.130 Do your regulations protect waters of the state? ☑ Yes ☐ No ☐ N/A Location in Text: 16.24.060
ANADROMOUS FISHERIES **Policies and regulations for protecting critical areas give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. RCW 36.70A.172(1)** is the requirement and WAC 365-195-925 (updated in 2000) lists criteria involved. This requirement applies to all five types of critical areas. WAC 365-190-130(4)(i) recommends sources and methods for protecting fish and wildlife habitat conservation areas, including salmonid habitat. Counties and cities may use information prepared by the United States Department of the Interior Fish and Wildlife Service, National Marine Fisheries Service, the Washington State Department of Fish and Wildlife, the State Recreation and Conservation Office, and the Puget Sound Partnership to designate, protect and restore salmonid habitat. Counties and cities should consider recommendations found in the regional and watershed specific salmon recovery plans (see the Governor's Salmon Recovery Office webpage and the Puget Sound Partnership's Salmon Recovery webpage). Land Use Planning for Salmon, Steelhead and Trout: A land use planner's guide to salmonid habitat protection and recovery (October 2009) is an excellent resource.	Do your regulations give special consideration to anadromous fisheries? ☑ Yes ☐ No ☐ N/A Location in Text: 16.30.010

REASONABLE USE EXCEPTIONS **The Critical Areas Ordinance (CAO) allows for "reasonable use" if the CAO would otherwise deny all reasonable use of property.** Reasonable use provisions should limit intrusions into critical areas to the greatest extent possible and apply the mitigation sequence as needed for no net loss of ecosystem functions and values **RCW 36.70A.370** (1991). Common exemptions include emergencies, remodels that do not further extend into critical areas, surveying, walking, and development that has already been completed with critical areas review under a previous permit. See *Critical Areas Handbook, Chapter 3: Structuring Critical Areas Regulations, p.9 (Updated June, 2018).*	Do you have reasonable use provisions? ☑ Yes ☐ No Location in Text: 16.20.145
AGRICULTURAL ACTIVITIES (COUNTIES ONLY) **Non-VSP Counties** Critical areas regulations as they specifically apply to agricultural activities in counties or watersheds not participating in the Voluntary Stewardship Program (VSP) have been reviewed, and if needed, revised pursuant to **RCW 36.70A.130**. **RCW 36.70A.710(6)** "Agricultural activities" means all agricultural uses and practices as defined in **RCW 90.58.065.** **VSP Counties** After watershed work plan approval, VSP counties are encouraged to reference and describe their participation in the program within their critical areas development regulations (WAC 365-196-832). See Critical Areas Handbook, Chapter 5: Protecting Critical Areas in Natural Resource Lands (Updated June, 2018).	Did you review your regulations as they apply to agricultural activities? ☐ Yes ☐ No ☑ N/A Location in Text:
FOREST PRACTICES APPLICATION REGULATIONS ***If applicable*, regulations for forest practices have been adopted: RCW 36.70A.570** (adopted in 2007). **RCW 76.09.240**, amended in 2011, requires many counties over 100,000 in population, and the cities and towns within those counties to adopt regulations for forest practices. These are often included in clearing and grading ordinances.	Have you adopted forest practices regulations? ☑ Yes ☐ No ☐ N/A Location in Text: 16.28.030
GOOD IDEAS **Non-regulatory measures** to protect or enhance functions and values of critical areas may be used to complement regulatory methods. These may include: • public education • stewardship programs • pursuing grant opportunities • water conservation • joint planning with other jurisdictions and non-profit organizations • stream and wetland restoration activities • transfer of development rights	Are you using non-regulatory measures to protect critical areas? ☑ Yes ☐ No Location in Text: 16.30.020

Monitoring and adaptive management is encouraged in WAC 365-195-905(6) to improve implementation of your regulations. See Commerce's Monitoring and Adaptive Management chapter in the Critical Areas Handbook (June 2018).	Do you have a monitoring and adaptive management program for your CAO? ☑ Yes ☐ No Location in Text: 16.24.040 16.24.050 16.24.060 16.24.080

Attachment F

Department of Commerce

Periodic Update Checklist for Fully-Planning Cities – Section II

Expanded Housing Element Checklist – Section II

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printing purposes.

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

Periodic Update Checklist for Fully-Planning Cities

City of Bonney Lake
City

Lauren Balisky, Development Services Manager

253-447-4347, baliskyl@bonneylake.gov
Staff contact, phone + email

Notice: This checklist has been updated with the new 2024 GMA legislation. *Rows* that include new 2023 and 2024 legislative changes or updated Commerce guidance are shown in light orange , and all statutory changes adopted since 2015 are emphasized in highlighted *text* to help identify new GMA requirements that may not have been addressed during the last periodic update or through other amendments outside of the required periodic update process. Additionally, amendments to the GMA are summarized in this document on Commerce's GMA Laws and Rules webpage.

Overview: This checklist is intended to help cities that are fully planning under the Growth Management Act (GMA) conduct the "periodic review and update" of ***comprehensive plans*** and ***development regulations*** required under RCW 36.70A.130 (5). This checklist identifies components of comprehensive plans and development regulations that may need updating to reflect the latest local conditions or to comply with GMA changes since the last periodic update cycle (2015-2018).

Local governments should review local comprehensive plan policies, countywide planning policies and multicounty planning policies (where applicable) to be consistent with the new requirements.

Checklist Instructions

Please use the most recent versions of your comprehensive plan and development regulations to fill out each item in the checklist and answer the following questions:

Is this item addressed in your current plan or development regulations? If YES, fill in the form with citation(s) to where in the plan or regulation the item is addressed. Where possible, we recommend citing policy or goal numbers by element rather than page numbers, since these can change. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Periodic Update webpage or contact the Commerce planner assigned to your region.

Is amendment needed to meet current statute? Check YES to indicate a change to your plan will be needed. Check NO to indicate that the GMA requirement has already been met. Local updates may not be needed if the statute hasn't changed since your previous update, if your jurisdiction has kept current with required inventories, or if there haven't been many changes in local circumstances.

Use the "Notes" column to add additional information to note where your city may elect to work on or amend sections of your plan or development regulations, to call out sections that are not strictly required by the GMA, or to indicate if the item is not applicable to your jurisdiction.

Submit your checklist! This will be the first deliverable under your periodic update grant.

PlanView system and instructions: Completed checklists can be submitted through Commerce's PlanView portal. The PlanView system allows cities and counties to submit and track amendments to comprehensive plans or development regulations online, with or without a user account. You can also submit via email: reviewteam@commerce.wa.gov Fill out and attach a cover sheet, a copy of your submittal and this checklist. *Please be advised that Commerce is no longer accepting paper submittals.*

For further information about the submittal process, please visit Commerce's Growth Management Act Laws and Rules webpage.

Need help?

Please visit Commerce's periodic update webpage for additional resources.

Or contact:

Suzanne Austin, AICP
Senior Planner
Growth Management Services
WA Department of Commerce
509.407.7955
Suzanne.Austin@commerce.wa.gov

Or, your assigned regional planner

Checklist Navigation		
Section I: Comprehensive Plan	Section II: Development Regulations	Appendices
LAND USE	CRITICAL AREAS	APPENDIX A: HOUSING UNIT MINIMUMS PER POPULATION
HOUSING	ZONING CODE	APPENDIX B: ELEMENT UPDATES UNDER HB 1181
CAPITAL FACILITIES	SHORELINE MASTER PROGRAM	
UTILITIES	RESOURCE LANDS	
TRANSPORTATION	ESSENTIAL PUBLIC FACILITIES	
SHORELINE	SUBDIVISION CODE	
ESSENTIAL PUBLIC FACILITIES	STORMWATER	
TRIBAL PLANNING	ORGANIC MATERIALS MANAGEMENT	
CLIMATE CHANGE & RESILIENCY	IMPACT FEES	
ECONOMIC DEVELOPMENT	CONCURRENCY & TDM	
PARKS & RECREATION	TRIBAL PARTICIPATION	
OPTIONAL ELEMENTS	REGULATIONS FOR OPTIONAL ELEMENTS	
CONSISTENCY	PROJECT REVIEW PROCEDURES	
PUBLIC PARTICIPATION	PLAN & REGULATION AMENDMENTS	

Section II: Development Regulations

Must be consistent with and implement the comprehensive plan. RCW 36.70A.040, WAC 365-196-800 and 810

Critical Areas

Regulations protecting critical areas are required by RCW 36.70A.060(2), RCW 36.70A.172(1), WAC 365-190-080 and WAC 365-195-900 through 925.

Please visit Commerce's **Critical Areas webpage** for resources and to complete the **Critical Areas Checklist**. Critical areas regulations must be reviewed and updated, as necessary, to incorporate legislative changes and best available science. Jurisdictions using periodic update grant funds to update critical areas regulations must submit the critical areas checklist as a first deliverable, in addition to this periodic update checklist.

Zoning Code

Note: Please review the new 2023 housing laws in the Washington State Housing Laws of 2019 through 2023 guidance, on Commerce's Planning for Housing webpage and Appendix A of this checklist.

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Notice: For more information about housing regulatory changes regarding supportive housing types, see Supportive Housing Types Review Checklist on the Updating GMA Housing Elements webpage. And for additional information on middle housing and ADU regulations, see the Middle Housing webpage.				
a. Zoning designations are consistent and implement land use designations that accommodate future housing needs by income bracket as allocated through the countywide planning process. (RCW 36.70A.070(2)(c) - amended in 2021 (HB 1220) Note: Zoning must reflect sufficient land capacity for all income housing needs, including emergency housing and permanent supportive housing.	Yes. Chapters 18.08 – 18.30 BLMC.	Yes.	Zoning designations are part of the development code update associated with the Comprehensive Plan update.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
b. Permanent supportive housing or transitional housing must be allowed where residences and hotels are allowed. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "permanent supportive housing" is defined in RCW 36.70A.030; "transitional housing" is defined in RCW 84.36.043(2)(c)	Yes. BLMC 18.08.040.	No.		Completed: ☐ Date:
c. Indoor emergency shelters and indoor emergency housing must be allowed in any zones in which hotels are allowed, except in cities that have adopted an ordinance authorizing indoor emergency shelters and indoor emergency housing in a majority of zones within one-mile of transit. Indoor emergency housing must be allowed in areas with hotels. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) Any limitations on emergency housing and emergency shelter must be connected to public health and safety and allow the siting of a sufficient number of units and beds necessary to meet projected needs (see Housing Element Book 2, pages 41-48), new in 2023 "emergency housing" is defined in RCW 36.70A.030	No.	Yes.	BLMC 18.08.050 is proposed as part of the development code update and will be updated with the Comprehensive Plan update.	Completed: ☐ Date:
d. The number of unrelated persons that occupy a household or dwelling unit except as provided in state law, for short-term rentals, or occupant load per square foot shall not be regulated or limited by cities. (HB 5235), RCW 35.21.682 new in 2021, RCW 35A.21.314 new in 2022, RCW 36.01.227 new in 2021	Yes.	No.	City of Bonney Lake has never had regulations limiting the amount of unrelated persons within a household or dwelling unit beyond that of the occupant load.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. Limitations on the amount of parking local governments can require for low-income, senior, disabled and market-rate housing units located near high-quality transit service. RCW 36.70A.620 amended in 2020 and RCW 36.70A.600 amended in 2019	No.	No.	The City of Bonney Lake does not have public transit.	Completed: ☐ Date:
f. Parking requirements must allow tandem, gravel or grass pavers, and new spaces must be at least 8 by 20 feet in size. Existing and non-conforming parking must be allowed to meet parking requirements for up to six spaces. SB 6015, new in 2024, must be addressed with the periodic update. Note: guidance coming fall 2024	No.	Yes.	The City does not currently have parking standards for residential zoning districts. Changes proposed to BLMC 18.31.010 to address residential parking in other zoning districts where housing is permitted.	Completed: ☐ Date:
g. Family day care providers are allowed in all residential dwellings located in areas zoned for residential or commercial RCW 36.70A.450. Review RCW 43.216.010 for definition of family day care provider and WAC 365-196-865 for more information.	Yes.	No.	Minor updates made for consistency with state law.	Completed: ☐ Date:
h. Manufactured housing is regulated the same as site built housing. RCW 35.21.684 amended in 2019, RCW 35.63.160, RCW 35A.21.312 amended in 2019 and RCW 36.01.225 amended in 2019. A local government may require that manufactured homes: (1) are new, (2) are set on a permanent foundation, and (3) comply with local design standards applicable to other homes in the neighborhood, but may not discriminate against consumer choice in housing. See: National Manufactured Housing Construction and Safety Standards Act of 1974	Yes. BLMC 18.08.020, and Chapter 15.08 BLMC.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
i. Accessory dwelling units (ADUs): cities (and counties) must adopt or amend by ordinance, and incorporate into their development regulations, zoning regulations and other official controls. RCW 36.70A.680 amended in 2023, RCW 36.70A.681 amended in 2023, RCW 36.70A.696 amended in 2023, RCW 36.70A.697 amended in 2020, RCW 36.70A.698 amended in 2020, RCW 36.70A.699 amended in 2020 **Must be adopted by 6 months after the periodic update deadline, or be superseded by state law.** Note: see new Commerce ADU guidance and ADU checklist.	Yes. BLMC 18.22.090.	No.	Updated previously under Ord. 1737.	Completed: ☐ Date:
j. Middle housing: if your jurisdiction is one of the 77 cities subject to middle housing, regulations must allow the appropriate amount of middle housing units on a lot by 6 months after the periodic update deadline, or be superseded by state law. RCW 36.70A.635 See Commerce's model ordinances and user guide on the middle housing web page.	N/A	N/A	The City of Bonney Lake is not subject to this requirement; however, various middle housing types are permitted (duplexes, triplexes, townhouses).	Completed: ☐ Date:
k. Co-living must be allowed as a permitted use on any lot located within an urban growth area that allows at least six multifamily residential units, including on a lot zoned for mixed use development. HB 1998, new in 2024, contains specific standards for size, density calculations, connection fees and parking. **Must be adopted by December 31, 2025** Note: guidance will be available fall of 2024	No.	Yes.	Provisions for co-living housing are added throughout the development code update: • Updated provisions for water, sewer, and stormwater utility. • Added definition for co-living housing in BLMC 18.04.030 and referenced to it from utility regulations. • Added co-living as a permitted use in all zones that allow 6 du/acre in BLMC 18.08.020. • Updated density allowances in R-3 and DM. C-2 references to R-3 for density standards. DC does not have a density limitation.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
l. Residential structures occupied by persons with handicaps, and group care for children that meets the definition of "familial status" are regulated the same as a similar residential structure occupied by a family or other unrelated individuals. No city or county planning under the GMA may enact or maintain ordinances, development regulations, or administrative practices which treat a residential structure occupied by persons with handicaps differently than a similar residential structure occupied by a family or other unrelated individuals. RCW 36.70A.410, RCW 70.128.140 and 150, RCW 49.60.222-225 and WAC 365-196-860	No.	No.	No definition or regulations are within the development code that restricts persons with handicaps, and group care of children.	Completed: ☐ Date:
m. Affordable housing programs enacted or expanded under RCW 36.70A.540 amended in 2022 comply with the requirements of this section. Examples of such programs may include: density bonuses within urban growth areas, height and bulk bonuses, fee waivers or exemptions, parking reductions, expedited permitting conditioned on provision of low-income housing units, or mixed-use projects. WAC 365-196-300 See also RCW 36.70A.545 and WAC 365-196-410(2)(e)(i) "affordable housing" is defined in RCW 84.14.010 new in 2024 (ESSB 6175) Review RCW 36.70A.620 amended in 2020, for minimum residential parking requirements.	No.	No.	Density bonus for units affordable to very low-income and extremely low-income units added to the R-3 zone, along with ability to use existing affordable housing sales tax fund to offset transportation and park impact fees. See proposed amendments to BLMC 18.18.050, 19.04.060, and 19.06.060.	Completed: ☐ Date:
n. Limitations on regulating: outdoor encampments, safe parking efforts, indoor overnight shelters and temporary small houses on property owned or controlled by a religious organization. RCW 35.21.915, amended in 2020	No.	Yes.	Provisions for temporary emergency housing are added throughout the development code update, including definitions in Chapter 18.04 BLMC and added requirements in proposed BLMC 18.08.050.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
o. Allow an increased density bonus consistent with local needs for any affordable housing development of any single-family or multi-family residence located on real property owned or controlled by a religious organization. RCW 36.70A.545, amended in 2019 (HB 1377).	No.	Yes.	BLMC 18.08.050 is proposed as part of the development code update and will be updated with the Comprehensive Plan update.	Completed: ☐ Date:
p. Reduce restrictions for additional housing units within existing commercial, mixed-use and multi-family buildings by exempting the added units from density limits, parking and other regulatory requirements. RCW 35A.21.440, new in 2023 and RCW 35.21.990, new in 2023, (HB 1042) Note: These requirements must be in effect within six months after the periodic update due date.	No.	Yes.	Yes; see proposed updates to BLMC 18.31.010.	Completed: ☐ Date:
q. Must not adopt, impose, or enforce requirements on an affordable housing development that are different than the requirements imposed on housing developments generally. RCW 36.130.020 (2008) Note: This applies to cities, counties, other local government entities and agencies.	Yes; not specifically addressed.	No.	Affordable housing units are treated the same as other housing units, except as required or permitted in state law.	Completed: ☐ Date:
r. Regulations discourage incompatible uses around general aviation airports. RCW 36.70.547 and WAC 365-196-455. Incompatible uses include: high population intensity uses such as schools, community centers, tall structures, and hazardous wildlife attractants such as solid waste disposal sites, wastewater or stormwater treatment facilities, or stockyards. For more guidance, see WSDOT's Aviation Land Use Compatibility Program.	No.	N/A	This does not apply to the City of Bonney Lake. There are no airports within or adjacent to the City.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
s. If a U.S. Department of Defense (DoD) military base employing 100 or more personnel is within or adjacent to the jurisdiction, zoning should discourage the siting of incompatible uses adjacent to military base. RCW 36.70A.530(3) and WAC 365-196-475. Visit Military One Source to locate any bases in your area and help make determination of applicability. If applicable, inform the commander of the base regarding amendments to the comprehensive plan and development regulations on lands adjacent to the base.	No.	N/A	This does not apply to the City of Bonney Lake. There are no military bases within or adjacent to the City.	Completed: ☐ Date:
t. Electric vehicle infrastructure (jurisdiction specified: adjacent to Interstates 5, 90, 405 or state route 520 and other criteria) must be allowed as a use in all areas except those zoned for residential, resource use or critical areas. RCW 36.70A.695	Yes. Chapter 18.40 BLMC.	N/A	The City currently allows for and requires electric vehicle charging stations as otherwise required by state law for new construction.	Completed: ☐ Date:
Shoreline Master Program Consistent with RCW 90.58 Shoreline Management Act of 1971				
a. Zoning designations are consistent with Shoreline Master Program (SMP) environmental designations. RCW 36.70A.480	Yes. Chapter 16.38 BLMC (existing).	No.		Completed: ☐ Date:
b. If updated to meet RCW 36.70A.480 (2010), SMP regulations provide protection to critical areas in shorelines that is at least equal to the protection provided to critical areas by the critical areas ordinance. RCW 36.70A.480(4) and RCW 90.58.090(4) See Ecology's shoreline planners' toolbox for the SMP Checklist and other resources and Ecology's Shoreline Master Programs Handbook webpage	Yes.	No.	The City of Bonney Lake applies the current CAO to those areas within the Shoreline jurisdiction and are equal to the protections outside of the shoreline jurisdiction.	Completed: ☐ Date:

Resource Lands

Defined in RCW 36.70A.030(3), (12) and (17) and consistent with RCW 36.70A.060 and RCW 36.70A.170

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Zoning is consistent with natural resource lands designations in the comprehensive plan and conserves natural resource lands. RCW 36.70A.060(3), WAC 365-196-815 and WAC 365-190-020(6). Consider innovative zoning techniques to conserve agricultural lands of long-term significance RCW 36.70A.177(2). See also WAC 365-196-815(3) for examples of innovative zoning techniques.	No.	No.	The City of Bonney Lake does not contain any natural resource land.	Completed: ☐ Date:
b. Regulations to assure that use of lands adjacent to natural resource lands does not interfere with natural resource production. RCW 36.70A.060(1)(a) and WAC 365-190-040 Regulations require notice on all development permits and plats within 500 feet of designated natural resource lands that the property is within or near a designated natural resource land on which a variety of commercial activities may occur that are regulations to implement comprehensive plan	No.	No.	The City of Bonney Lake does not contain any natural resource land.	Completed: ☐ Date:
c. For designated agricultural land, regulations encourage nonagricultural uses to be limited to lands with poor soils or otherwise not suitable for agricultural purposes. Accessory uses should be located, designed and operated to support the continuation of agricultural uses. RCW 36.70A.177(3)(b)	No.	No.	The City of Bonney Lake does not contain any agricultural land.	Completed: ☐ Date:
d. Designate mineral lands and associated regulations as required by RCW 36.70A.131and WAC 365-190-040(5). For more information review the WA State Dept. of Natural Resources (DNR)'s Geology Division site	No.	No.	The City of Bonney Lake does not contain any mineral lands.	Completed: ☐ Date:

Siting Essential Public Facilities

Regulations for siting essential public facilities should be consistent with RCW 36.70A.200 and consider WAC 365-196-550. Essential public facilities include those facilities that are typically difficult to site, such as airports, state education facilities, state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities. Regulations may be specific to a local jurisdiction, but may be part of county-wide planning policies (CWPPs).

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Regulations for CWPPs include a process for siting EPFs and ensure EPFs are not precluded. RCW 36.70A.200 amended in 2023, WAC 365-196-550(6) lists process for siting EPFs. WAC 365-196-550(3) details preclusions. EPFs should be located outside of known hazardous areas. Visit Commerce's Behavioral Health Facilities Program page for information on establishing or expanding new capacity for behavioral health EPFs. Note: RCW 36.70A.200 amended by SB 5536 to include EPFs for opioid treatment programs	Yes. BLMC 14.80.030.	No.		Completed: ☐ Date:

Subdivision Code

a. Subdivision regulations are consistent with and implement comprehensive plan policies. RCW 36.70A.030(8), RCW 36.70A.040(4)	Yes. Title 17 BLMC.	No.		Completed: ☐ Date:
b. Written findings to approve subdivisions establish adequacy of public facilities. RCW 58.17.110 amended in 2018 • Streets or roads, sidewalks, alleys, other public ways, transit stops, and other features that assure safe walking conditions for students. • Potable water supplies, sanitary wastes, and drainage ways. RCW 36.70A.590 amended 2018 • Open spaces, parks and recreation, and playgrounds • Schools and school grounds Other items related to the public health, safety and general welfare, WAC 365-196-820(1).	Yes. BLMC 17.20.020 and Chapter 17.50 BLMC.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Preliminary subdivision approvals under RCW 58.17.140 and RCW 58.17.170 are valid for a period of five or seven years (previously five years). Note: preliminary plat approval is valid for: seven years if the date of preliminary plat approval is on or before December 31, 2014; five years if the preliminary plat approval is issued on or after January 1, 2015; and ten years if the project is located within city limits, not subject to the shoreline management act, and the preliminary plat is approved on or before December 31, 2007.	Yes. BLMC 14.10.100(B).	No.		Completed: ☐ Date:
d. Include in short plat regulations procedures for unit lot subdivisions allowing division of a parent lot into separately owned unit lots. RCW 58.17.060 (3) new in 2023 by SB 5258 - section 11	No.	Yes.	Added language throughout BLMC to address unit lot subdivisions.	Completed: ☐ Date:

Stormwater				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Regulations protect water quality and implement actions to mitigate or cleanse drainage, flooding, and storm water run-off that pollute waters of the state, including Puget Sound or waters entering Puget Sound. RCW 36.70A.070(1) Regulations may include: adoption of a stormwater manual consistent with Ecology's latest manual for Eastern or Western Washington, adoption of a clearing and grading ordinance –See Commerce's 2005 Technical Guidance Document for Clearing and Grading in Western Washington. Adoption of a low impact development ordinance. See Puget Sound Partnership's 2012 Low Impact Development guidance and Ecology's 2013 Eastern Washington Low Impact Development guidance. Additional Resources: Federal Grants to Protect Puget Sound Watersheds, Building Cities in the Rain, Ecology Stormwater Manuals, Puget Sound Partnership Action Agenda	Yes. Chapter 15.13 BLMC.	No.		Completed: ☐ Date:
b. Provisions for corrective action for failing septic systems that pollute waters of the state. RCW 36.70A.070(1). See also: DOH Wastewater Management, Ecology On-Site Sewage System Projects & Funding	Yes. Chapter 13.12 BLMC.	No.		Completed: ☐ Date:

Organic Materials Management Facilities

New in 2022, HB 1799 added a section to the GMA aimed at reducing the volumes of organic materials collected in conjunction with other solid waste and delivered to landfills, supporting productive uses of organic material waste and reduction of methane gas (a greenhouse gas).

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
New section RCW 36.70A.142; new in 2022 legislation HB 1799: Development regulations newly developed, updated, or amended *after January 1, 2025* allow for the siting of organic materials (OM) management facilities as identified in local solid waste management plans (SWMP) to meet OM reduction and diversion goals. Siting to meet criteria described in RCW 70A.205.040(3) See also RCW 36.70.330. For applicability, see RCW 70A.205.540	No.	N/A	New solid waste handling facilities may be sited as an Essential Public Facility.	Completed: ☐ Date:

Impact Fees

May impose impact fees on development activity as part of the financing for public facilities, provided that the financing for system improvements to serve new development must provide for a balance between impact fees and other sources of public funds; cannot rely solely on impact fees.

a. If adopted, impact fees are applied consistent with RCW 82.02.050 amended in 2015, RCW 82.02.060 amended in 2023 by SB 5258, .070, .080, .090 amended in 2018 and .100. WAC 365-196-850 provides guidance on how impact fees should be implemented and spent.	Yes. Title 19 BLMC.	No.	Some updates to the Title 19 Concurrency Management are included in the Development Regulations update as part of the Comprehensive Plan update for certain affordable housing units. The City is in the process of updating its transportation and park impact fees but is currently compliant.	Completed: ☐ Date:
b. Jurisdictions collecting impact fees must adopt and maintain a system for the deferred collection of impact fees for single-family detached and attached residential construction, consistent with RCW 82.02.050(3) amended in 2016	Yes. Title 19 BLMC.	No.		Completed: ☐ Date:
c. If adopted, limitations on impact fees for early learning facilities. RCW 82.02.060 amended in 2021	Yes. Title 19 BLMC.	No.	Early learning facilities are not treated differently from other commercial developments.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
d. If adopted, exemption of impact fees for low-income and emergency housing development. RCW 82.02.060 amended in 2023. See also definition change in RCW 82.02.090(1)(b) amended in 2018	**No.**	No.	Units affordable to very low-income and extremely low-income units may use existing affordable housing sales tax fund to offset transportation and park impact fees. See proposed amendments to BLMC 19.04.060 and 19.06.060.	Completed: ☐ Date:
e. Ensure impact fees are not assessed on the construction of accessory dwelling units that are greater than 50 percent (50%) of the impact fees that would be imposed on the principal unit. RCW 36.70A.681 new in 2023 by HB 1337	Yes. BLMC 19.04.060.G, 19.06.060.G, and 19.08.120.	No.	Updated previously under Ord. 1737.	Completed: ☐ Date:
f. The schedule of impact fees reflects the proportionate impact of new housing units, including multifamily and condominium units, based on the square footage, number of bedrooms, or trips generated, in the housing unit in order to produce a proportionally lower impact fee for smaller housing units. RCW 82.02.060 amended in 2023 by SB 5258	No.	Yes.	Separate code amendment in progress. Draft fee study for parks impact fee has been completed.	Completed: ☐ Date:
Concurrency and Transportation Demand Management (TDM) Ensures consistency in land use approval and the development of adequate public facilities as plans are implemented, maximizes the efficiency of existing transportation systems, limits the impacts of traffic and reduces pollution.				
a. The transportation concurrency requirement includes specific language that prohibits development when level of service standards for transportation facilities cannot be met. RCW 36.70A.070(6)(b) amended in 2023, WAC 365-196-840. Note: Concurrency is required for transportation, but may also be applied to park facilities, etc.	Yes. Chapter 19.20.070.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
b. Measures exist to bring into compliance locally owned, or locally or regionally operated, transportation facilities or services that are below the levels of service established in the comprehensive plan. RCW 36.70A.070(6)(a)(iii)(B) and (D), RCW 36.70A.070(6)(b) amended in 2023 Levels of service can be established for automobiles, pedestrians and bicycles. See WAC 365-196-840(3) on establishing an appropriate level of service.	Yes. BLMC 19.02.060.	No.		Completed: ☐ Date:
c. Highways of statewide significance (HSS) are exempt from the concurrency ordinance. RCW 36.70A.070(6)(a)(iii)(C)	Yes. Chapter 19.20.040.	No.		Completed: ☐ Date:
d. Traffic demand management (TDM) requirements are consistent with the comprehensive plan. RCW 36.70A.070(6)(a)(vi) Examples may include requiring new development to be oriented towards transit streets, pedestrian-oriented site and building design, and requiring bicycle and pedestrian connections to street and trail networks. WAC 365-196-840(4) recommends adopting methodologies that analyze the transportation system from a comprehensive, multimodal perspective.	Yes. Chapter 19.20.070.	No.		Completed: ☐ Date:
e. If required by RCW 82.70, a commute trip reduction (CTR) ordinance to achieve reductions in the proportion of single-occupant vehicle commute trips has been adopted. The ordinance should be consistent with comprehensive plan policies for CTR and Department of Transportation rules.	No.	No.		Completed: ☐ Date:

Tribal Participation in Planning new in 2022 (see HB 1717) A federally recognized Indian tribe may voluntarily choose to participate in the county or regional planning process. See Commerce's new Tribal Planning Coordination for GMA webpage for guidance and staff contacts.				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Mutually agreeable memorandum of agreement between local governments and tribes in regard to collaboration and participation in the planning process unless otherwise agreed at the end of a mediation period. RCW 36.70A.040(8)(a) new in 2022.	No.	No.	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:
b. Policies consistent with countywide planning policies that address the protection of tribal cultural resources in collaboration with federally recognized Indian tribes that are invited, provided that a tribe, or more than one tribe, chooses to participate in the process. RCW 36.70A.210(3)(i) new in 2022.	No.	No.	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:
Regulations to Implement Optional Elements				
a. New fully contained communities are consistent with comprehensive plan policies, RCW 36.70A.350 and WAC 365-196-345	No.	No.	Not applicable.	Completed: ☐ Date:
b. If applicable, master planned resorts are consistent with comprehensive plan policies, RCW 36.70A.360, RCW 36.70A.362 and WAC 365-196-460	No.	No.	Not applicable.	Completed: ☐ Date:
c. If applicable, major industrial developments and master planned locations outside of UGAs are consistent with comprehensive plan policies, RCW 36.70A.365, RCW 36.70A.367 and WAC 365-196-465	No.	No.	Not applicable.	Completed: ☐ Date:
d. Regulations include procedures to identify, preserve, and/or monitor historical or archaeological resources. RCW 36.70A.020(13), WAC 365-196-450	No.	No.	Not applicable.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. Other development regulations needed to implement comprehensive plan policies such as energy, sustainability or design are adopted. WAC 365-196-445	No.	No.	Not applicable.	Completed: ☐ Date:
f. Design guidelines for new development are clear and easy to understand; administration procedures are clear and defensible	Yes.	Yes.	Chapter 14.95 BLMC is updated for clarity purposes within the Development Regulation update.	Completed: ☐ Date:
g. Local design review includes one or more ascertainable guideline, standard or criterion by which an applicant can determine whether a given building design is permissible under that development regulation. May not result in a reduction in density, height, bulk or scale below the generally applicable development regulations for a development proposal in the applicable zone. RCW 36.70A.630 new in 2023 by HB 1293	Yes, throughout Title 18 BLMC associated with each zone. Separate set of design standards for downtown core and mixed-use.	No.		Completed: ☐ Date:

Project Review Procedures In 2023, SB 5290 substantially amended local permit review processes. Codification and additional resources from Commerce are forthcoming.				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Project review processes integrate permit and environmental review. RCW 36.70A.470, RCW 36.70B and RCW 43.21C. Also: WAC 365-196-845, WAC 197-11(SEPA Rules), WAC 365-197 (Project Consistency Rule, Commerce, 2001) and Ecology SEPA Handbook. Integrated permit and environmental review procedures for: • Notice of application • Notice of complete application • One open-record public hearing • Combining public hearings & decisions for multiple permits • Notice of decision • One closed-record appeal Note: new in 2023, see Commerce's new guidance for Local Project Review and SB 5290	Yes. See Title 14 and Title 16, Division 1 BLMC.	Yes.	Changes proposed to multiple chapters in Title 14 BLMC to comply, as well as other sections that point to processes in Title 14.	Completed: ☐ Date:
Plan & Regulation Amendments If procedures governing comprehensive plan amendments are part of the code, then assure the following are true:				
a. Regulations limit amendments to the comprehensive plan to once a year (with statutory exceptions). RCW 36.70A.130(2) and WAC 365-196-640(3)	Yes. BLMC 14.140.035.	No.		Completed: ☐ Date:
b. Regulations define *emergency* for an emergency plan amendment. RCW 36.70A.130(2)(b) and WAC 365-196-640(4)	Yes. BLMC 14.140.035.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Regulations include a docketing process for requesting and considering plan amendments. RCW 36.70A.130(2), RCW 36.70A.470, and WAC 365-196-640(6)	Yes. BLMC 14.140.030.	No.		Completed: ☐ Date:
d. A process has been established for early and continuous public notification and participation in the planning process. RCW 36.70A.020(11), RCW 36.70A.035 and RCW 36.70A.140. See WAC 365-196-600 regarding public participation and WAC 365-196-610(2) listing recommendations for meeting requirements.	Yes. BLMC 14.140.010.	No.		Completed: ☐ Date:
e. A process exists to assure that proposed regulatory or administrative actions do not result in an unconstitutional taking of private property RCW 36.70A.370. See the 2018 Advisory Memo on the Unconstitutional Taking of Private Property	Yes.	No.	Pursuant to RCW 36.70A.370, City staff have an internal process and is addressed in Chapter 2; Section 5 of the comprehensive Plan update.	Completed: ☐ Date:
f. Provisions ensure adequate enforcement of regulations, such as zoning and critical area ordinances (civil or criminal penalties). See implementation strategy in WAC 365-196-650(1).	No.	No.	City of Bonney Lake will be submitting the Implementation Plan at a later date within the allowed timeframe.	Completed: ☐ Date:

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

EXPANDED HOUSING CHECKLIST

Periodic Update Checklist for Fully-Planning Cities and Counties[1] with additional checklist items for housing element review.[2]

This checklist provides the framework Commerce regional planners will use to review periodic update submissions. **This checklist is NOT required to be completed by each jurisdiction;** it is an additional tool to help local planners meet the intent of the statute.

- Jurisdictions may submit draft housing elements to Laura Hodgson for initial review prior to 60-day review. Jurisdictions in the PSRC region are encouraged to submit draft housing elements to Commerce when it is submitted to PSRC and/or King County, as the requirements from the state are slightly different from the local or regional requirements.
- **Housing element submissions should include a land capacity analysis (LCA) reflecting updated policies.** This LCA may be included as a supporting document such as a Housing Needs Assessment (HNA) or simply a separate land capacity analysis document. If the LCA is missing from the submission, it will be requested by Commerce staff.
- Regional planners will review draft comprehensive plans and development regulations for the items **IN BOLD CAPITALIZED TEXT BELOW EACH ITEM**. If these materials are not included in the housing submission, Commerce staff will request them. More information on these requirements are included in parenthesis if additional information is needed. (Land use element review items are included for reference to ensure consistency between elements.)
- Commerce will also be tracking that zoning changes are consistent with comprehensive plan changes and the LCA (RCW 36.70A.115). These zoning changes implement the policies in the comprehensive plan to plan for and accommodate housing affordable to all income brackets.
- **Questions?** Contact Laura Hodgson at Laura.Hodgson@commerce.wa.gov or 360-764-3143.

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[1] The checklist items in this document are applicable to cities and counties, unless otherwise noted, but the headings in the checklist may be slightly different from the county checklist.
[2] The May 2024 checklist includes the following updates: (1) Under Section I: Comprehensive Plan Elements, Housing Element, item (e) – clarified that a land capacity analysis is needed for emergency housing. (2) Under Section II: Development Regulations, item (b) and (c) – corrected state statute references which were incorrect.

Section II: Development Regulations

Must be consistent with and implement the comprehensive plan. RCW 36.70A.040, WAC 365-196-800 and 810

Zoning Code

	Consistent? Yes/No	Changes needed?
a. Zoning designations are consistent and implement land use designations that accommodate future housing needs by income bracket as allocated through the countywide planning process. (RCW 36.70A.070(2)(c) - Amended in 2021 with HB 1220) If subject to middle housing requirements in RCW 36.70A.635, see material on Commerce's Middle Housing webpage. **ZONING MAP AND TEXT ALLOW FOR THE HOUSING TYPES AND DENSITIES IN THE LAND CAPACITY ANALYSIS.** **THESE ZONING CHANGES MUST BE COMPLETE BY THE END OF THE PERIODIC UPDATE PERIOD.**	Yes ➢ Updated Official Zoning Map ➢ Amended BLMC Sections 13.04.030, 14.80.030, 15.08.020, 15.08.125, 16.68.040, 18.02.090, 18.04.050, 18.04.130, 18.04.180, 18.04.200, 18.08.010, 18.08.020, 18.12.010, 18.14.060, 18.18.050, 18.29.050, 18.34.050, 19.04.060, and 19.06.060 ➢ Added new BLMC Sections 18.08.050 and 18.08.060 ➢ Repealed Chapters 18.16, 18.19, and 18.24 BLMC	
b. [FOR CITIES] Permanent supportive housing or transitional housing must be allowed where residences and hotels are allowed. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "permanent supportive housing" is defined in RCW 36.70A.030; "transitional housing" is defined in RCW 84.36.043(3)(c) **[FOR CITIES AND COUNTIES] ANY LIMITATIONS ON PERMANENT SUPPORTIVE HOUSING AND TRANSITIONAL HOUSING MUST BE CONNECTED TO PUBLIC HEALTH AND SAFETY AND ALLOW THE SITING OF A SUFFICENT NUMBER OF UNITS AND BEDS NECESSARY TO MEET PROJECTED NEEDS. (Housing Element Book 2: see pages 41-48.)**	➢ BLMC 18.08.020 ➢ BLMC 18.08.040	
c. [FOR CITIES] Indoor emergency shelters and indoor emergency housing shall be allowed in any zones in which hotels are allowed, except in cities that have adopted an ordinance authorizing indoor emergency shelters and indoor emergency housing in a majority of zones within one-mile of transit. Indoor emergency housing must be allowed in areas with hotels.	Yes ➢ Amended BLMC Sections 18.04.050, 18.04.150, 18.04.190, 18.04.200,	

RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "emergency housing" is defined in RCW 36.70A.030 **[FOR CITIES AND COUNTIES] ANY LIMITATIONS ON EMERGENCY HOUSING AND EMERGENCY SHELTER MUST BE CONNECTED TO PUBLIC HEALTH AND SAFETY AND ALLOW THE SITING OF A SUFFICENT NUMBER OF UNITS AND BEDS NECESSARY TO MEET PROJECTED NEEDS. (Housing Element Book 2: see pages 41-48.)**	18.04.220, 18.08.010, and 18.08.020. ➢ (b) Added new BLMC Section 18.08.050.	

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

Periodic Update Checklist for Fully-Planning Cities

City of Bonney Lake
City

Lauren Balisky, Development Services Manager

253-447-4347, baliskyl@bonneylake.gov
Staff contact, phone + email

Notice: This checklist has been updated with the new 2024 GMA legislation. *Rows* that include new 2023 and 2024 legislative changes or updated Commerce guidance are shown in light orange , and all statutory changes adopted since 2015 are emphasized in highlighted *text* to help identify new GMA requirements that may not have been addressed during the last periodic update or through other amendments outside of the required periodic update process. Additionally, amendments to the GMA are summarized in this document on Commerce's GMA Laws and Rules webpage.

Overview: This checklist is intended to help cities that are fully planning under the Growth Management Act (GMA) conduct the "periodic review and update" of ***comprehensive plans*** and ***development regulations*** required under RCW 36.70A.130 (5). This checklist identifies components of comprehensive plans and development regulations that may need updating to reflect the latest local conditions or to comply with GMA changes since the last periodic update cycle (2015-2018).

Local governments should review local comprehensive plan policies, countywide planning policies and multicounty planning policies (where applicable) to be consistent with the new requirements.

Checklist Instructions

Please use the most recent versions of your comprehensive plan and development regulations to fill out each item in the checklist and answer the following questions:

Is this item addressed in your current plan or development regulations? If YES, fill in the form with citation(s) to where in the plan or regulation the item is addressed. Where possible, we recommend citing policy or goal numbers by element rather than page numbers, since these can change. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Periodic Update webpage or contact the Commerce planner assigned to your region.

Is amendment needed to meet current statute? Check YES to indicate a change to your plan will be needed. Check NO to indicate that the GMA requirement has already been met. Local updates may not be needed if the statute hasn't changed since your previous update, if your jurisdiction has kept current with required inventories, or if there haven't been many changes in local circumstances.

Use the "Notes" column to add additional information to note where your city may elect to work on or amend sections of your plan or development regulations, to call out sections that are not strictly required by the GMA, or to indicate if the item is not applicable to your jurisdiction.

Submit your checklist! This will be the first deliverable under your periodic update grant.

PlanView system and instructions: Completed checklists can be submitted through Commerce's PlanView portal. The PlanView system allows cities and counties to submit and track amendments to comprehensive plans or development regulations online, with or without a user account. You can also submit via email: reviewteam@commerce.wa.gov Fill out and attach a cover sheet, a copy of your submittal and this checklist. *Please be advised that Commerce is no longer accepting paper submittals.*

For further information about the submittal process, please visit Commerce's Growth Management Act Laws and Rules webpage.

Need help?

Please visit Commerce's periodic update webpage for additional resources.

Or contact:

Suzanne Austin, AICP
Senior Planner
Growth Management Services
WA Department of Commerce
509.407.7955
Suzanne.Austin@commerce.wa.gov

Or, your assigned regional planner

Checklist Navigation		
Section I: Comprehensive Plan	Section II: Development Regulations	Appendices
LAND USE	CRITICAL AREAS	APPENDIX A: HOUSING UNIT MINIMUMS PER POPULATION
HOUSING	ZONING CODE	APPENDIX B: ELEMENT UPDATES UNDER HB 1181
CAPITAL FACILITIES	SHORELINE MASTER PROGRAM	
UTILITIES	RESOURCE LANDS	
TRANSPORTATION	ESSENTIAL PUBLIC FACILITIES	
SHORELINE	SUBDIVISION CODE	
ESSENTIAL PUBLIC FACILITIES	STORMWATER	
TRIBAL PLANNING	ORGANIC MATERIALS MANAGEMENT	
CLIMATE CHANGE & RESILIENCY	IMPACT FEES	
ECONOMIC DEVELOPMENT	CONCURRENCY & TDM	
PARKS & RECREATION	TRIBAL PARTICIPATION	
OPTIONAL ELEMENTS	REGULATIONS FOR OPTIONAL ELEMENTS	
CONSISTENCY	PROJECT REVIEW PROCEDURES	
PUBLIC PARTICIPATION	PLAN & REGULATION AMENDMENTS	

Section II: Development Regulations

Must be consistent with and implement the comprehensive plan. RCW 36.70A.040, WAC 365-196-800 and 810

Critical Areas

Regulations protecting critical areas are required by RCW 36.70A.060(2), RCW 36.70A.172(1), WAC 365-190-080 and WAC 365-195-900 through 925.

Please visit Commerce's **Critical Areas webpage** for resources and to complete the **Critical Areas Checklist**. Critical areas regulations must be reviewed and updated, as necessary, to incorporate legislative changes and best available science. Jurisdictions using periodic update grant funds to update critical areas regulations must submit the critical areas checklist as a first deliverable, in addition to this periodic update checklist.

Zoning Code

Note: Please review the new 2023 housing laws in the Washington State Housing Laws of 2019 through 2023 guidance, on Commerce's Planning for Housing webpage and Appendix A of this checklist.

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Notice: For more information about housing regulatory changes regarding supportive housing types, see Supportive Housing Types Review Checklist on the Updating GMA Housing Elements webpage. And for additional information on middle housing and ADU regulations, see the Middle Housing webpage.				
a. Zoning designations are consistent and implement land use designations that accommodate future housing needs by income bracket as allocated through the countywide planning process. (RCW 36.70A.070(2)(c) - amended in 2021 (HB 1220) Note: Zoning must reflect sufficient land capacity for all income housing needs, including emergency housing and permanent supportive housing.	Yes. Chapters 18.08 – 18.30 BLMC.	Yes.	Zoning designations are part of the development code update associated with the Comprehensive Plan update.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
b. Permanent supportive housing or transitional housing must be allowed where residences and hotels are allowed. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "permanent supportive housing" is defined in RCW 36.70A.030; "transitional housing" is defined in RCW 84.36.043(2)(c)	Yes. BLMC 18.08.040.	No.		Completed: ☐ Date:
c. Indoor emergency shelters and indoor emergency housing must be allowed in any zones in which hotels are allowed, except in cities that have adopted an ordinance authorizing indoor emergency shelters and indoor emergency housing in a majority of zones within one-mile of transit. Indoor emergency housing must be allowed in areas with hotels. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) Any limitations on emergency housing and emergency shelter must be connected to public health and safety and allow the siting of a sufficient number of units and beds necessary to meet projected needs (see Housing Element Book 2, pages 41-48), new in 2023 "emergency housing" is defined in RCW 36.70A.030	No.	Yes.	BLMC 18.08.050 is proposed as part of the development code update and will be updated with the Comprehensive Plan update.	Completed: ☐ Date:
d. The number of unrelated persons that occupy a household or dwelling unit except as provided in state law, for short-term rentals, or occupant load per square foot shall not be regulated or limited by cities. (HB 5235), RCW 35.21.682 new in 2021, RCW 35A.21.314 new in 2022, RCW 36.01.227 new in 2021	Yes.	No.	City of Bonney Lake has never had regulations limiting the amount of unrelated persons within a household or dwelling unit beyond that of the occupant load.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. Limitations on the amount of parking local governments can require for low-income, senior, d sabled and market-rate housing units located near high-quality transit service. RCW 36.70A.620 amended in 2020 and RCW 36.70A.600 amended in 2019	No.	No.	The City of Bonney Lake does not have public transit.	Completed: ☐ Date:
f. Parking requirements must allow tandem, gravel or grass pavers, and new spaces must be at least 8 by 20 feet in size. Existing and non-conforming parking must be allowed to meet parking requirements for up to six spaces. SB 6015, new in 2024, must be addressed with the periodic update. Note: guidance coming fall 2024	No.	Yes.	The City does not currently have parking standards for residential zoning districts. Changes proposed to BLMC 18.31.010 to address residential parking in other zoning districts where housing is permitted.	Completed: ☐ Date:
g. Family day care providers are allowed in all residential dwellings located in areas zoned for residential or commercial RCW 36.70A.450. Review RCW 43.216.010 for definition of family day care provider and WAC 365-196-865 for more information.	Yes.	No.	Minor updates made for consistency with state law.	Completed: ☐ Date:
h. Manufactured housing is regulated the same as site built housing. RCW 35.21.684 amended in 2019, RCW 35.63.160, RCW 35A.21.312 amended in 2019 and RCW 36.01.225 amended in 2019. A local government may require that manufactured homes: (1) are new, (2) are set on a permanent foundation, and (3) comply with local design standards applicable to other homes in the neighborhood, but may not discriminate against consumer choice in housing. See: National Manufactured Housing Construction and Safety Standards Act of 1974	Yes. BLMC 18.08.020, and Chapter 15.08 BLMC.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
i. Accessory dwelling units (ADUs): cities (and counties) must adopt or amend by ordinance, and incorporate into their development regulations, zoning regulations and other official controls. RCW 36.70A.680 amended in 2023, RCW 36.70A.681 amended in 2023, RCW 36.70A.696 amended in 2023, RCW 36.70A.697 amended in 2020, RCW 36.70A.698 amended in 2020, RCW 36.70A.699 amended in 2020 **Must be adopted by 6 months after the periodic update deadline, or be superseded by state law.** Note: see new Commerce ADU guidance and ADU checklist.	Yes. BLMC 18.22.090.	No.	Updated previously under Ord. 1737.	Completed: ☐ Date:
j. Middle housing: if your jurisdiction is one of the 77 cities subject to middle housing, regulations must allow the appropriate amount of middle housing units on a lot by 6 months after the periodic update deadline, or be superseded by state law. RCW 36.70A.635 See Commerce's model ordinances and user guide on the middle housing web page.	N/A	N/A	The City of Bonney Lake is not subject to this requirement; however, various middle housing types are permitted (duplexes, triplexes, townhouses).	Completed: ☐ Date:
k. Co-living must be allowed as a permitted use on any lot located within an urban growth area that allows at least six multifamily residential units, including on a lot zoned for mixed use development. HB 1998, new in 2024, contains specific standards for size, density calculations, connection fees and parking. **Must be adopted by December 31, 2025** Note: guidance will be available fall of 2024	No.	Yes.	Provisions for co-living housing are added throughout the development code update: • Updated provisions for water, sewer, and stormwater utility. • Added definition for co-living housing in BLMC 18.04.030 and referenced to it from utility regulations. • Added co-living as a permitted use in all zones that allow 6 du/acre in BLMC 18.08.020. • Updated density allowances in R-3 and DM. C-2 references to R-3 for density standards. DC does not have a density limitation.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
l. Residential structures occupied by persons with handicaps, and group care for children that meets the definition of "familial status" are regulated the same as a similar residential structure occupied by a family or other unrelated individuals. No city or county planning under the GMA may enact or maintain ordinances, development regulations, or administrative practices which treat a residential structure occupied by persons with handicaps d fferently than a similar residential structure occupied by a family or other unrelated individuals. RCW 36.70A.410, RCW 70.128.140 and 150, RCW 49.60.222-225 and WAC 365-196-860	No.	No.	No definition or regulations are within the development code that restricts persons with handicaps, and group care of children.	Completed: ☐ Date:
m. Affordable housing programs enacted or expanded under RCW 36.70A.540 amended in 2022 comply with the requirements of this section. Examples of such programs may include: density bonuses within urban growth areas, height and bulk bonuses, fee waivers or exemptions, parking reductions, expedited permitting conditioned on provision of low-income housing units, or mixed-use projects. WAC 365-196-300 See also RCW 36.70A.545 and WAC 365-196-410(2)(e)(i) "affordable housing" is defined in RCW 84.14.010 new in 2024 (ESSB 6175) Review RCW 36.70A.620 amended in 2020, for minimum residential parking requirements.	No.	No.	Density bonus for units affordable to very low-income and extremely low-income units added to the R-3 zone, along with ability to use existing affordable housing sales tax fund to offset transportation and park impact fees. See proposed amendments to BLMC 18.18.050, 19.04.060, and 19.06.060.	Completed: ☐ Date:
n. Limitations on regulating: outdoor encampments, safe parking efforts, indoor overnight shelters and temporary small houses on property owned or controlled by a religious organization. RCW 35.21.915, amended in 2020	No.	Yes.	Provisions for temporary emergency housing are added throughout the development code update, including definitions in Chapter 18.04 BLMC and added requirements in proposed BLMC 18.08.050.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
o. Allow an increased density bonus consistent with local needs for any affordable housing development of any single-family or multi-family residence located on real property owned or controlled by a religious organization. RCW 35.70A.545, amended in 2019 (HB 1377).	No.	Yes.	BLMC 18.08.050 is proposed as part of the development code update and will be updated with the Comprehensive Plan update.	Completed: ☐ Date:
p. Reduce restrictions for additional housing units within existing commercial, mixed-use and multi-family buildings by exempting the added units from density limits, parking and other regulatory requirements. RCW 35A.21.440, new in 2023 and RCW 35.21.990, new in 2023, (HB 1042) Note: These requirements must be in effect within six months after the periodic update due date.	No.	Yes.	Yes; see proposed updates to BLMC 18.31.010.	Completed: ☐ Date:
q. Must not adopt, impose, or enforce requirements on an affordable housing development that are different than the requirements imposed on housing developments generally. RCW 36.130.020 (2008) Note: This applies to cities, counties, other local government entities and agencies.	Yes; not specifically addressed.	No.	Affordable housing units are treated the same as other housing units, except as required or permitted in state law.	Completed: ☐ Date:
r. Regulations discourage incompatible uses around general aviation airports. RCW 36.70.547 and WAC 365-196-455. Incompatible uses include: high population intensity uses such as schools, community centers, tall structures, and hazardous wildlife attractants such as solid waste disposal sites, wastewater or stormwater treatment facilities, or stockyards. For more guidance, see WSDOT's Aviation Land Use Compatibility Program.	No.	N/A	This does not apply to the City of Bonney Lake. There are no airports within or adjacent to the City.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
s. If a U.S. Department of Defense (DoD) military base employing 100 or more personnel is within or adjacent to the jurisdiction, zoning should d scourage the siting of incompatible uses adjacent to military base. RCW 36.70A.530(3) and WAC 365-196-475. Visit Military One Source to locate any bases in your area and help make determination of applicability. If applicable, inform the commander of the base regarding amendments to the comprehensive plan and development regulations on lands adjacent to the base.	No.	N/A	This does not apply to the City of Bonney Lake. There are no military bases within or adjacent to the City.	Completed: ☐ Date:
t. Electric vehicle infrastructure (jurisdiction specified: adjacent to Interstates 5, 90, 405 or state route 520 and other criteria) must be allowed as a use in all areas except those zoned for residential, resource use or critical areas. RCW 36.70A.695	Yes. Chapter 18.40 BLMC.	N/A	The City currently allows for and requires electric vehicle charging stations as otherwise required by state law for new construction.	Completed: ☐ Date:
Shoreline Master Program **Consistent with RCW 90.58 Shoreline Management Act of 1971**				
a. Zoning designations are consistent with Shoreline Master Program (SMP) environmental designations. RCW 36.70A.480	Yes. Chapter 16.38 BLMC (existing).	No.		Completed: ☐ Date:
b. If updated to meet RCW 36.70A.480 (2010), SMP regulations provide protection to critical areas in shorelines that is at least equal to the protection provided to critical areas by the critical areas ordinance. RCW 36.70A.480(4) and RCW 90.58.090(4) See Ecology's shoreline planners' toolbox for the SMP Checklist and other resources and Ecology's Shoreline Master Programs Handbook webpage	Yes.	No.	The City of Bonney Lake applies the current CAO to those areas within the Shoreline jurisdiction and are equal to the protections outside of the shoreline jurisdiction.	Completed: ☐ Date:

Resource Lands Defined in RCW 36.70A.030(3), (12) and (17) and consistent with RCW 36.70A.060 and RCW 36.70A.170				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Zoning is consistent with natural resource lands designations in the comprehensive plan and conserves natural resource lands. RCW 35.70A.060(3), WAC 365-196-815 and WAC 365-190-020(6). Consider innovative zoning techniques to conserve agricultural lands of long-term significance RCW 36.70A.177(2). See also WAC 365-196-815(3) for examples of innovative zoning techniques.	No.	No.	The City of Bonney Lake does not contain any natural resource land.	Completed: ☐ Date:
b. Regulations to assure that use of lands adjacent to natural resource lands does not interfere with natural resource production. RCW 35.70A.060(1)(a) and WAC 365-190-040 Regulations require notice on all development permits and plats within 500 feet of designated natural resource lands that the property is within or near a designated natural resource land on which a variety of commercial activities may occur that are regulations to implement comprehensive plan	No.	No.	The City of Bonney Lake does not contain any natural resource land.	Completed: ☐ Date:
c. For designated agricultural land, regulations encourage nonagricultural uses to be limited to lands with poor soils or otherwise not suitable for agricultural purposes. Accessory uses should be located, designed and operated to support the continuation of agricultural uses. RCW 35.70A.177(3)(b)	No.	No.	The City of Bonney Lake does not contain any agricultural land.	Completed: ☐ Date:
d. Designate mineral lands and associated regulations as required by RCW 36.70A.131and WAC 365-190-040(5). For more information review the WA State Dept. of Natural Resources (DNR)'s Geology Division site	No.	No.	The City of Bonney Lake does not contain any mineral lands.	Completed: ☐ Date:

Siting Essential Public Facilities

Regulations for siting essential public facilities should be consistent with RCW 36.70A.200 and consider WAC 365-196-550. Essential public facilities include those facilities that are typically difficult to site, such as airports, state education facilities, state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities. Regulations may be specific to a local jurisdiction, but may be part of county-wide planning policies (CWPPs).

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Regulations for CWPPs include a process for siting EPFs and ensure EPFs are not precluded. RCW 36.70A.200 amended in 2023, WAC 365-196-550(6) lists process for siting EPFs. WAC 365-196-550(3) details preclusions. EPFs should be located outside of known hazardous areas. Visit Commerce's Behavioral Health Facilities Program page for information on establishing or expanding new capacity for behavioral health EPFs. Note: RCW 36.70A.200 amended by SB 5536 to include EPFs for opioid treatment programs	Yes. BLMC 14.80.030.	No.		Completed: ☐ Date:

Subdivision Code

a. Subdivision regulations are consistent with and implement comprehensive plan policies. RCW 36.70A.030(8), RCW 36.70A.040(4)	Yes. Title 17 BLMC.	No.		Completed: ☐ Date:
b. Written findings to approve subdivisions establish adequacy of public facilities. RCW 58.17.110 amended in 2018 • Streets or roads, sidewalks, alleys, other public ways, transit stops, and other features that assure safe walking conditions for students. • Potable water supplies, sanitary wastes, and drainage ways. RCW 36.70A.590 amended 2018 • Open spaces, parks and recreation, and playgrounds • Schools and school grounds Other items related to the public health, safety and general welfare, WAC 365-196-820(1).	Yes. BLMC 17.20.020 and Chapter 17.50 BLMC.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Preliminary subdivision approvals under RCW 58.17.140 and RCW 58.17.170 are valid for a period of five or seven years (previously five years). Note: preliminary plat approval is valid for: seven years if the date of preliminary plat approval is on or before December 31, 2014; five years if the preliminary plat approval is issued on or after January 1, 2015; and ten years if the project is located within city limits, not subject to the shoreline management act, and the preliminary p at is approved on or before December 31, 2007.	Yes. BLMC 14.10.100(B).	No.		Completed: ☐ Date:
d. Include in short plat regulations procedures for unit lot subdivisions allowing division of a parent lot into separately owned unit lots. RCW 58.17.060 (3) new in 2023 by SB 5258 - section 11	No.	Yes.	Added language throughout BLMC to address unit lot subdivisions.	Completed: ☐ Date:

Stormwater				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Regulations protect water quality and implement actions to mitigate or cleanse drainage, flooding, and storm water run-off that pollute waters of the state, including Puget Sound or waters entering Puget Sound. RCW 36.70A.070(1) Regulations may include: adoption of a stormwater manual consistent with Ecology's latest manual for Eastern or Western Washington, adoption of a clearing and grading ordinance –See Commerce's 2005 Technical Guidance Document for Clearing and Grading in Western Washington. Adoption of a low impact development ordinance. See Puget Sound Partnership's 2012 Low Impact Development guidance and Ecology's 2013 Eastern Washington Low Impact Development guidance. Additional Resources: Federal Grants to Protect Puget Sound Watersheds, Building Cities in the Rain, Ecology Stormwater Manuals, Puget Sound Partnership Action Agenda	Yes. Chapter 15.13 BLMC.	No.		Completed: ☐ Date:
b. Provisions for corrective action for failing septic systems that pollute waters of the state. RCW 36.70A.070(1). See also: DOH Wastewater Management, Ecology On-Site Sewage System Projects & Funding	Yes. Chapter 13.12 BLMC.	No.		Completed: ☐ Date:

Organic Materials Management Facilities

New in 2022, HB 1799 added a section to the GMA aimed at reducing the volumes of organic materials collected in conjunction with other solid waste and delivered to landfills, supporting productive uses of organic material waste and reduction of methane gas (a greenhouse gas).

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
New section RCW 36.70A.142; new in 2022 legislation HB 1799: Development regulations newly developed, updated, or amended *after January 1, 2025* allow for the siting of organic materials (OM) management facilities as identified in local solid waste management plans (SWMP) to meet OM reduction and diversion goals. Siting to meet criteria described in RCW 70A.205.040(3) See also RCW 36.70.330. For applicability, see RCW 70A.205.540	No.	N/A	New solid waste handling facilities may be sited as an Essential Public Facility.	Completed: ☐ Date:

Impact Fees

May impose impact fees on development activity as part of the financing for public facilities, provided that the financing for system improvements to serve new development must provide for a balance between impact fees and other sources of public funds; cannot rely solely on impact fees.

a. If adopted, impact fees are applied consistent with RCW 82.02.050 amended in 2015, RCW 82.02.060 amended in 2023 by SB 5258, .070, .080, .090 amended in 2018 and .100. WAC 365-196-850 provides guidance on how impact fees should be implemented and spent.	Yes. Title 19 BLMC.	No.	Some updates to the Title 19 Concurrency Management are included in the Development Regulations update as part of the Comprehensive Plan update for certain affordable housing units. The City is in the process of updating its transportation and park impact fees but is currently compliant.	Completed: ☐ Date:
b. Jurisdictions collecting impact fees must adopt and maintain a system for the deferred collection of impact fees for single-family detached and attached residential construction, consistent with RCW 82.02.050(3) amended in 2016	Yes. Title 19 BLMC.	No.		Completed: ☐ Date:
c. If adopted, limitations on impact fees for early learning facilities. RCW 82.02.060 amended in 2021	Yes. Title 19 BLMC.	No.	Early learning facilities are not treated differently from other commercial developments.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
d. If adopted, exemption of impact fees for low-income and emergency housing development. RCW 82.02.060 amended in 2023. See also definition change in RCW 82.02.090(1)(b) amended in 2018	**No.**	No.	Units affordable to very low-income and extremely low-income units may use existing affordable housing sales tax fund to offset transportation and park impact fees. See proposed amendments to BLMC 19.04.060 and 19.06.060.	Completed: ☐ Date:
e. Ensure impact fees are not assessed on the construction of accessory dwelling units that are greater than 50 percent (50%) of the impact fees that would be imposed on the principal unit. RCW 36.70A.681 new in 2023 by HB 1337	Yes. BLMC 19.04.060.G, 19.06.060.G, and 19.08.120.	No.	Updated previously under Ord. 1737.	Completed: ☐ Date:
f. The schedule of impact fees reflects the proportionate impact of new housing units, including multifamily and condominium units, based on the square footage, number of bedrooms, or trips generated, in the housing unit in order to produce a proportionally lower impact fee for smaller housing units. RCW 82.02.060 amended in 2023 by SB 5258	No.	Yes.	Separate code amendment in progress. Draft fee study for parks impact fee has been completed.	Completed: ☐ Date:
Concurrency and Transportation Demand Management (TDM) **Ensures consistency in land use approval and the development of adequate public facilities as plans are implemented, maximizes the efficiency of existing transportation systems, limits the impacts of traffic and reduces pollution.**				
a. The transportation concurrency requirement includes specific language that prohibits development when level of service standards for transportation facilities cannot be met. RCW 36.70A.070(6)(b) amended in 2023, WAC 365-196-840. Note: Concurrency is required for transportation, but may also be applied to park facilities, etc.	Yes. Chapter 19.20.070.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
b. Measures exist to bring into compliance locally owned, or locally or regionally operated, transportation facilities or services that are below the levels of service established in the comprehensive plan. RCW 36.70A.070(6)(a)(iii)(B) and (D), RCW 36.70A.070(6)(b) amended in 2023 Levels of service can be established for automobiles, pedestrians and bicycles. See WAC 365-196-840(3) on establishing an appropriate level of service.	Yes. BLMC 19.02.060.	No.		Completed: ☐ Date:
c. Highways of statewide significance (HSS) are exempt from the concurrency ordinance. RCW 36.70A.070(6)(a)(iii)(C)	Yes. Chapter 19.20.040.	No.		Completed: ☐ Date:
d. Traffic demand management (TDM) requirements are consistent with the comprehensive plan. RCW 36.70A.070(6)(a)(vi) Examples may include requiring new development to be oriented towards transit streets, pedestrian-oriented site and building design, and requiring bicycle and pedestrian connections to street and trail networks. WAC 365-196-840(4) recommends adopting methodologies that analyze the transportation system from a comprehensive, multimodal perspective.	Yes. Chapter 19.20.070.	No.		Completed: ☐ Date:
e. If required by RCW 82.70, a commute trip reduction (CTR) ordinance to achieve reductions in the proportion of single-occupant vehicle commute trips has been adopted. The ordinance should be consistent with comprehensive plan policies for CTR and Department of Transportation rules.	No.	No.		Completed: ☐ Date:

Tribal Participation in Planning new in 2022 (see HB 1717) A federally recognized Indian tribe may voluntarily choose to participate in the county or regional planning process. See Commerce's new Tribal Planning Coordination for GMA webpage for guidance and staff contacts.				
	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
a. Mutually agreeable memorandum of agreement between local governments and tribes in regard to collaboration and participation in the planning process unless otherwise agreed at the end of a mediation period. RCW 36.70A.040(8)(a) new in 2022.	No.	No.	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:
b. Policies consistent with countywide planning policies that address the protection of tribal cultural resources in collaboration with federally recognized Indian tribes that are invited, provided that a tribe, or more than one tribe, chooses to participate in the process. RCW 36.70A.210(3)(i) new in 2022.	No.	No.	The City has not received a notice in the form of a tribal resolution from a federally recognized tribe to initiate a parallel planning process at this time.	Completed: ☐ Date:
Regulations to Implement Optional Elements				
a. New fully contained communities are consistent with comprehensive plan policies, RCW 36.70A.350 and WAC 365-196-345	No.	No.	Not applicable.	Completed: ☐ Date:
b. If applicable, master planned resorts are consistent with comprehensive plan policies, RCW 36.70A.360, RCW 36.70A.362 and WAC 365-196-460	No.	No.	Not applicable.	Completed: ☐ Date:
c. If applicable, major industrial developments and master planned locations outside of UGAs are consistent with comprehensive plan policies, RCW 36.70A.365, RCW 36.70A.367 and WAC 365-196-465	No.	No.	Not applicable.	Completed: ☐ Date:
d. Regulations include procedures to identify, preserve, and/or monitor historical or archaeological resources. RCW 36.70A.020(13), WAC 365-196-450	No.	No.	Not applicable.	Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
e. Other development regulations needed to implement comprehensive plan policies such as energy, sustainability or design are adopted. WAC 365-196-445	No.	No.	Not applicable.	Completed: ☐ Date:
f. Design guidelines for new development are clear and easy to understand; administration procedures are clear and defensible	Yes.	Yes.	Chapter 14.95 BLMC is updated for clarity purposes within the Development Regulation update.	Completed: ☐ Date:
g. Local design review includes one or more ascertainable guideline, standard or criterion by which an applicant can determine whether a given building design is permissible under that development regulation. May not result in a reduction in density, height, bulk or scale below the generally applicable development regulations for a development proposal in the applicable zone. RCW 36.70A.630 new in 2023 by HB 1293	Yes, throughout Title 18 BLMC associated with each zone. Separate set of design standards for downtown core and mixed-use.	No.		Completed: ☐ Date:

Project Review Procedures

In 2023, SB 5290 substantially amended local permit review processes. Codification and additional resources from Commerce are forthcoming.

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
Project review processes integrate permit and environmental review. RCW 36.70A.470, RCW 36.70B and RCW 43.21C. Also: WAC 365-196-845, WAC 197-11(SEPA Rules), WAC 365-197 (Project Consistency Rule, Commerce, 2001) and Ecology SEPA Handbook. Integrated permit and environmental review procedures for: • Notice of application • Notice of complete application • One open-record public hearing • Combining public hearings & decisions for multiple permits • Notice of decision • One closed-record appeal Note: new in 2023, see Commerce's new guidance for Local Project Review and SB 5290	Yes. See Title 14 and Title 16, Division 1 BLMC.	Yes.	Changes proposed to multiple chapters in Title 14 BLMC to comply, as well as other sections that point to processes in Title 14.	Completed: ☐ Date:

Plan & Regulation Amendments

If procedures governing comprehensive plan amendments are part of the code, then assure the following are true:

a. Regulations limit amendments to the comprehensive plan to once a year (with statutory exceptions). RCW 36.70A.130(2) and WAC 365-196-640(3)	Yes. BLMC 14.140.035.	No.		Completed: ☐ Date:
b. Regulations define *emergency* for an emergency plan amendment. RCW 36.70A.130(2)(b) and WAC 365-196-640(4)	Yes. BLMC 14.140.035.	No.		Completed: ☐ Date:

	In Current Regs? Yes/No If yes, cite section	Changes needed to meet current statute? Yes/No	Notes	
c. Regulations include a docketing process for requesting and considering plan amendments. RCW 36.70A.130(2), RCW 36.70A.470, and WAC 365-196-640(6)	Yes. BLMC 14.140.030.	No.		Completed: ☐ Date:
d. A process has been established for early and continuous public notification and participation in the planning process. RCW 36.70A.020(11), RCW 36.70A.035 and RCW 36.70A.140. See WAC 365-196-600 regarding public participation and WAC 365-196-610(2) listing recommendations for meeting requirements.	Yes. BLMC 14.140.010.	No.		Completed: ☐ Date:
e. A process exists to assure that proposed regulatory or administrative actions do not result in an unconstitutional taking of private property RCW 36.70A.370. See the 2018 Advisory Memo on the Unconstitutional Taking of Private Property	Yes.	No.	Pursuant to RCW 36.70A.370, City staff have an internal process and is addressed in Chapter 2; Section 5 of the comprehensive Plan update.	Completed: ☐ Date:
f. Provisions ensure adequate enforcement of regulations, such as zoning and critical area ordinances (civil or criminal penalties). See implementation strategy in WAC 365-196-650(1).	No.	No.	City of Bonney Lake will be submitting the Implementation Plan at a later date within the allowed timeframe.	Completed: ☐ Date:

Washington State Department of Commerce

LOCAL GOVERNMENT DIVISION
GROWTH MANAGEMENT SERVICES

EXPANDED HOUSING CHECKLIST

Periodic Update Checklist for Fully-Planning Cities and Counties[1] with additional checklist items for housing element review.[2]

This checklist provides the framework Commerce regional planners will use to review periodic update submissions. **This checklist is NOT required to be completed by each jurisdiction;** it is an additional tool to help local planners meet the intent of the statute.

- Jurisdictions may submit draft housing elements to Laura Hodgson for initial review prior to 60-day review. Jurisdictions in the PSRC region are encouraged to submit draft housing elements to Commerce when it is submitted to PSRC and/or King County, as the requirements from the state are slightly different from the local or regional requirements.
- **Housing element submissions should include a land capacity analysis (LCA) reflecting updated policies.** This LCA may be included as a supporting document such as a Housing Needs Assessment (HNA) or simply a separate land capacity analysis document. If the LCA is missing from the submission, it will be requested by Commerce staff.
- Regional planners will review draft comprehensive plans and development regulations for the items **IN BOLD CAPITALIZED TEXT BELOW EACH ITEM**. If these materials are not included in the housing submission, Commerce staff will request them. More information on these requirements are included in parenthesis if additional information is needed. (Land use element review items are included for reference to ensure consistency between elements.)
- Commerce will also be tracking that zoning changes are consistent with comprehensive plan changes and the LCA (RCW 36.70A.115). These zoning changes implement the policies in the comprehensive plan to plan for and accommodate housing affordable to all income brackets.
- **Questions?** Contact Laura Hodgson at Laura.Hodgson@commerce.wa.gov or 360-764-3143.

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[1] The checklist items in this document are applicable to cities and counties, unless otherwise noted, but the headings in the checklist may be slightly different from the county checklist.

[2] The May 2024 checklist includes the following updates: (1) Under Section I: Comprehensive Plan Elements, Housing Element, item (e) – clarified that a land capacity analysis is needed for emergency housing. (2) Under Section II: Development Regulations, item (b) and (c) – corrected state statute references which were incorrect.

Section II: Development Regulations

Must be consistent with and implement the comprehensive plan. RCW 36.70A.040, WAC 365-196-800 and 810

Zoning Code

	Consistent? Yes/No	Changes needed?
a. Zoning designations are consistent and implement land use designations that accommodate future housing needs by income bracket as allocated through the countywide planning process. (RCW 36.70A.070(2)(c) - Amended in 2021 with HB 1220) If subject to middle housing requirements in RCW 36.70A.635, see material on Commerce's Middle Housing webpage. **ZONING MAP AND TEXT ALLOW FOR THE HOUSING TYPES AND DENSITIES IN THE LAND CAPACITY ANALYSIS.** **THESE ZONING CHANGES MUST BE COMPLETE BY THE END OF THE PERIODIC UPDATE PERIOD.**	Yes ➢ Updated Official Zoning Map ➢ Amended BLMC Sections 13.04.030, 14.80.030, 15.08.020, 15.08.125, 16.68.040, 18.02.090, 18.04.050, 18.04.130, 18.04.180, 18.04.200, 18.08.010, 18.08.020, 18.12.010, 18.14.060, 18.18.050, 18.29.050, 18.34.050, 19.04.060, and 19.06.060 ➢ Added new BLMC Sections 18.08.050 and 18.08.060 ➢ Repealed Chapters 18.16, 18.19, and 18.24 BLMC	
b. [FOR CITIES] Permanent supportive housing or transitional housing must be allowed where residences and hotels are allowed. RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "permanent supportive housing" is defined in RCW 36.70A.030; "transitional housing" is defined in RCW 84.36.043(3)(c) **[FOR CITIES AND COUNTIES] ANY LIMITATIONS ON PERMANENT SUPPORTIVE HOUSING AND TRANSITIONAL HOUSING MUST BE CONNECTED TO PUBLIC HEALTH AND SAFETY AND ALLOW THE SITING OF A SUFFICENT NUMBER OF UNITS AND BEDS NECESSARY TO MEET PROJECTED NEEDS. (Housing Element Book 2: see pages 41-48.)**	➢ BLMC 18.08.020 ➢ BLMC 18.08.040	
c. [FOR CITIES] Indoor emergency shelters and indoor emergency housing shall be allowed in any zones in which hotels are allowed, except in cities that have adopted an ordinance authorizing indoor emergency shelters and indoor emergency housing in a majority of zones within one-mile of transit. Indoor emergency housing must be allowed in areas with hotels.	Yes ➢ Amended BLMC Sections 18.04.050, 18.04.150, 18.04.190, 18.04.200,	

RCW 35A.21.430 amended in 2021, RCW 35.21.683, amended in 2021, (HB 1220 sections 3-5) "emergency housing" is defined in RCW 36.70A.030 **[FOR CITIES AND COUNTIES] ANY LIMITATIONS ON EMERGENCY HOUSING AND EMERGENCY SHELTER MUST BE CONNECTED TO PUBLIC HEALTH AND SAFETY AND ALLOW THE SITING OF A SUFFICENT NUMBER OF UNITS AND BEDS NECESSARY TO MEET PROJECTED NEEDS. (Housing Element Book 2: see pages 41-48.)**	18.04.220, 18.08.010, and 18.08.020. ➢ (b) Added new BLMC Section 18.08.050.	