CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

REVISED

CITY COUNCIL

July 28, 2026
Council Chambers • 411 SW 9th Street

COUNCIL MEMBERS

Ed Fitch
Mayor

Shannon Wedding
Council President

Clifford Evelyn
Councilor

John Nielsen
Councilor

Kathryn Osborne
Councilor

Jay Patrick
Councilor

Cat Zwicker
Councilor

JULY 28, 2026 — EXECUTIVE SESSION AGENDA — 5:30 PM

I. EXECUTIVE SESSION

Oregon Law permits public bodies to meet in executive session to discuss specific matters which are not open to the public. Final actions or decisions on these matters will be made during regular session.

A. Real Property – ORS 192.660(2)(e) authorizes executive session "to conduct deliberations with persons designated by the governing body to negotiate real property transactions."

Under the provisions of the Oregon Public Meetings Law, the proceedings of this executive session are for background information only for media attending and not for publication or broadcast.

JULY 28, 2026 — REGULAR MEETING AGENDA — 6:00 PM

I. CALL TO ORDER / ESTABLISH A QUORUM

II. BLESSING - Father Saji Thomas, St. Thomas Catholic Church

III. PLEDGE OF ALLEGIANCE

IV. CITY ANNOUNCEMENTS

V. CONSENT AGENDA

A. Minutes of May 18, 2026, Council Workshop

B. August Recognitions

VI. PRESENTATIONS

A. Tiered Rate Billing System Based on Water Usage: Informational Presentation

B. Franchisee Presentation on Mitigation Agreement — Ziply Fiber LLC

VII. PUBLIC HEARINGS

A. Ordinance #2026-09 - An ordinance amending the 2040 Redmond Comprehensive Plan, adopting the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan and incorporation into the Public Facilities Plan and as a supporting plan to the Redmond Comprehensive plan.

B. Ordinance #2026-10: An ordinance declaring a temporary ban on psilocybin service centers.

VIII. ACTION ITEMS

A. Resolution #2026-16: A resolution of the Redmond City Council declaring a temporary ban on Psilocybin Service Centers.

B. Resolution #2026-15 - A resolution declaring certain territory (2729 NW Hemlock Avenue) as being annexed to and incorporated within the City of Redmond.

C. Amendment to Task Order #10 to City Contract #2020-59 with Morrison Maierle, Inc., increasing the contract by $121,800 to re-design aspects of the Redmond Airport Quick Turnaround Facility Project.

D. Resolution #2026-17 - A resolution modifying the Greater Redmond Area Enterprise Zone Agreement to increase the Extended Abatement to ten years.

IX. COMMENTS FROM CITIZENS AT THE MEETING

Citizen comments are limited to three (3) minutes per person and will be accepted for a period of 30 minutes. Comments should be focused on City of Redmond business. Attendees are asked to refrain from interrupting, calling-out, or cheering during citizen comments.

X. CITY MANAGER COMMENTS

XI. COUNCIL COMMENTS

XII. MAYOR'S COMMENTS

XII. ADJOURN

Regular Council meetings are broadcast live on COTV11 – BendBroadband Channel 11 beginning at 6:00 p.m. on the 2nd and 4th Tuesdays of each month. Rebroadcasts are scheduled for the non-meeting Tuesdays at 6:00 p.m.
The City of Redmond encourages all citizens to participate in its programs and activities. This meeting location is accessible to people with disabilities. Requests for accommodation may include sign language interpreter service, assistive listening devices, materials in an alternate format or any other accommodation. If any accommodations are needed, please contact the ADA Coordinator at 541-504-3036 or access@redmondoregon.gov. Requests should be made as soon as possible, but at least 3 business days prior to the scheduled meeting.
The City of Redmond does not discriminate on the basis of disability status in the admission or access to, or treatment, or employment in, its programs or activities

DRAFT

Redmond City Council **May 18, 2026**
Workshop Minutes
Executive Conference Room & Remote Video Conferencing
https://www.redmondoregon.gov/city-council

Present:	Clifford Evelyn, Ed Fitch, John Nielsen, Cat Zwicker, Shannon Wedding (arrived at 2:37 pm)
Excused:	Kathryn Osborne, Jay Patrick
Staff Present:	City Manager Keith Witcosky; Deputy City Manager Steve Ashworth; City Recorder Kelly Morse; City Attorney Keith Leitz; Public Works Director/City Engineer Jessica MacClanahan; Communications Director Heather Cassaro; Police Chief Devin Lewis; Planning Director Kyle Roberts; Long-Range Planner Cory Murray; Human Resources Director Jason Bavuso; Procurement & Payables Manager Scott Brang; Billing & Collections Manager Valerie Taylor; Public Works Operations Manager Joshua Wedding; Housing Programs Analyst Linda Cline
Media Present:	Ian Raupt, Redmond Spokesman

CALL TO ORDER

Mayor Fitch called the meeting to order at 2:30 pm.

The Council began the workshop with Item C. Housing Capacity Analysis.

PRESENTATIONS
A. Wastewater System Development Charge Update Overview

Public Works Director/City Engineer Jessica MacClanahan provided a presentation on the Wastewater System Development Charge (SDC) Update. She outlined the project timeline and statutory process, the methodology for calculating wastewater SDCs, wastewater system improvements to accommodate growth and SDC eligible projects, as well as a comparative analysis of wastewater SDC rates across other cities. Outreach to key stakeholders is ongoing and the Council's next update is scheduled for June 23, 2026, with no action, and the formal public hearing is scheduled for July 14, 2026.

The Council requested updated information showing how the SDCs translate into median home costs.

At this point in the meeting, the Council discussed Item D. Miscellaneous Items.

B. Tiered Water Rate Discussion #4

Staff requested feedback on a proposed tiered water rate structure that could be adopted next month and activated at a later date, allowing time for customers to understand the current and projected costs as well as available conservation tools. The presentation included an overview of the City's tiered water system, constrained by water rights, and study findings demonstrating how tiered rates could reduce high-tier usage, support compliance with regulatory limits, help manage future growth, and defer future well and storage infrastructure needs.

The Council and staff discussed the proposed tiered water rate system, including incentives for reduced water use, rate study findings on water bill impacts, and the system's effectiveness in encouraging conservation. The Council suggested developing outreach materials for new homeowners on watering schedules and water conservation, as well as communicating potential customer costs of future water infrastructure and how conservation could help defer those costs. The Council and staff also discussed

implementation timing and structure, including whether to establish the system in City Code first and delay activation, and options for seasonal or phased implementation.

Staff agreed to develop a complete proposal package, including marketing materials, billing framework, and the rate structure, and return to the Council for approval.

At this point in the meeting the Council returned to Item A. Wastewater System Development Charge Update Overview.

C. Housing Capacity Analysis

Planning Director Kyle Roberts and Long-Range Planner Cory Murray provided a presentation on the Housing Capacity Analysis (HCA) Project, noting the City hired ECOnorthwest as a consultant using Department of Land Conservation and Development (DLCD) funds. The project responds to updated Goal 10 requirements under the Oregon Housing Needs Analysis (HNA), which require planning for 10,000 additional housing units by 2047, up from 7,000 units identified in the 2019 HNA. The presentation outlined the project's two phases, describing the reporting and analyses to be conducted in Phase 1 for adoption in June of 2027, and the Housing Production Strategy in Phase 2, anticipated for adoption in 2028. The project's overall timeline was also reviewed, noting key joint meetings to update the Council and the Urban Area Planning Commission, as well as Advisory Committee meetings. Staff invited two Councilors to serve on the Committee to provide guidance and insights into developing the Housing Capacity Analysis.

Mayor Fitch stated Council would determine who would serve on the Advisory Committee by Tuesday, May 26, 2026.

At this point in the meeting, the Council moved to Item B. Tiered Water Rate Discussion #4.

D. Miscellaneous Items

Regarding sleeping/camping on public property, Mayor Fitch proposed excluding all residential areas from allowable camping under the time, place, and manner regulations, while allowing limited exceptions for temporary visitor RV parking. The proposal would apply to RVs parked on streets with a 72-hour limit, and he suggested having written permission from adjacent property owners. Staff did not believe the plan would pass muster as proposed but would conduct further research. The current City code allows enforcement under prohibited parking rules for vehicles and RVs in the right-of-way with a 72-hour limit and several clearances were noted. The City code is applied equally to all vehicles regardless of occupancy and is typically initiated through complaints.

Regarding managed camps, concerns that displacement from areas such as 17th Street could shift camping activity to other locations and reduce the effectiveness of the City's managed camp investment. Staff offered that dedicating more resources toward consistently enforcing the 72-hour limit could help homelessness issues but agreed there would be push back and to consider the matter further. If enforced, the Council questioned where the homelessness could be in Redmond.

The Council and staff discussed the Oregon Department of Transportation's (ODOT) proposed interim intersection improvements near Highland Avenue and 35th Street, in the context of pedestrian and vehicle safety concerns associated with the nearby recreation center. The Council expressed concerns that ODOT's proposed right-in/right-out design could increase vehicle speeds and create new traffic problems, and that it did not adequately address pedestrian safety or existing issues, such as speeding and drivers disregarding access restrictions. The Council identified a lighted crosswalk as the priority, and suggested ODOT consider design exceptions that would allow a crosswalk to be installed now while right-of-way acquisition and ADA improvements are pursued over time. Several safety issues were discussed regarding ODOT's design and insistence on installing a crosswalk. The City's concerns were forwarded to the legislative delegation and the potential for appeal on the speed zone was discussed with ODOT.

Staff noted that the proposal would improve vehicle access by allowing westbound left turns and reducing neighborhood cut-through traffic and confirmed that a formal request for a speed zone reduction had already been submitted to ODOT and remained under review. Additional messaging on signage at the recreation center could help to better direct pedestrians. The City had programmed $250,000 for the improvements in the 5-year Capital Improvement Program (CIP).

The Council supported continued coordination with ODOT to pursue a pedestrian crosswalk, speed zone reduction, and phased design solutions to improve pedestrian safety and ADA compliance over time.

The Council and staff provided updates on the Redmond 250 celebration planning, including ongoing sponsorship outreach to local businesses, parade logistics, and programming for the Friday evening block party. Staff noted coordination with the fireworks provider to improve the display and reduce delays between launches has occurred, with plans to transition to a computerized show in future years.

City Manager Keith Witcosky noted the Police Department was issued an abatement warrant, signed by a judge, to begin cleanup of the Desert Rise and 17th Street encampment site.

ADJOURNMENT
The meeting adjourned at 3:53 pm.

Prepared by ABC Transcription Services, Inc.
Reviewed by Kelly Morse, City Recorder

APPROVED by the City Council and SIGNED by the Mayor this 28th day of July 2026.

_____
Ed Fitch, Mayor

ATTEST:

_____
Kelly Morse, City Recorder

RECOGNITIONS

The City Council recognizes the following events in our community:

- **Bracero Day** – August 4, 2026
- **National Night Out** – August 4, 2026
- **Purple Heart Day** – August 7, 2026
- **National Spirit of “45 Day** – August 14, 2026
- **National Airborne Day** – August 16, 2026
- **Women's Equality Day** – August 26, 2026
- **National Employer Support of the Guard & Reserve Week** – August 16-22, 2026
- **Purple Heart Month** – August 2026
- **Dog Days of Summer** – August 2026

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
FROM: Joshua Wedding, Public Works Operations Manager - Water/Parks/Facilities
Jessica MacClanahan, Public Works Director/City Engineer
Jason Neff, Deputy City Manager/Chief Financial Officer
SUBJECT: Tiered Rate Billing System Based on Water Usage: Informational Presentation

---

Report in Brief:
As part of the City's commitment to water conservation and modernization of business practices, a comprehensive rate study for the water utility began in December 2024. This study has evaluated various rate structures to incentivize conservation while ensuring proper revenues for the operation and maintenance of the water utility are maintained.

Background:
In December 2024, the Redmond Water Utility began a rate study project with the help of consultant Deb Galardi, of the Galardi Rothstein Group, to evaluate its current rate structure and identify potential updates that would be beneficial to the City of Redmond's water conservation goals while maintaining adequate revenue to support the Utility's ongoing obligations. Over the course of a year, the project team worked to complete the following tasks:

- Develop multi-year financial plans — Evaluate overall utility rate levels to meet projected revenue requirements and align with financial policies.
- Conduct a cost of service analysis — Evaluate system-specific cost parameters following accepted industry practices and allocate costs to customer classes based on their service requirements.
- Evaluate rate structures — Review existing water rate structures and identify and develop alternatives.
- Develop rate models — The rate models will perform the calculations for the system and produce rate schedules and sample customer bills to illustrate impacts.
- Conduct a rate survey — Rates were collected from six other Oregon cities and their residential bills were compared with the City’s existing and revised rates.

Through this study and the cost of service analysis, it was determined that an inclining block rate structure, also referred to as a tiered rate structure, would be the most effective tool for targeting water conservation incentives for residential utility customers. Residential customers (including homes served by master meters) are about 65% of annual water use, and 75% of peak month water use during the irrigation season.

This tiered rate structure change, partnered with the City's current initiatives and rebate program, will help the City achieve its water conservation goal of reducing water use by 10% over 10 years while maintaining the revenue needed for the utility's obligations. It will be an effective tool for years to come in managing the City's use of water resources in the region responsibly.

Discussion:
Staff previously presented findings from the rate study at a Council Informal meeting on December 15, 2025. City Council directed staff to determine customer bill impacts and present findings at a later date. Since that meeting, staff have assessed current customer water use and what future bill impacts would be, should the current water utility rate structure change from a singular rate charge to a tiered rate charge based on customer water use.

Fiscal Impact:
A phased implementation approach will be needed to achieve a full 10% water use reduction and minimize bill decreases.

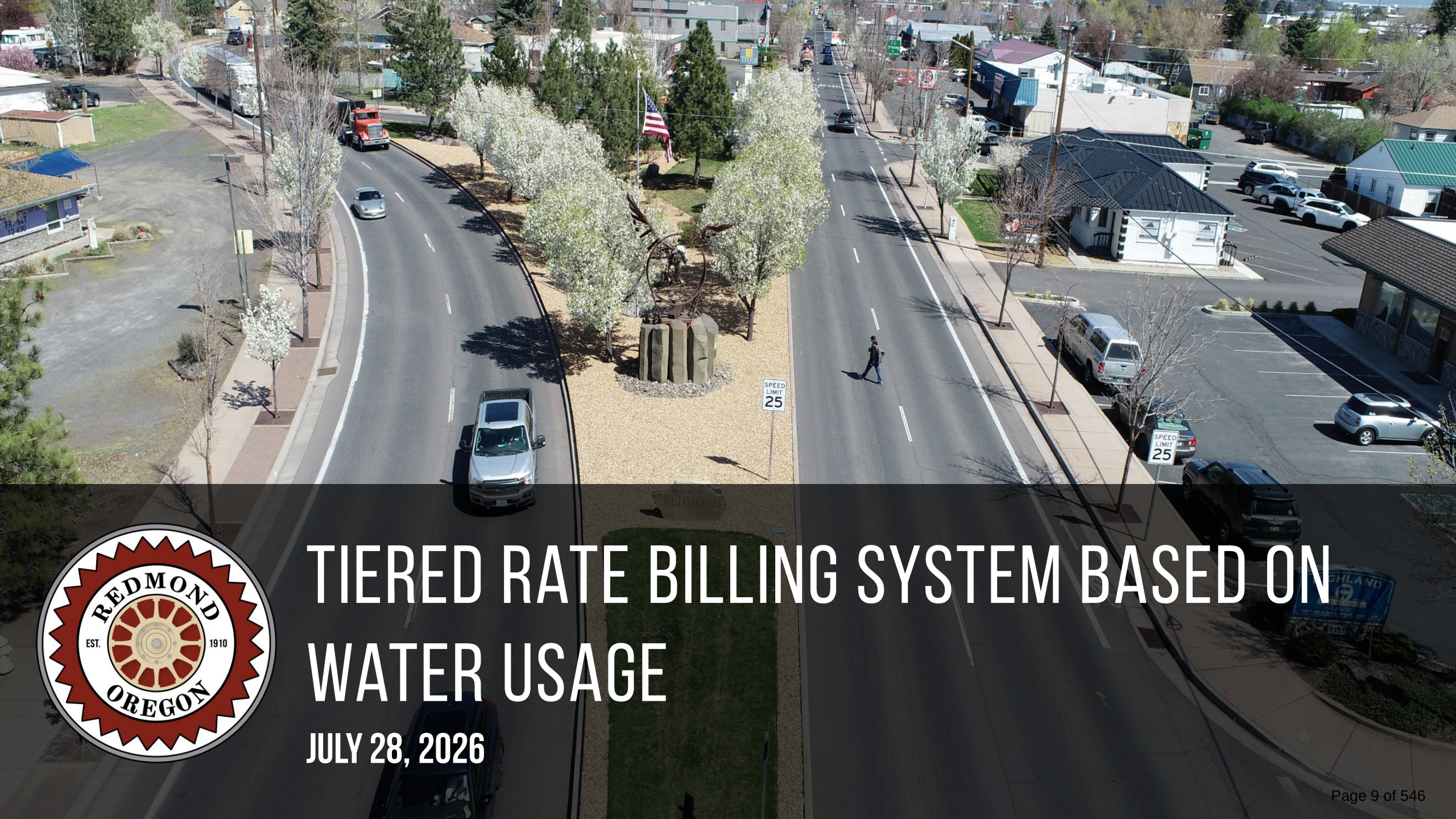
- Phase 1 (2-3 years): Tiered rate implementation with moderate pricing differentials to avoid bill decreases.
- Phase 2 (4-10 years): Relatively larger increases in upper block rates to create more punitive pricing structure for further reductions during peak use.

Financial models have been provided to the City of Redmond for ongoing rate adjustments over time and as needed. If a new rate structure is adopted, it will remain dormant until March of 2027, at which point it will be implemented in time to impact the irrigation season, which begins on April 1, 2027.

Alternative Courses of Action:
Typically there are three options:

1. Accept / approve said item
2. Do not accept / approve said item
3. Take no Action and Request more information

Recommendation / Suggested Motion:
Provide feedback to staff and/or request more information for review at a future work session.



TIERED RATE BILLING SYSTEM BASED ON WATER USAGE

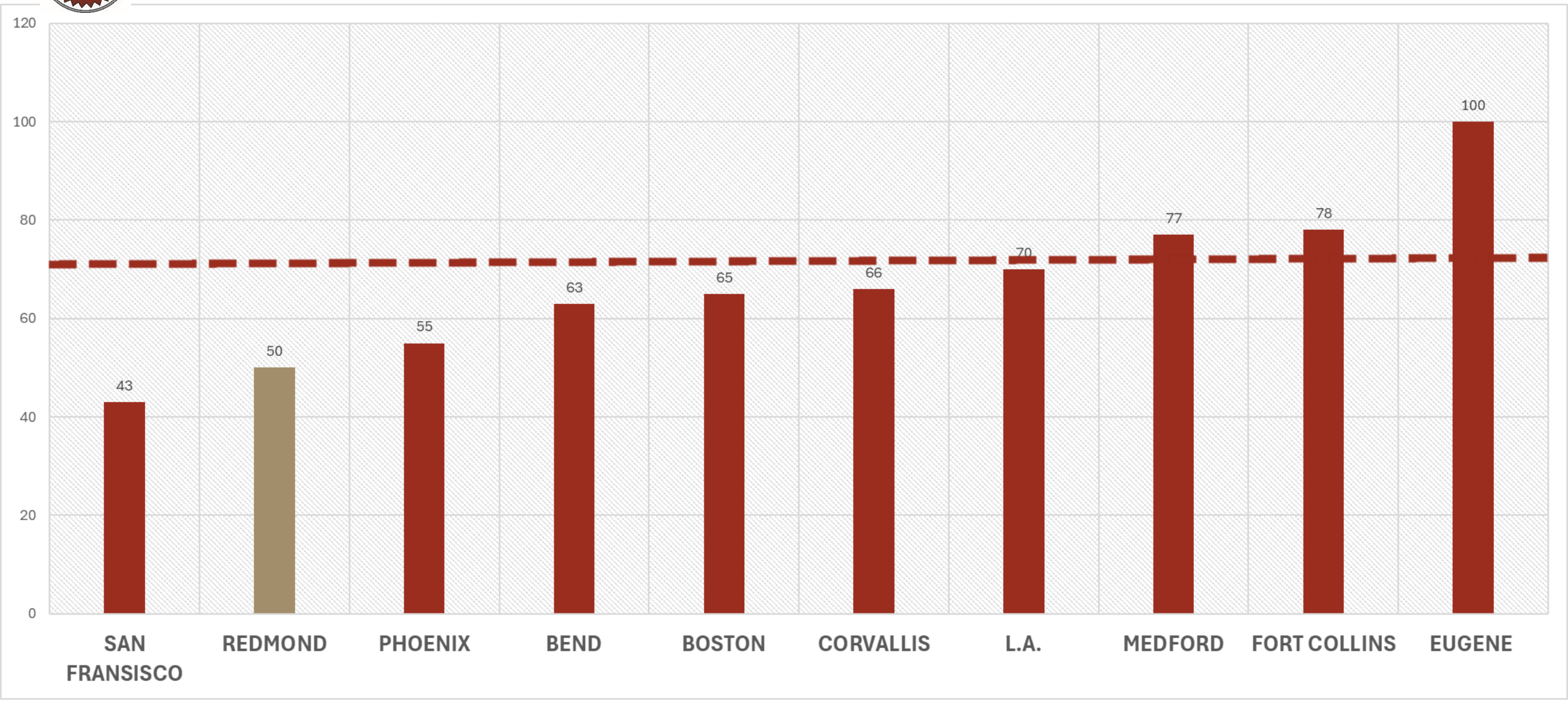
JULY 28, 2026

WHY WATER CONSERVATION MATTERS

- **Constrained Resource**
- **State Regulations**

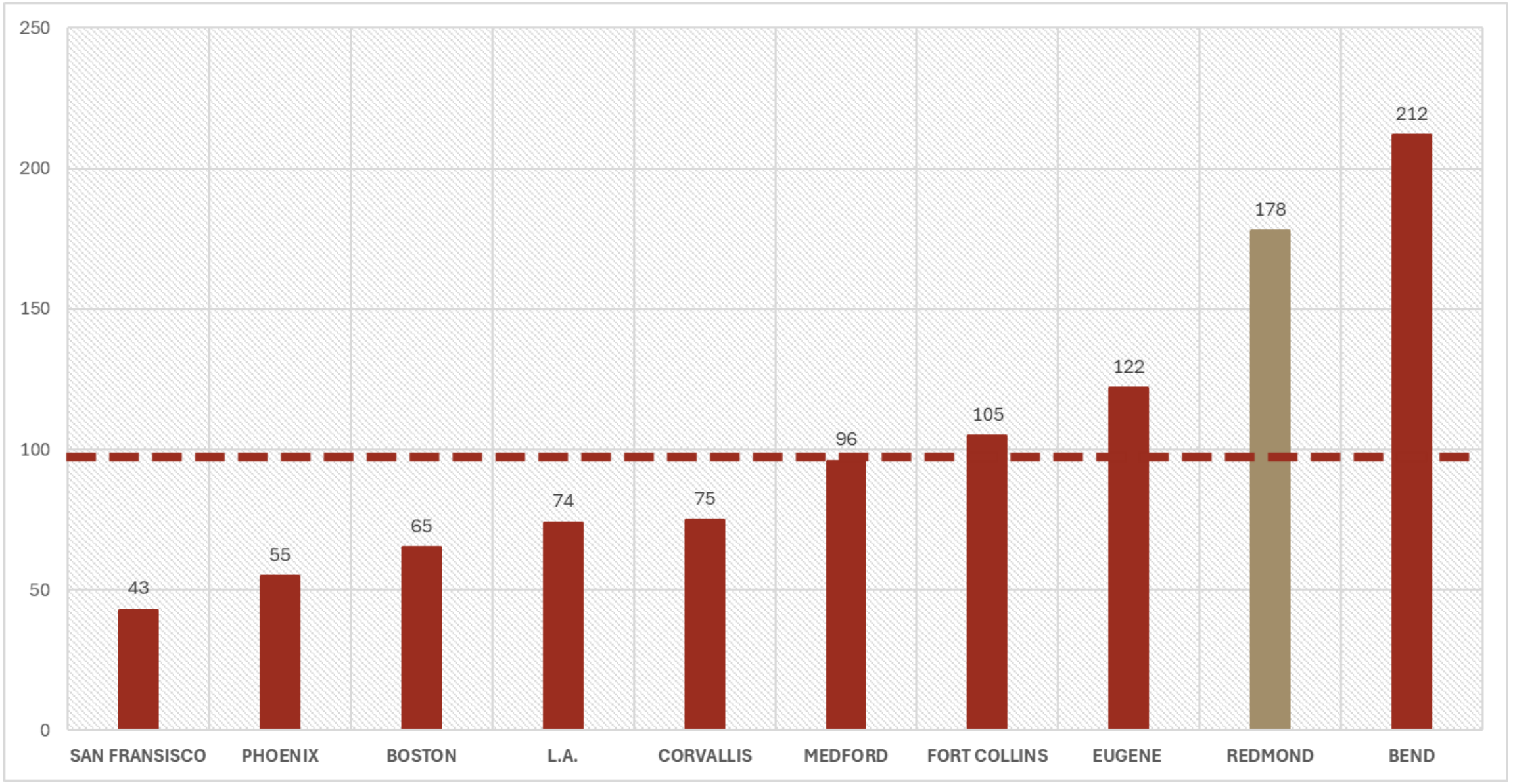


HOW DOES REDMOND COMPARE: INDOOR USAGE

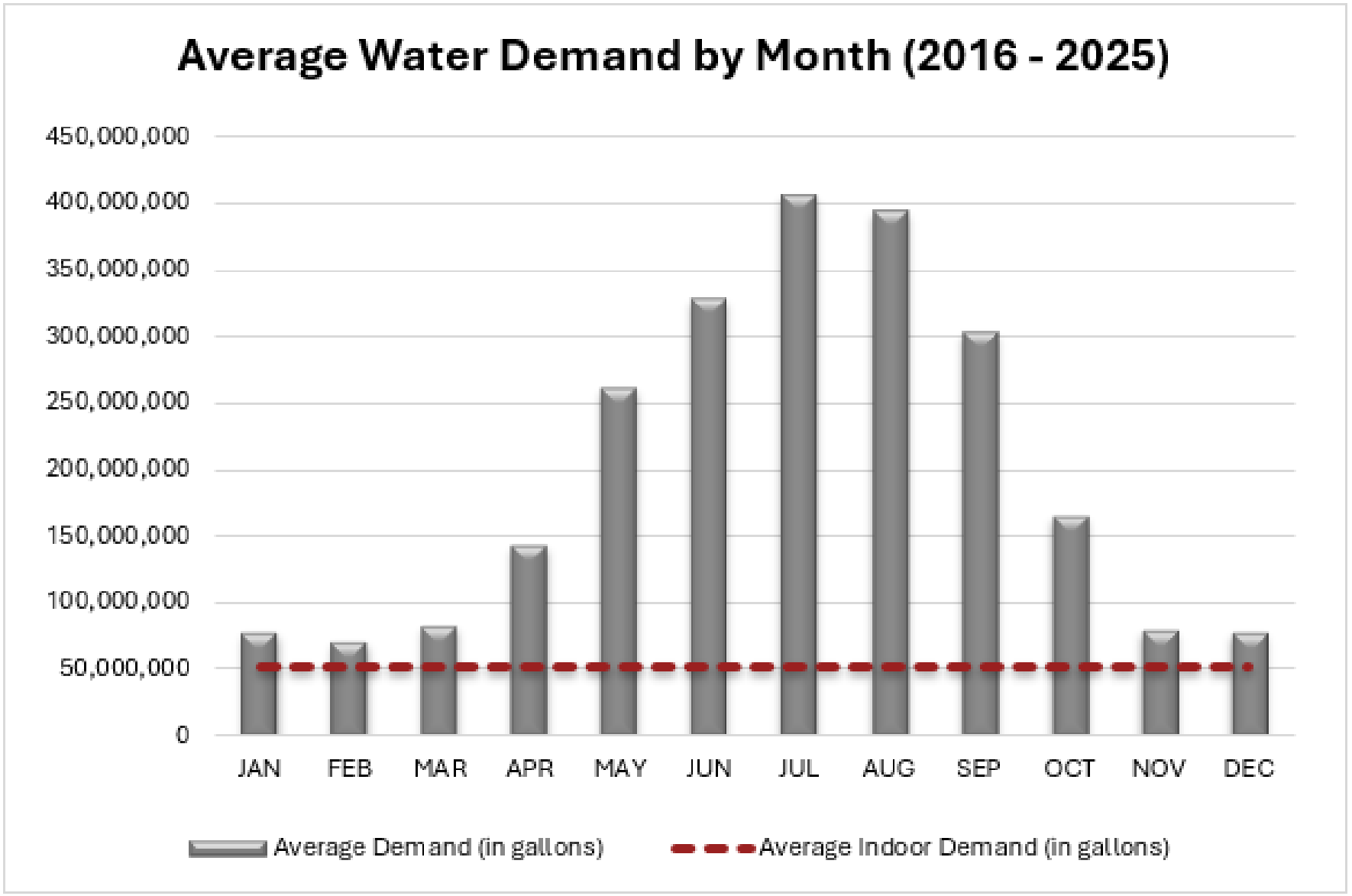


----- National Average is 72 Gallon Per Capita Per Day

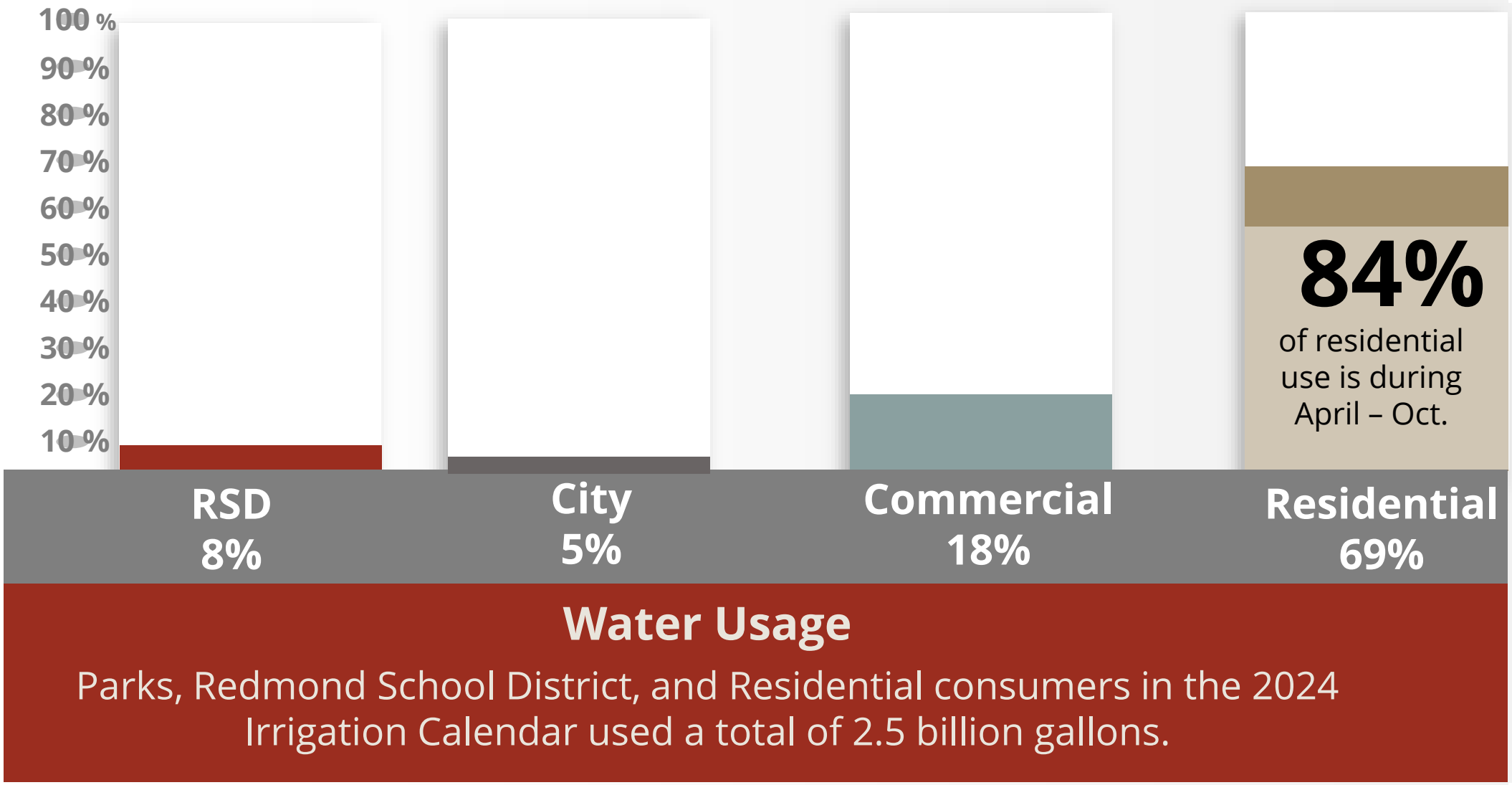
HOW DOES REDMOND COMPARE: OUTDOOR USAGE



National Average is 98 Gallon Per Capita Per Day Outdoor


Average Water Demand by Month (2016 - 2025)
450,000,000
400,000,000
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Average Demand (in gallons)
Average Indoor Demand (in gallons)

RESIDENTIAL CONSUMES A MAJORITY OF REDMOND USAGE



Water Usage

Parks, Redmond School District, and Residential consumers in the 2024 Irrigation Calendar used a total of 2.5 billion gallons.

CITY-LED PROJECTS & INITIATIVES

- **Water-Wise Landscape Demonstration Projects**
- **Reduced City Irrigation Use**
- **Public Outreach Campaign**
- **Code Amendments**

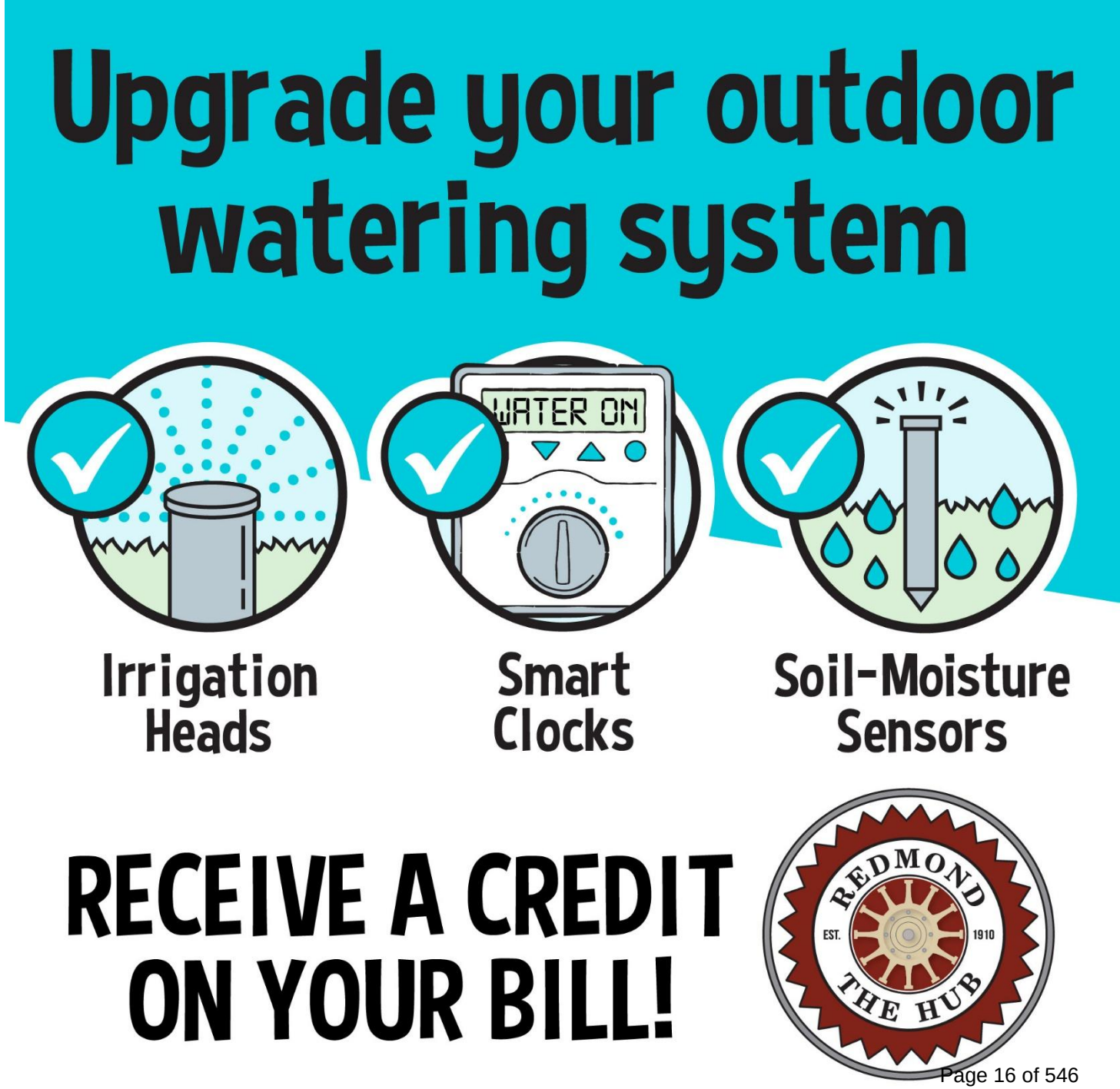






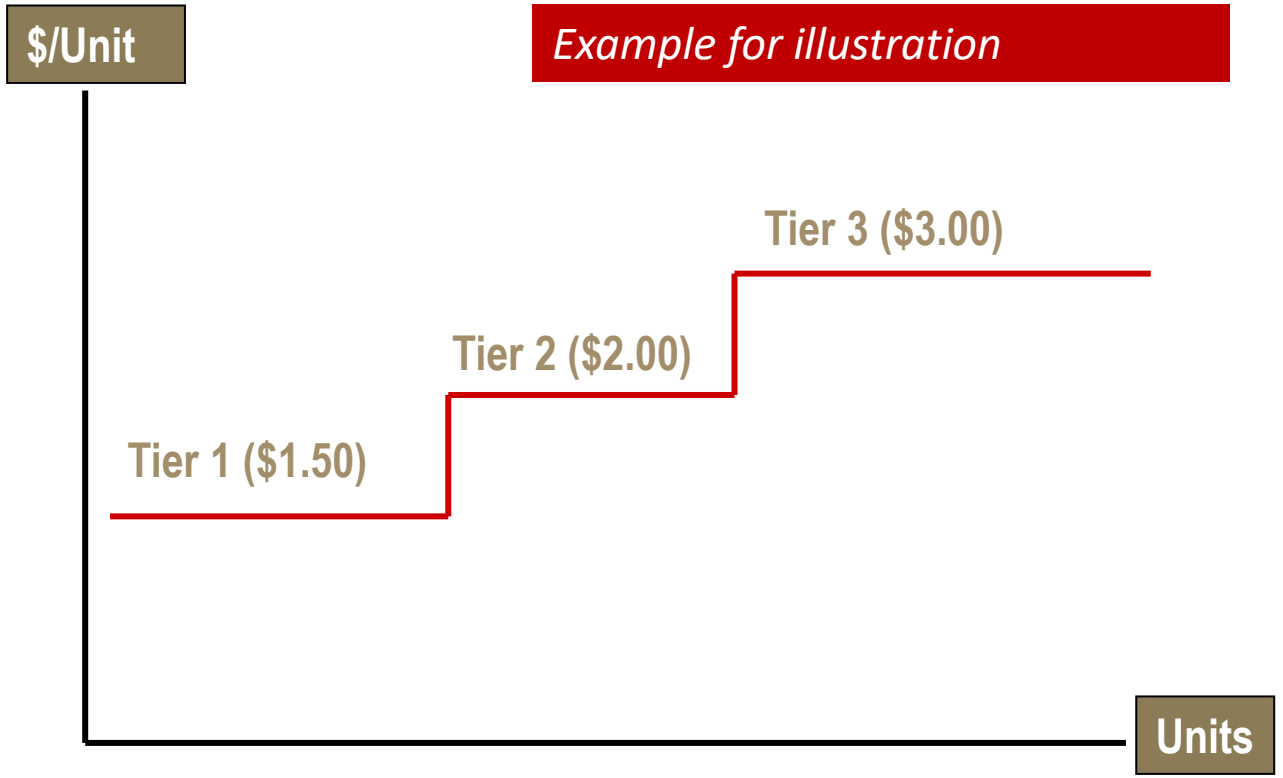
REBATE PROGRAM

- **Targets Outdoor Water Efficiency**
- **Estimates 10% Water Conservation Over 10 Years**
- **$130K Included in FY 26/27 Budget**



HOW A TIERED RATE BILLING STRUCTURE WORKS

- Implement conservation-oriented rate structure for **residential customers targeted at reducing peak demands.**
- Tiered rates are most common conservation structure:
  - 60-70% of utilities in water scarce regions
  - Nearly 50% of utilities nationally
- Number of tiers and consumption ranges reflect local goals/usage patterns
- Highly effective at reducing per capita use



PROPOSED 4-TIER RATE STRUCTURE

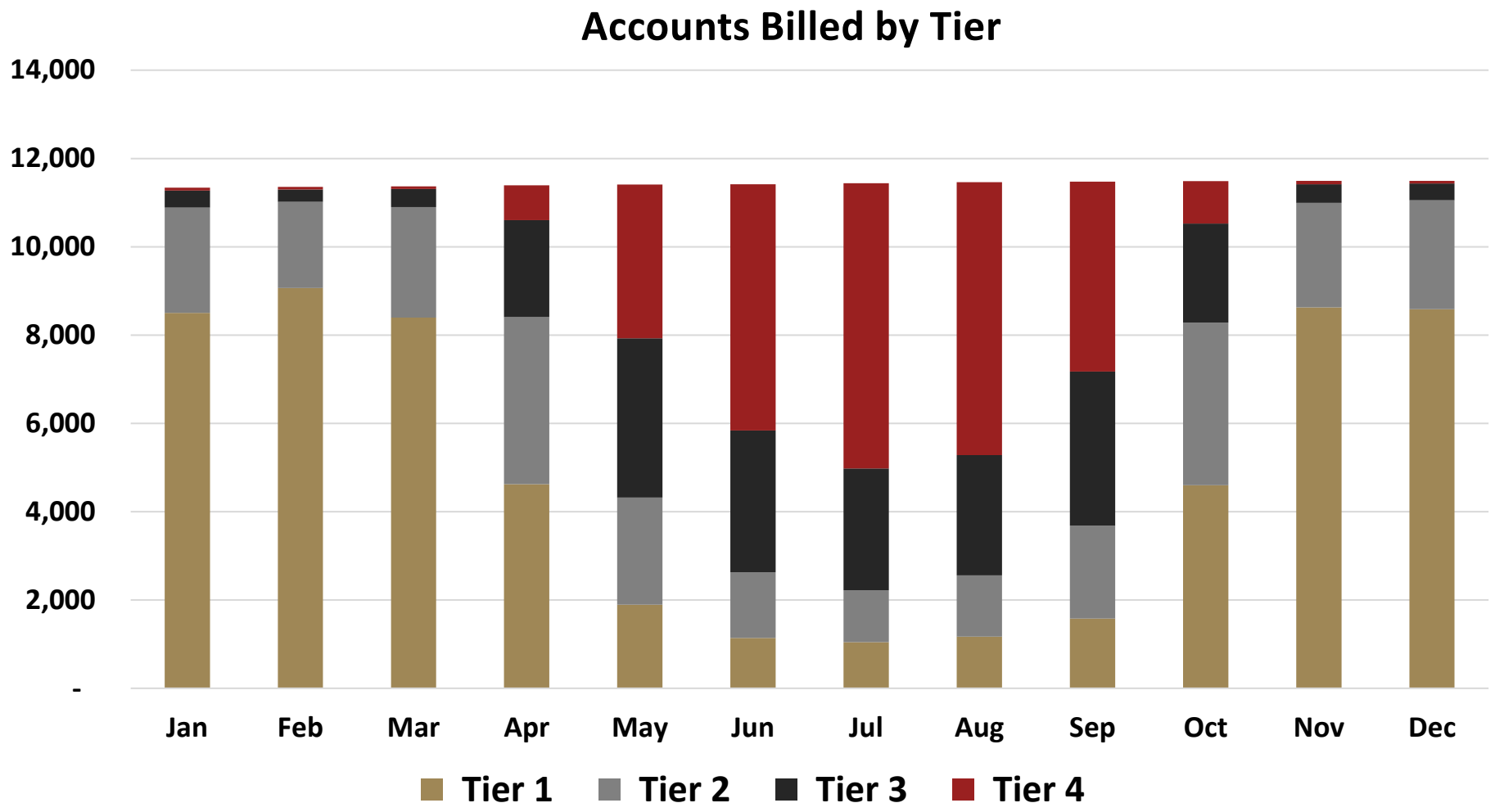
Tier cut-offs reflect Redmond water use:

- Tier 1 = winter avg (indoor) use
- Tier 2 = 2 X winter (transition rate for larger families & conservation incentive for fixing winter leaks)
- Tier 3 (up to summer avg) and Tier 4 (>summer avg) both target irrigation

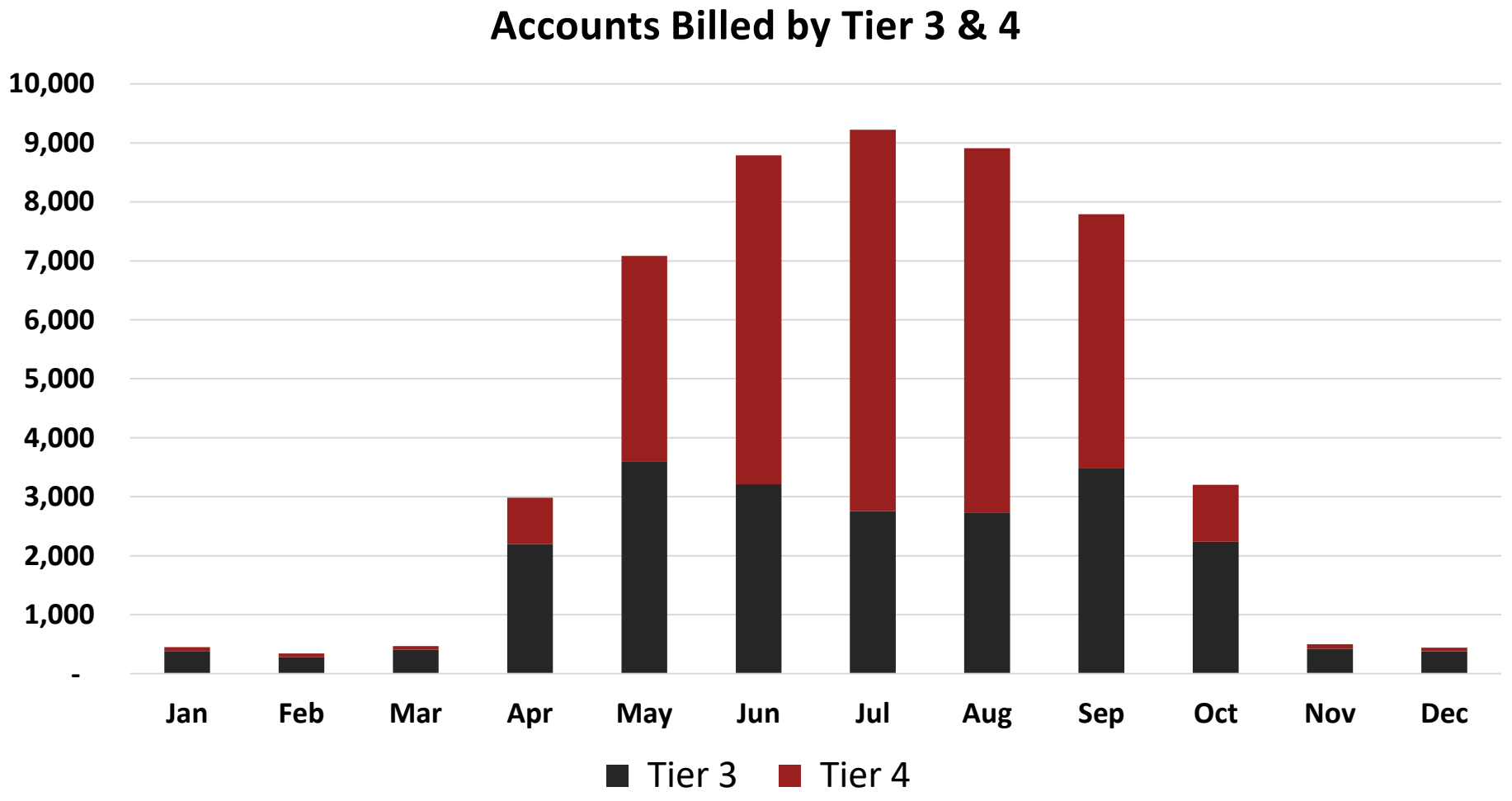
Tier	Consumption Range Ccf (Gal)	Tiered Rate ($/Ccf)	Current Rate ($/Ccf)
1	<6 (4,488)	$1.65	$1.65
2	6-11.99 (4,488-8,969)	$1.73	$1.65
3	12-20.99 (8,977-15,702)	$1.98	$1.65
4	21+ (15,709+)	$2.23	$1.65
Estimated % Reduction in Use		-5%	

1 Ccf (cubic feet) = 748 Gallons

CUSTOMER ACCOUNTS BY TIER



CUSTOMERS IN UPPER TIERS



EFFECT OF TIERED SYSTEM ON CUSTOMER BILLS

Tier Range	$ Change
Tier 1	$0.00
Tier 2	$0.50 - $1
Tier 3	$4 - $7
Tier 4	$12 - $60

98% of bills <100ccf (74,800 gallons) per month

BILL IMPACTS – HIGH USAGE

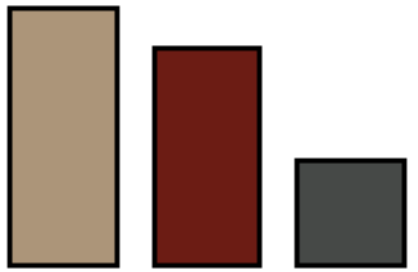
METER READING			
PREVIOUS	CURRENT	UNITS	METER ID#
4,505.742	4,564.945	59.203	79282420

FEE DESCRIPTION	AMOUNT
Sewer	$37.03
Water	$112.35
Storm Water	$9.03
Previous Balance	$127.91
Payments	-$127.91
Current Charges	$158.41
Service Fees	$0.00
Adjustments	$0.00
Total Due	$158.41

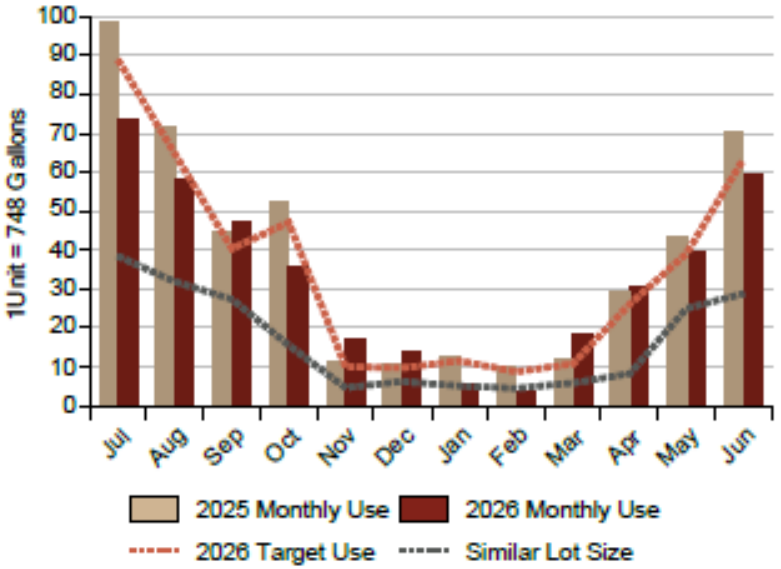
The City will implement a tiered water rate structure in March 2027. To learn more about this change, resources to help you conserve your water use, and lower your bill visit www.redmondoregon.gov/waterconservation

Tiered Rate Structure Starting March 2027		
Tier Ranges (ccf)	Current Use: 59.203 Units (ccf)	
Tier 1: 0 - 5.99	$1.65/unit in this range	$9.90
Tier 2: 6 - 11.99	$1.73/unit in this range	$10.38
Tier 3: 12 - 20.99	$1.98/unit in this range	$17.82
Tier 4: 21+	$2.23/unit in this range	$84.74
	Fixed Base Rate	$20.38
	Future Cost for Current Use	$143.22
	Current Cost for Current Use	$112.35
	Your bill will increase by	$30.87

YOUR MONTHLY WATER CONSUMPTION



Cost
$3.75
Per Day



BILL IMPACTS – LOW USAGE

METER READING

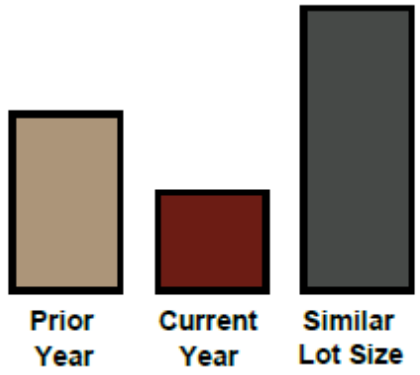
PREVIOUS	CURRENT	UNITS	METER ID#
1,966.935	1,976.989	10.054	47098836

FEE DESCRIPTION	AMOUNT
Backflow	$1.40
Sewer	$37.03
Water	$35.19
Storm Water	$9.03
Previous Balance	$82.15
Payments	-$82.15
Current Charges	$82.65
Service Fees	$0.00
Adjustments	$0.00
Total Due	$82.65

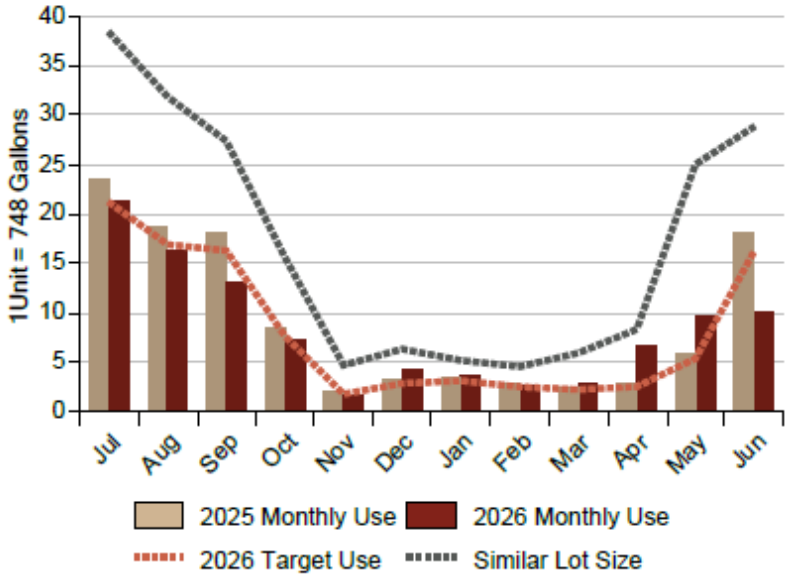
The City will implement a tiered water rate structure in March 2027.
To learn more about this change, resources to help you conserve your water use, and lower your bill
visit www.redmondoregon.gov/waterconservation

Tiered Rate Structure Starting March 2027		
Tier Ranges (ccf)	**Current Use: 10.054 Units (ccf)**	
Tier 1: 0 - 5.99	$1.65/unit in this range	$9.90
Tier 2: 6 - 11.99	$1.73/unit in this range	$10.38
Tier 3: 12 - 20.99	$1.98/unit in this range	$0.00
Tier 4: 21+	$2.23/unit in this range	$0.00
	Fixed Base Rate	$20.38
	Future Cost for Current Use	**$40.66**
	Current Cost for Current Use	$35.19
	Your bill will increase by	**$5.47**

YOUR MONTHLY WATER CONSUMPTION

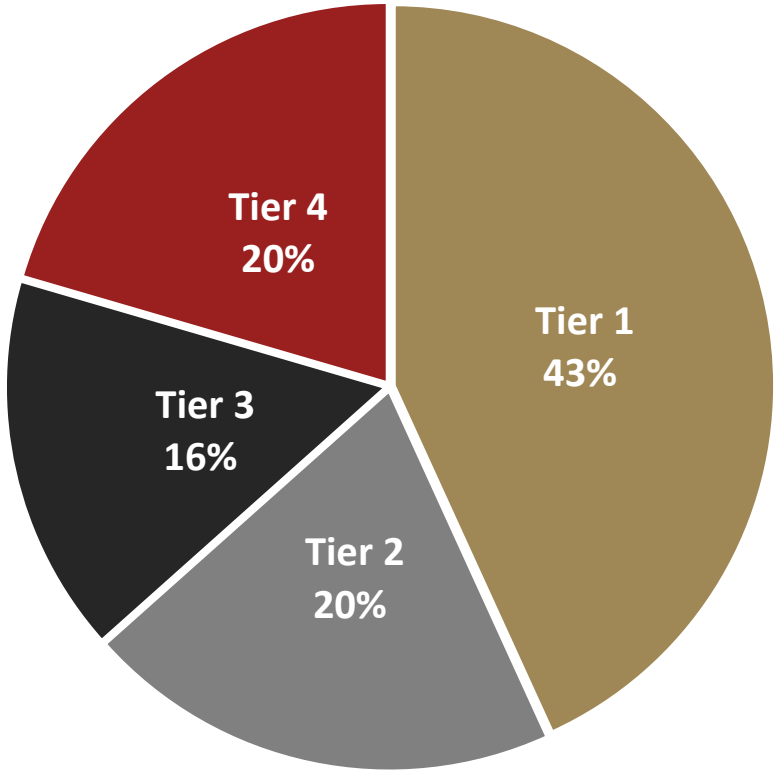


Cost
$1.17
Per Day

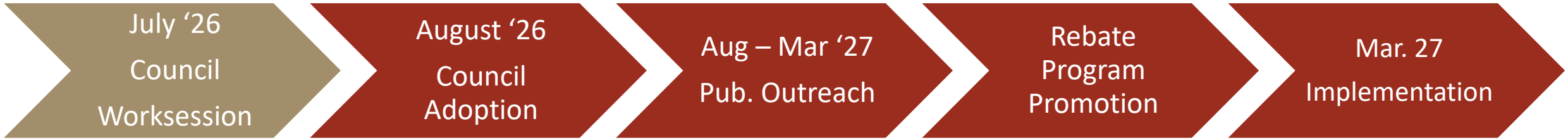


PERCENTAGE OF BILLS FOR ENTIRE YEAR

- 5% Single family residential demand use short-term reductions expected to conserve 60-75MG yearly
- Long-term reductions of 10% or better
- Opportunity to align water use with water right constraints and long-term capacity of the resource
- Capital project deferment and growth capacity



IMPLEMENTATION TIMELINE: JULY 2026 – MARCH 2027





Q & A

WWW.REDMONDOREGON.GOV/WATERCONSERVATION

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
Steve Ashworth, Deputy City Manager
FROM: Landon Stevens, Long Range Planner
Jessica MacClanahan, Public Works Director/City Engineer
Kyle Roberts, Planning Director
SUBJECT: Ordinance #2026-09 - An ordinance amending the 2040 Redmond Comprehensive Plan, adopting the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan and incorporation into the Public Facilities Plan and as a supporting plan to the Redmond Comprehensive plan.

Report in Brief:
This item requests the City Council approve an ordinance amending the 2040 Redmond Comprehensive Plan, through the adoption of the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan (DSL Master Plan) as a supporting element to both the Public Facilities Plan and the Comprehensive Plan.

Background:
As growth occurs, updates are made to the Public Facilities Plan, and other strategic documents that ultimately support and implement the Redmond Comprehensive Plan. The request before the City Council is to adopt the DSL Master Plan to the Public Facilities Plan and Comprehensive Plan. The new master plan focuses on approximately 789 acres of land in the southern portion of Redmond and addresses items such as necessary transportation, water, and wastewater needs in association with future development.

Discussion:
Urban Area Planning Commission recommendation:
As required through the legislative amendment process, the Redmond Urban Area Planning Commission held the first evidentiary public hearing on July 15, 2026. There was no public testimony. After review and deliberation, the Commission unanimously recommended the City Council adopt the proposed amendment as presented by staff.

As required by the City Charter, on July 21, 2026, notices regarding this Ordinance were posted in three places. Copies of the Ordinance were available for review at City Hall.

Fiscal Impact:
There are no immediate and direct fiscal impacts associated with the requested adoption. The master plan outlines general infrastructure costs needed to make the large lot industrial lands development-ready. Additionally, the plan identifies responsible parties who will contribute financially to the needed infrastructure costs, which includes the City, Department of State Lands (DSL), and future developers.

Alternative Courses of Action:
After conducting the public hearing and considering all the evidence and testimony:

1. Approve Ordinance #2026-09.
2. Continue the public hearing and request additional information.
3. Do not approve Ordinance #2026-09.

Recommendation / Suggested Motion:
“I move to have a first and second reading of Ordinance #2026-09 by title only.” (Voice vote)

(The City Attorney will read the ordinance by title only, twice.)

“I move to approve Ordinance #2026-09.” (Roll call vote)

CITY OF REDMOND
ORDINANCE NO. 2026-09

AN ORDINANCE AMENDING THE 2040 REDMOND COMPREHENSIVE PLAN, ADOPTING THE 2026 SOUTH REDMOND TRACT LARGE LOT INDUSTRIAL INFRASTRUCTURE MASTER PLAN AND INCORPORATION INTO THE PUBLIC FACILITIES PLAN AND AS A SUPPORTING PLAN TO THE REDMOND COMPREHENSIVE PLAN

WHEREAS, the City of Redmond Urban Area Planning Commission conducts periodic review of the City's Public Facilities Plans, considers needed updates and recommends changes in accordance with Oregon Revised Statutes, Chapter 227 that regulate and control the development of land within the city; and

WHEREAS, the Redmond Urban Area Planning Commission held a public hearing on July 15, 2026, and, after reviewing the record and gathering public testimony, has recommended that the Redmond City Council adopt the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan as a supporting plan to the 2040 Redmond Comprehensive Plan; and

WHEREAS, the Redmond City Council held a public hearing on July 28, 2026, to consider the recommendation of the Redmond Urban Area Planning Commission, review the existing record and gather additional evidence and public testimony; and

WHEREAS, the Redmond City Council has received the Redmond Urban Area Planning Commission's recommendation and, after receiving additional evidence and testimony, determined that the requested 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan, would contribute to the 2040 Redmond Comprehensive Plan Goals and Policies; and

WHEREAS, the Redmond City Council finds that the findings for the adoption of the amendment to the Redmond Comprehensive Plan has fully addressed the City's Comprehensive Plan, the applicable state law, the Statewide Planning Goals and the City's standards and criteria for an amendment to the Comprehensive Plan; and

WHEREAS, the Redmond City Council finds that the attached amendment is necessary to further these interests.

NOW, THEREFORE, THE CITY OF REDMOND ORDAINS AS FOLLOWS:

SECTION ONE: The City of Redmond hereby amends the 2040 Redmond Comprehensive Plan, adopting the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan as a supporting plan to the 2040 Redmond Comprehensive Plan. The amendment is attached hereto as "Exhibit B".

SECTION TWO: In support of the amendment in Section One, the City of Redmond hereby adopts the findings, attached hereto as "Exhibit A" which were prepared by City staff and demonstrate compliance with the City's Comprehensive Plan and the applicable Statewide Planning Goals.

SECTION THREE: SEVERABILITY. The provisions of this Ordinance are severable. The invalidity of any section, clause, sentence, or provision of this Ordinance shall not affect the validity of any other part of this Ordinance, which can be given without such invalid part, or parts.

PASSED by the City Council and **APPROVED** by the Mayor this 28th day of July 2026.

_____
Ed Fitch, Mayor

ATTEST:

_____
Kelly Morse, City Recorder

EXHIBIT A

FINDINGS FOR ADOPTION OF THE 2026 SOUTH REDMOND TRACT LARGE LOT INDUSTRIAL INFRASTRUCTURE MASTER PLAN AND INCORPORATION INTO THE PUBLIC FACILITIES PLAN AND AS A SUPPORTING PLAN TO THE REDMOND COMPREHENSIVE PLAN

HEARING DATE: July 28, 2026, 6:00 PM, Redmond City Hall Council Chambers and via digital conference (Zoom Meeting)

HEARINGS BODY: Redmond City Council

FILE NUMBER: 711-26-000113-TA

FILE NAME: Redmond Comprehensive Plan Amendment (2026 Large Lot Industrial Master Plan)

REQUEST: A legislative amendment to adopt and incorporate the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan into the Public Facilities Plan and as a supporting plan to the Redmond Comprehensive Plan

APPLICANT: City of Redmond

REVIEWING STAFF: Landon Stevens, Long Range Planner
Jessica MacClanahan, PE, Director of Public Works / City Engineer

I. BACKGROUND

Summary:
Redmond's Comprehensive Plan 2040 is the blueprint for the City's future development over the next 20 years. The Comprehensive Plan serves as the primary land use planning document, establishing a series of goals and policies that guide future growth and development. City leaders use the Comprehensive Plan to manage expected population and employment growth, coordinate public investments and make decisions about new and existing businesses, housing and neighborhoods, transportation, parks and trails, infrastructure, and more.

A major supporting plan to the Comprehensive Plan is the Public Facilities Plan. The Public Facilities Plan identifies the major public infrastructure needed over the next 20 years to support the City of Redmond's Comprehensive Plan. The Public Facilities Plan contains the Capital Improvement Plans (CIP) for Transportation, Water, Wastewater, and Parks. Individual master plans for Transportation, Water, Wastewater, and Parks provide background, analysis, and justification for the CIPs imbedded in the Public Facilities Plan. Naturally, as growth occurs, frequent updates are made to the master plans, pertinent reports, and documents that ultimately support and implement the Redmond Comprehensive Plan.

Additionally, the series of goals and policies contained in the Comprehensive Plan are, in part, informed by the City's adopted supporting plans. This Comprehensive Plan amendment involves adopting the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan. The Plan is an area-specific Master Plan which studies the large lot industrial lands in the south part of Redmond, totaling 949 acres. The Plan provides a comprehensive evaluation of the existing conditions with primary emphasis on road systems, water service, and sanitary sewer service. It also identifies the improvements necessary to facilitate appropriate development of these industrial lands, including cost breakdowns and assignments. In accordance with Oregon Statewide Planning Goal 11, the Large Lot Industrial Master Plan is a component of the City's Public Facilities Plan and is a support document to the City's adopted Comprehensive Plan.

Proposal:
The purpose of the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan is to provide the City with a document that depicts future growth scenarios, addresses and identifies infrastructure needs, and discusses how those improvements will be funded. The Plan aligns with land use and growth assumptions from the City's Comprehensive Plan.

Exhibits:
The following exhibits make up the record in this matter:

Exhibit B – South Redmond Tract Large Lot Industrial Infrastructure Master Plan, May 2026
Exhibit C – Public comments

Noticing:

Noticing for the first evidentiary hearing scheduled for July 15, 2026, was noticed as follows:

- Per ORS 197.610, a notice of proposed change to an acknowledged comprehensive plan was submitted to the Department of Land Conservation and Development (DLCD) on June 10, 2026.
- Per Section 8.1110 of the Redmond Development Code, a public hearing notice for the July 15th Planning Commission hearing was published in the *Redmond Spokesman* on July 2, 2026.

Noticing for the second evidentiary hearing scheduled for July 28, 2026, was noticed as follows:

- Per Section 8.1110 of the Redmond Development Code, a public hearing notice for the July 28th City Council hearing was published in the *Redmond Spokesman* on July 16, 2026.

Applicable Criteria:
The following are the applicable sections from the Oregon Revised Statutes, Oregon Administrative Rules, and the Redmond Development Code:

- Oregon Revised Statutes (ORS) – Chapter 197
- Oregon Administrative Rules (OAR), Chapter 660:
  - Division 11, Public Facilities Planning
  - Division 15, Statewide Planning Goals and Guidelines
  - Division 18, Post-Acknowledgement Amendments
- City of Redmond Development Code:
  Article I – Zoning Standards
  - Section 8.760: Criteria for Amendments

II. FINDINGS & CONCLUSIONS

Findings:
Redmond Development Code, Article I – Zoning Standards: Amendments: Sections 8.750 through 8.770 set forth the procedure and standards for an amendment to the Redmond Comprehensive Plan. Specifically, Section 8.760 sets forth the four review criteria that must be met when evaluating amendment requests. Findings for each criterion are presented below.

8.760 Criteria for Amendments. The burden of proof is upon the applicant. The applicant shall show the proposed change is:

1. In conformity with all applicable State statutes;

FINDING: The following State statutes apply directly to this application:

ORS 197.610, *Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development*

ORS 197.610 requires local jurisdictions to submit proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development (DLCD). Notice of the proposed amendment to the Redmond Comprehensive Plan has been provided to DLCD more than 35 days in advance of the first evidentiary hearing concerning the amendments.

ORS 197.797, *Local quasi-judicial land use hearings; notice requirements; hearing procedures*

ORS 197.797 sets forth noticing requirements. The applicable RDC standards that address amendment and legislative procedures and noticing requirements (i.e., Sections 8.750-8.770 and 8.1100-8.1125) were developed in compliance with the applicable State statute regarding noticing and public hearings. The relevant findings, incorporated by reference herein, show compliance with the aforementioned statutes.

Notice of the proposed Comprehensive Plan amendment has been advertised in the local newspaper (public notice) as required by the RDC and State statute. Regarding statutory public hearing requirements, this proposal is legislative and not quasi-judicial. Sections 8.1100 through 8.1125 of the RDC implement the quasi-judicial statutory requirements in similar fashion and have been met. The Redmond Urban Area Planning Commission and City Council's public hearing and review processes meet the statutory requirements for the purpose of the review.

Based on the above discussion and finding, staff concludes that the proposed amendment complies with criterion #1.

2. In conformity with the State-wide planning goals whenever they are determined to be applicable;

FINDING: The following State-wide planning goals have been determined to apply directly to this application:

Goal 1 – Citizen Involvement - calls for the opportunity for citizens to be involved in all phases of the planning process. The Redmond Urban Area Planning Commission serves as the City's formal citizen advisory commission to fulfill Goal 1 and is made up of Redmond area residents.

Additionally, in terms of engagement, accompanying a press release, the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan was published on the City's website a month in advance of the evidentiary hearings for public review. Notice was provided to DLCD in accordance with state statute, and a legal notice was published in the local newspaper in accordance with the Redmond Development Code. Lastly, the agenda for the Planning Commission public hearing, where and when the proposed amendments are discussed, were provided in accordance with law. All documents were available for public review.

Goal 3 – Agricultural Lands – is not applicable because there are no agricultural lands in the city limits.

Goal 4 – Forest Lands – is not applicable because there are no forest lands in the city limits.

Goal 5 – Natural Resources, Scenic and Historic Areas, and Open Spaces – is not applicable because the proposed amendment will not affect any regulation that implements Goal 5 and the City's acknowledged regulations implementing Goal 5 remain in effect with no change in applicability.

Goal 6 – Air, Water, and Land Resources Quality – requires that all waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules, and standards. The Plan will ensure compliance with applicable state and federal environmental quality statutes, rules, and standards.

Goal 7 – Areas Subject to Natural Hazards – is not applicable because the City's acknowledged regulations implementing Goal 7 remain in effect with no change in applicability.

Goal 8 – Recreational Needs – requires the City to satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts. This goal is not applicable as the amendment will have no effect on the availability of or access to recreational opportunities.

Goal 9 – Economic Development – requires the City to plan and zone enough land to meet the community's projected commercial and industrial needs. The City adopted an Economic Opportunities Analysis (EOA) in 2020. This document serves as the City's compliance document under Goal 9, OAR 660-009-0015, ORS 197.712, and provides the basis for commercial and industrial development policies established in the Comprehensive Plan. Updated information from the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan will help the City plan for and implement said policies, for example, determining which lands/areas are serviceable with public facilities.

Goal 10 – Housing – provides for the housing needs of citizens of the state. The City adopted a Housing Needs Analysis (HNA) in 2019. This document serves as the City's compliance document under Goal 10, OAR Chapter 660 Division 008, and ORS 197.296(3). This report concludes that Redmond should plan to accommodate development of 6,963 new dwelling units over the next 20 years in order to house the projected population growth. Goal 10 is not applicable to the adoption of the Large Lot Industrial Master Plan because the master plan studies and focuses on lands which are zoned for industrial uses and public facility uses only. No residential lands are covered under the area which this master plan has studied.

Goal 11 – Public Facilities and Services – requires cities to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban development. As mentioned earlier, the purpose of this Plan is to adopt a formal study of the subject area to be used in reference to future industrial development. This will include components such as roadway dedication and construction, water and wastewater availability, and how these components will be funded. This area-specific plan will serve to enhance the current Public Facilities Plan and effectively unlock this area of South Redmond for commercial and industrial development opportunities.

In accordance with Oregon Administrative Rules (OAR), Division 11, the Plan identifies needed infrastructure improvements and extensions within Redmond city limits. In addressing OAR 660-011-0015 and Section 7 of the City-County Joint Management Agreement, it should be noted that no urban growth boundary amendments are planned in conjunction with the adoption of the Plan.

Goal 12 – Transportation – requires the City to provide and encourage a safe and convenient and economic transportation system. Per OAR 660-012-0060, the proposed amendment will fulfill the requirements of Goal 12 with respect to road infrastructure improvements. The adoption of the Plan does not directly result in infrastructure improvements, but rather identifies what future improvements will be required at the time of development.

Goal 13 – Energy Conservation – is not applicable because the City's acknowledged regulations implementing Goal 13 remain in effect with no change in applicability.

Goal 14 – Urbanization – requires the City to provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities. The information and data contained in the Plan will be used to help plan for infrastructure needed to accommodate development and the estimated buildout of the subject area in city limits and as defined in the Comprehensive Plan.

Goal 15 – Willamette River Greenway – is not applicable to the city of Redmond.

Goal 16 – Estuarine Resources – is not applicable to the city of Redmond.

Goal 17 – Coastal Shorelands – is not applicable to the city of Redmond.

Goal 18 – Beaches and Dunes – is not applicable to the city of Redmond.

Goal 19 – Ocean Resources – is not applicable to the city of Redmond.

Based on the above discussion and finding, the proposed amendment is consistent with the statewide planning goals and therefore complies with criterion #2.

3. In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and

FINDING: The following Comprehensive Plan chapter and policies have been determined to apply directly to this amendment:

Chapter 1 of the Comprehensive Plan identifies goals and policies that address citizen involvement. Goal 1 speaks to engagement and the opportunity for the community to be informed and involved in all phases of the planning process. The Urban Area Planning Commission serves as the City's formal citizen advisory committee (as required by State Administrative Rule) and is made up of Redmond area residents. The Planning Commission is formally recognized through City Code and was appointed by the City Council. Thus, the Planning Commission is the appropriate public review and recommendation body to the City to meet this Comprehensive Plan policy.

Chapter 2 of the Comprehensive Plan identifies goals and policies that pertain to land use planning and procedures. Specifically, it speaks to establishing a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions. Most relevant to the proposed Comprehensive Plan amendment, Goal 3 of the chapter addresses implementation tools of the Comprehensive Plan. Policy 2-3-3 identifies the need to "Adopt updates to system plans, as required by state law or necessary to address changing community needs and incorporate these plans by reference in the Comprehensive Plan." Incorporating the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan into the Public Facilities Plan and adding the Plan as a supporting plan to the Comprehensive Plan will support the implementation of the Comprehensive Plan, primarily Chapter 11.

Chapter 9 of the Comprehensive Plan identifies goals and policies that address economic development in Redmond. Goal 3 of the chapter identifies policies related to infrastructure planning. Policy 9-3-2 states that "The City will ensure that infrastructure planning is cost-effective, supports economic development, is consistent with the City's master plans for new area development, and supports cohesive development patterns across the City." To ensure the planning of public infrastructure is

consistent with the City's infrastructure master plans, the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan must be incorporated into the City's Public Facilities Plan and identified as an ancillary plan to the Comprehensive Plan. In order to incorporate the Plan into the Public Facilities Plan, it must be formally adopted by the local governing body and acknowledged by DLCD.

Chapter 11 of the Comprehensive Plan addresses public facilities and services. The chapter describes existing public and private facilities and services and known present and future needs based on projected growth. It does not present specific public improvements which may be needed. That information is contained in the City's adopted Public Facilities Plan. The Plan is a support document to the Comprehensive Plan, which describes in detail the water, sewer, transportation, and park facilities needed to accommodate anticipated development and includes cost estimates of facility improvements. The proposed amendment to incorporate the Plan into the Public Facilities Plan and Comprehensive Plan directly address all three of the goals outlined in Chapter 11 and many of the goals' policies.

Based on the above discussion and finding, staff concludes that the proposed Comprehensive Plan amendment complies with criterion #3.

4. That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

FINDING: The City does not currently have an area-specific facilities plan which focuses on the Large Lot Industrial land in South Redmond. The justification for this amendment, as stated in the optional causes, would be "*further studies justifying the amendment*". With adoption, the current Public Facilities Plan will absorb the 2026 South Redmond Tract Large Lot Industrial Infrastructure Master Plan, which will enhance the Public Facilities Plan, as the Plan offers more specificity regarding needed improvements for this area of South Redmond. New information and data will be used to inform the Capital Improvement Program imbedded in the Public Facilities Plan. The new Plan will provide foundational support to the Comprehensive Plan policies used to implement the Plan and Development Code.

Based on the above finding, staff concludes that the proposed Comprehensive Plan amendment complies with criterion #4.

III. RECOMMENDATION

This proposal was heard in a public hearing and considered by the Redmond Urban Area Planning Commission on July 15, 2026. After a staff presentation by City Planning and City Engineering, the Planning Commission voted unanimously to forward a positive recommendation for adoption to the City Council. There was no public testimony.

EXHIBIT B

South Redmond Tract
Large Lot Industrial
Infrastructure Master Plan

Prepared for:
City of Redmond

Prepared by:
DOWL
1001 SW Emkay Dr., Ste 120
Bend, OR 97702
Adam B. Conway, P.E.

TABLE OF CONTENTS

BACKGROUND 3

ESTIMATED PROJECT COSTS 4

WATER INFRASTRUCTURE

- EXISTING WATER SYSTEM 5
- WATER SYSTEM IMPROVEMENTS ANALYSIS 5
- MODELING RESULTS 6
- EXISTING CAPACITY AND FRONTAGE IMPROVEMENTS 6
- SYSTEM IMPROVMENTS 7

WASTEWATER SERVICE

- EXISTING WASTEWATER SYSTEM 9
- WASTEWATER SYSTEM ALTERNATIVESS ANALYSIS 9
- SELECTED ALTERNATIVE 11

TRANSPORTATION SYSTEM PLAN

- POTENTIAL TRANSPORTATION SYSTEM IMPROVEMENTS 13

TABLES

TABLE 1. SYSTEM IMPROVEMENTS WITHOUT PRESSURE ZONE 1A BUILDOUT 6

TABLE 2. SRT SYSTEM IMPROVEMENTS FOR PERMANENTLY CAPACITY 6

TABLE 3. POTENTIAL INDUSTRIAL WATER USE RATES 8

TABLE 4. ALTERNATIVE 1 ADVANTAGES AND DISADVANTAGES 9

TABLE 5. ALTERNATIVE 2 ADVANTAGES AND DISADVANTAGES 10

TABLE 6. ALTERNATIVE 3 ADVANTAGES AND DISADVANTAGES 10

TABLE 7. CHOOSING BY ADVANTAGE MATRIX 11

TABLE 8. PRIORITY INTERSECTION CAPACITY IMPROVEMENTS 14

FIGURES

FIGURE 1. DEPARTMENT OF STATE LANDS 949 ACRE PARCEL 3

FIGURE 2. EXISTING WATER DISTRIBUTION SYSTEM 5

FIGURE 3. PROPOSED WATER SYSTEM IMPROVEMENTS 7

FIGURE 4. YEW AVE. ALT. 4 – COMBINATION OF YEW AVE. PS AND EAST SPRUCE INTERCEPTOR 12

FIGURE 5. TRANSPORTATION OFFSITE IMPROVEMENTS WITH EMPLOYMENT TRIGGERS 14

APPENDIX A – FINANCIAL PLAN

APPENDIX B – CONSOR MODELING RESULTS

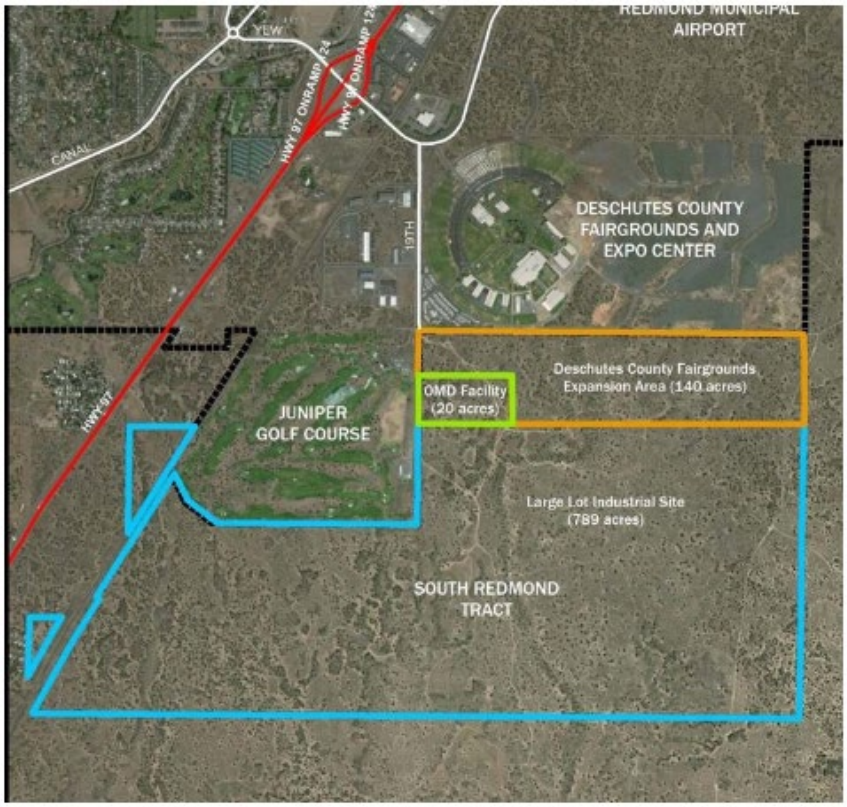
APPENDIX C – TRANSPORTATION ANALYSIS

BACKGROUND

The South Redmond Tract (SRT) is a 949-acre parcel owned by the Department of State Lands (DSL) located in the southeast quadrant of the City of Redmond (City) and adjacent to the Deschutes County Fairgrounds. Approximately 789 acres if the parcel is proposed for large lot industrial development and is designated under the City's LLI zone. A 160-acre portion of the South Redmond Tract is planned for an expansion of the Deschutes County Fairgrounds and a relocated facility for the Oregon Military Department (OMD). Previous attempts to develop the large lot industrial parcels have discovered the cost to construct the required infrastructure was substantially large and prohibited the development of the lots. The City of Redmond performed an infrastructure study on the water, sewer, and transportation systems that will result in an Infrastructure Master Plan to support a Financing Plan for the SRT to inform the development of the large lot industrial parcels. The City put together a Technical Advisory Committee (TAC) to provide direction and make decisions throughout the study. TAC consisted of stakeholders in the SRT which included the following:

- The City of Redmond
- Deschutes County
- Department of State Lands
- Oregon Department of Transportation
- Department of Administrative Services
- Oregon Department of Transportation
- Redmond Economic Development

Figure 1. Department of State Lands 949 Acre Parcel



ESTIMATED PROJECT COSTS

The study developed preliminary estimates of costs for the infrastructure improvements based on available information at the time. The estimated construction costs developed for this study are concept level estimates and their level of detail falls within Estimate Class 5 as defined by the Association for the Advancement of Cost Engineering (AACE) International. Consistent with this estimate class, the accuracy is anticipated to be within +50% to –30% of the actual cost. Allowances for construction mobilization, traffic control, erosion control, contractor overhead and profit, construction contingencies, escalation, engineering and City legal and administration expenses are included in the estimates.

Actual project costs will vary as project scopes are further refined and as timing of improvements are deemed necessary.

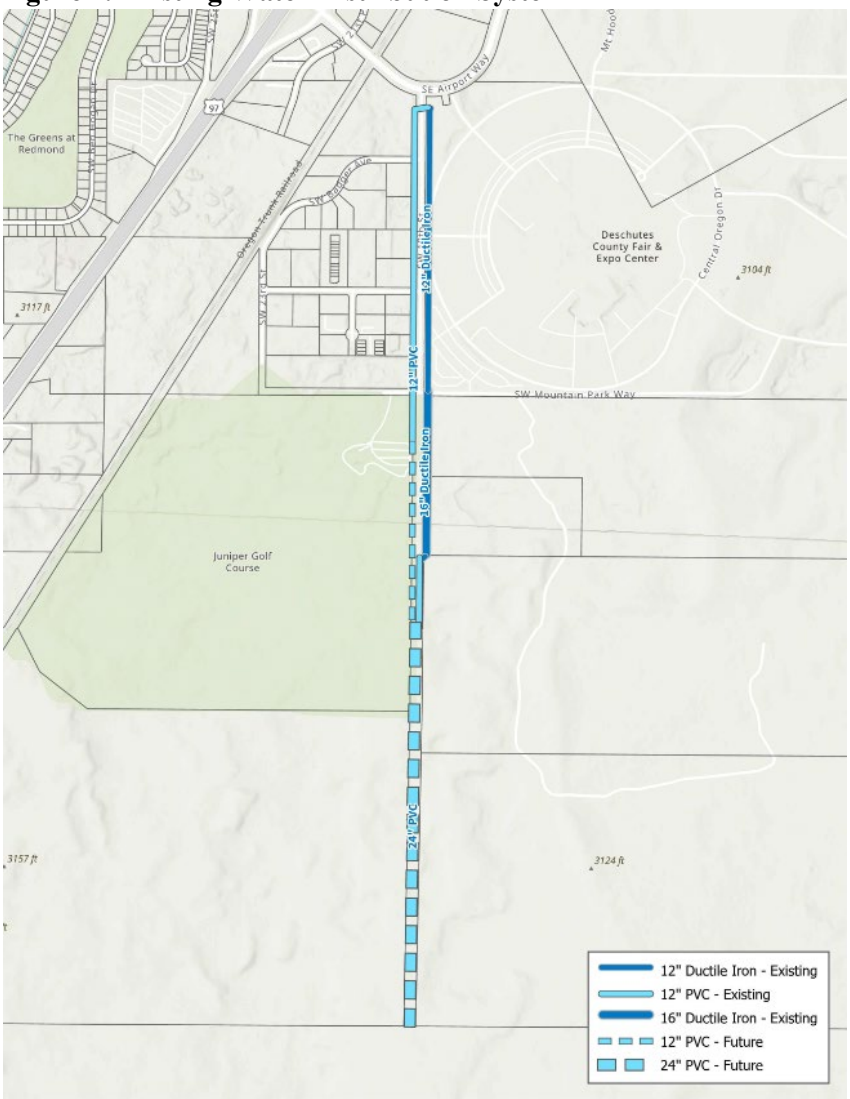
WATER INFRASTRUCTURE

Existing Public Water System

The City of Redmond provides potable water service to the SRT through a network of water transmission and distribution piping. The City's water distribution is comprised of three pressure zones, supplied entirely from ground water. The SRT is within pressure Zone 1A and is supplied by the City's Zone 1A Pump Station as well as a pressure reducing valve (PRV) from pressure Zone 1.

Figure 2 shows the existing water distribution lines in proximity to the SRT. The current distribution pipe sizes range from 12 inches to 16 inches in diameter in the adjacent SW 19th Street, providing connection from a single point to the north of the SRT.

Figure 2. Existing Water Distribution System



Water System Improvements Analysis

As part of this analysis, the City requested Consor run scenarios of the City's hydraulic model to identify the capacity of the existing water system and proposed improvements. The model outputs provide the required demands to support the SRT. The primary criteria used for Consor's analyses is to maintain fire flow demands of 3,500 gallons per minute (GPM) at all times. All findings in the study account for the 3,500 gpm fire flow demand.

Modeling Results

To establish a baseline for the existing system demands, Consor identified July 14, 2024 as a recent historical Max Day Demand (MDD). Model demands for Pressure Zone 1A were adjusted/scaled based on this July 14, 2024, data. To ensure capacities for buildout of the remaining area west of Hwy 97 were reserved, buildout demands for this area were used for modeling purposes. Consor modeling results are shown in Appendix A.

Existing Capacity and Frontage improvements

Prior to any system improvements and under current Pressure Zone 1A buildout within the UGB (2025 conditions), the existing system (November 2025) has 160 gpm average day demand (ADD) available to the SRT for development. Consor evaluated the existing conditions today with the addition of a 12-inch dual main in the existing section of 19th street where a single 12-inch or 16-inch main already exists, and the extension of a 24-inch main from the end of the dual mains to the southern property limits (shown in Figure 2). The evaluation also included the water main sizing within the SRT that is in the adopted City of Redmond Water Master Plan. With installing the water mains shown in Figure 2, the SRT would have an additional 500 gpm ADD (660 gpm total) and is shown in Table 1 and Figure 3.

TABLE 1. System Improvements without Pressure Zone 1A Buildout (2025 Condition)

System Improvement	Anticipated Capacity without Buildout of Pressure Zone 1A
November 2025 Existing Capacity	160 gpm
System Improvement #1 – 12- inch dual main and 24-inch main extensions	660 gpm

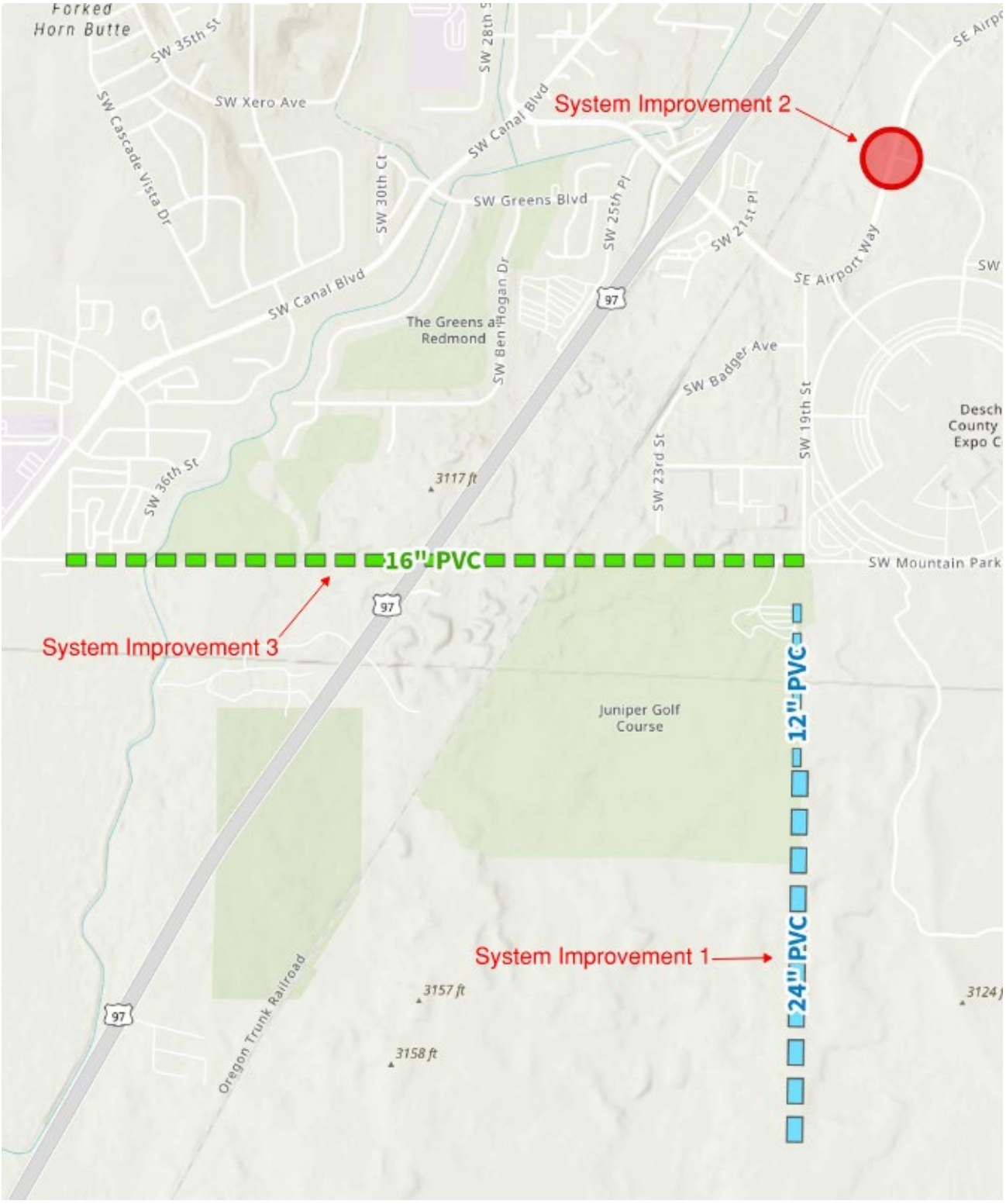
Without additional system improvements, the capacity increase can't be maintained as the rest of pressure Zone 1A develops. To monitor the capacity as Pressure Zone 1A development continues, all new projects in Pressure Zone 1A will be required to submit an Infrastructure Allocation Analysis. This will allow the City to allocate capacity to development as the required system improvements are constructed.

For the SRT to maintain and permanently increase capacity (through Pressure Zone 1A buildout within the existing UGB), two additional system improvements were evaluated. The system improvements are shown in Table 2 and Figure 3. If the remainder of Zone 1A develops prior to the improvements (i.e. if the Pressure Zone 1A is at 100% buildout), the system will not have sufficient capacity to serve the SRT with the required fire flow. A Fire Pump Station is required to bridge this deficiency.

TABLE 2. System Improvements with Pressure Zone 1A Buildout (Permanent Capacity Improvements)

System Improvement	Anticipated Capacity for full SRT at City Buildout
System Improvement #1 – 12- inch dual main and 24-inch main extensions	160 gpm
System Improvement #2 – 3,500 gpm Fire Pump Station	700 gpm
System Improvement # 3 - 16-inch western main extension	1,150 gpm

Figure 3. Proposed Water System Improvements



System Improvements

1. 12-inch dual main and 24-inch main extensions
2. 3,500 gpm Fire Pump Station
3. 16-inch western main extension

System Improvement 1 – 12-inch dual main and 24-inch main extensions

To initially increase the capacity to the SRT, a 12-inch dual main needs to be constructed within the existing portion of 19th where only a single main exists. Additionally, a 24-inch main from the termination of the dual mains to the southern property limits of the SRT needs to be installed to serve the entire area. These improvements are shown in Figure 2 and 3. With these improvements, the SRT would permanently gain 160 gpm. The estimated cost of this system improvement is $10 million (Class 5 estimate 2025 Costs). The cost estimate includes the full construction of 19th St. to City of Redmond arterial street standards with water and sewer mains extensions to the southern limits of the SRT.

System Improvement 2 – 3,500 gpm Fire Pump Station

In order to meet fire flow demands in the SRT as the remainder of Zone 1A builds out, a new fire pump station located at the boundary of Pressure Zones 2 and 1A would need to be constructed. Modeling showed the benefit of this pump station depends on the extension of the mains outlined in the City of Redmond Water Master Plan. With the addition of a fire pump station with 3,500 gpm capacity, the SRT will have 700 gpm available. The estimated cost of the fire pump station improvement is $5 million (Class 5 estimate 2025 Costs).

System Improvement 3 – 16-inch western main extension

In addition to Improvements 1 and 2, a looped connection to the existing system to the west is required to increase capacity in the SRT to 1,150 gpm. The estimated cost of this system improvement is $10 million (Class 5 estimate 2025 Costs). This improvement consists of approximately 6,700 ft of 16" water mains and requires boring underneath the railroad and US 97. The location of the mains are based on the water system master plan and are conceptual. Location of mains may change based on actual development layout and needs.

Potential Industrial Water Use Rates

Industrial water use rates based on industry standards for various development types are summarized in Table 5 and provide context for potential development types within the SRT. The water usage rates account for a 3,500 gpm fire flow requirement within the SRT. Individual developments will be evaluated by the City at time of development to confirm actual water demand, available capacity in the overall system, and needed infrastructure improvements at time of development through the infrastructure allocation analysis process.

Table 3. Potential Industrial Water Use Rates

Land Use	**50 Acre Site ADD**	**789 Acre Site ADD**
Warehouse / Distribution[1]	25 gpm	395 gpm
Light Industrial[2]	40 gpm	630 gpm
Heavy Industrial[3]	50 gpm	789 gpm
Data Center[4]	110 gpm	1,735 gpm

1. Assume 0.17 gpd/sq.ft. based on average of published rates of 0.009 gpd/sq.ft. (EIA Commercial Building Energy Consumption Survey) and 0.025 gpd/sq.ft (Conserve Florida Water Clearinghouse); assumes 0.8 lot coverage; ~1.7 sq.ft. building area/50 acre site
2. Assume 0.03 gpd/sq.ft (Conserve Florida Water Clearinghouse); assumes 0.8 lot coverage; ~1.7 sq.ft. building area/50 acre site
3. Assume 0.04 gpd/sq.ft (Conserve Florida Water Clearinghouse); assumes 0.8 lot coverage; ~1.7 sq.ft. building area/50 acre site
4. Published rates range from 2M to 4M gpd/data center; assume 2 data center/50 acre site

WASTEWATER INFRASTRUCTURE

Existing Wastewater System

The City's existing wastewater facilities provide options for sanitary sewer service to the SRT. Existing wastewater facilities related to the SRT consist of the following components:

- 12-inch gravity collection main extended to the terminus of the adjacent SE 19th St.
- Yew Avenue Pump Station (PS) and forcemain
- The Canyon Interceptor
- Water Pollution Control Facility (WPCF)

Based on existing system capacity, development within the SRT up to 390 gpm can connect to the existing gravity main within 19th st. and be conveyed to the WPCF via the Yew Avenue pump station. Flow above this amount will require offsite improvements to meet the demand of the SRT. To evaluate various options for increased capacity, an alternatives analysis was conducted and is detailed in the section below. Analysis criteria considered project cost, capacity constraints/growth potential, project schedule, operation and maintenance, and environmental considerations. Improvements also considered a phased approach, similar to the water improvements analysis.

Wastewater System Alternatives Analysis

An alternatives analysis was conducted in coordination with the City's Wastewater Collection System Master Plan (WWCSMP) and the Technical Advisory Committee. Anderson Perry & Associates, Inc. in conjunction with Carollo, finalized an updated WWCSMP in April 2025, depicting future growth scenarios. The WWCSMP aligns with land use and growth assumptions from the City's Comprehensive Plan, updates the wastewater hydraulic model based on current flow monitoring data, evaluates the condition of the existing wastewater collection system, and develops a Capital Improvement Plan (CIP) to forecast future project needs.

Specific to the SRT, three alternatives were evaluated.

Alternative 1: Construction of the East Spruce Interceptor

This improvement includes construction of 16,900 LF of 15-inch to 24-inch gravity sewer main to extend the East Spruce Interceptor to the SRT. The estimated cost for this improvement is $15 million (Class 5 estimate 2025 Costs). Factors considered by the Technical Advisory Committee were:

Table 4. Alternative 1 Advantages and Disadvantages

Advantages	Disadvantages
Long-term solutions aligning with Collection System Master Plan	Higher construction costs
Minimal O&M	Longer construction schedule
Minimal capacity limitations	Easement and property acquisition required

Alternative 2: Yew Pump Station Upgrades

This improvement includes construction of 3,900 LF of 12-inch force main and upgrades to the existing Yew Pump Station. While the pump station itself could theoretically be sized to any demand from the SRT, the maximum size of the station is limited by the downstream capacity of the Canyon Interceptor. Increasing the capacity of the Canyon Interceptor is costly and was not evaluated as part of this alternative. The

estimated cost for pump station improvements are $10 million (Class 5 estimate 2025 Costs). Factors considered by the Technical Advisory Committee were:

Table 5. Alternative 2 Advantages and Disadvantages

Advantages	Disadvantages
Lower construction costs	Capacity limitations
Faster construction schedule	Increased O&M
	Complicated permitting through the state

Alternative 3: On-site Wastewater Treatment Plant

This improvement includes construction of a separate on-site wastewater treatment plant to serve the SRT. Based on ultimate flowrates and treatment level, this alternative is estimated to cost is $35 million (Class 5 estimate 2025 Costs). Factors considered by the Technical Advisory Committee were:

Table 6. Alternative 3 Advantages and Disadvantages

Advantages	Disadvantages
Highest construction costs	Capacity limitations
Faster construction schedule	Increased O&M
	Complicated permitting through the state

A Choosing by Advantage matrix is a decision-making tool that compares alternatives and provides a quantitative measure to select the most advantageous option. A Choosing by Advantage matrix was used to evaluate each of the three alternatives above and is shown in Table 7. The evaluation categories included Project Cost, Capacity Constraints/Growth Potential, Project Schedule, Operation and Maintenance, and Environmental Considerations. Each category was weighed differently based on recommended importance of each from the Technical Advisory Committee.

Table 7. Choosing by Advantage Matrix

South Redmond Tract Sewer Solution - CHOOSING BY ADVANTAGE

Factor / Weight		Sewer Interceptor		Pump Station		Package Treatment Plant	
Project Cost (1 = Highest Cost, 5 = Lowest Cost)							
Advantages / Importance	30%	Some Advantage	3	Most Advantage	5	Least Advantage	1
Capacity Constraints/Growth potential (1 = Capacity Limited, 5 = No Capacity Limits)							
Advantages / Importance	20%	Some Advantage	3	Least Advantage	1	Most Advantage	5
Project Schedule (1 = Longest Construction Schedule, 5 = Shortest Construction)							
Advantages / Importance	20%	Least Advantage	1	Most Advantage	5	Some Advantage	3
Operation and Maintenance (1 = Highest Maintenance Costs, 5 = Lowest maintenance Cost)							
Advantages / Importance	20%	Most Advantage	5	Some Advantage	3	Least Advantage	1
Environmental Considerations (1 = Highest Maintenance Costs, 5 = Lowest maintenance Cost)							
Advantages / Importance	10%	Some Advantage	3	Least Advantage	1	Most Advantage	5
Total Importance			2.7		3.3		2.1

Alternative 2, upgrading the Yew Pump Station, scored the highest based on the evaluation criteria but did not include the additional costly capacity improvements to the Canyon Interceptor. The capacity constraints of the Yew Lift Station are limited to the size of the forcemain, and without improvements to the Canyon Interceptor, Alternative 2 would not fully support the buildout of the South Redmond Tract. To alleviate capacity constraints, a fourth alternative was evaluated, which combines the advantages of the Yew Avenue Pump Station upgrades and construction of the East Spruce Interceptor.

Alternative 4 (Selected Alternative):

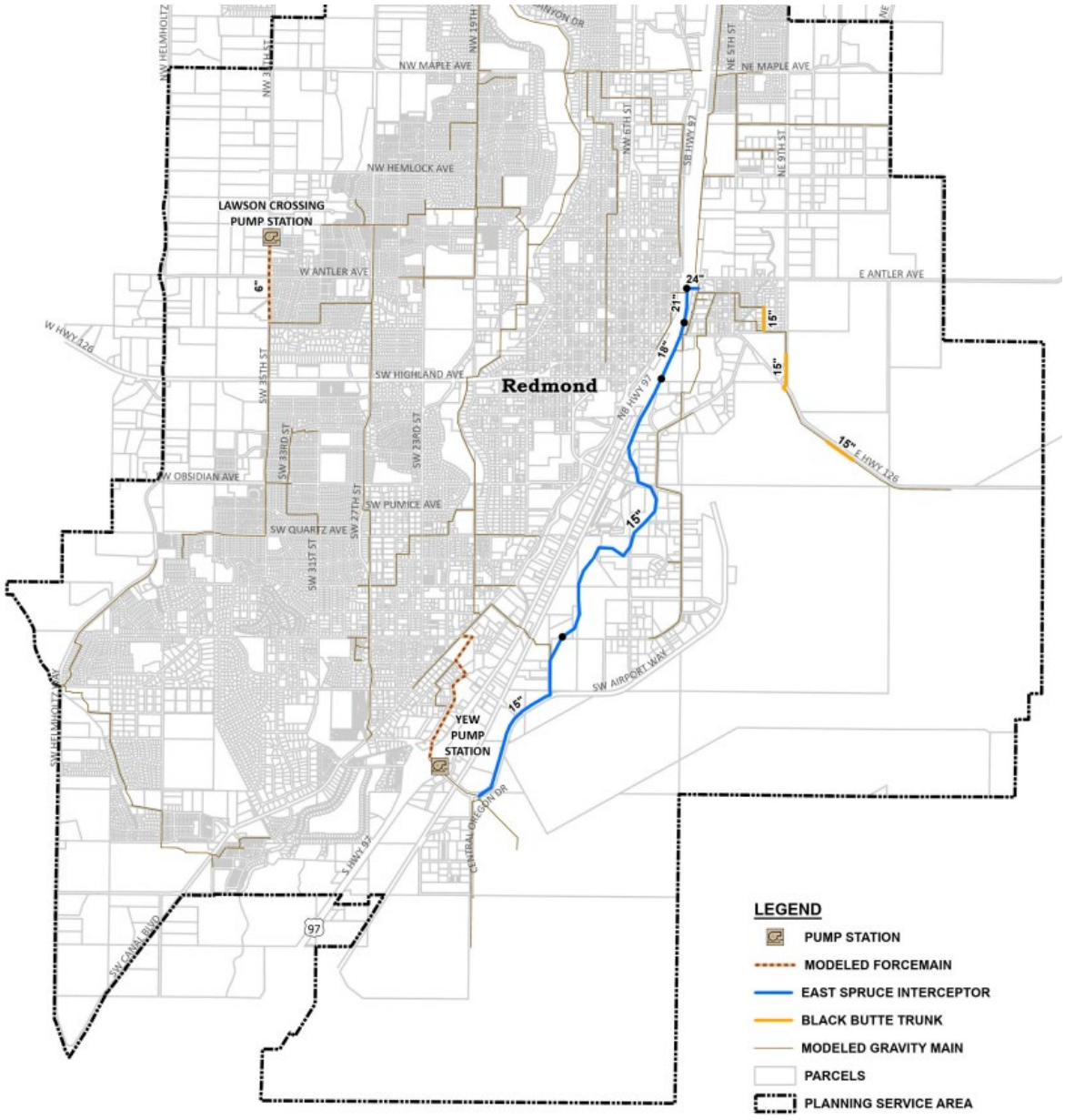
This alternative includes completion of the East Spruce Interceptor and expansion of the Yew Avenue Pump Station firm capacity, as shown in Figure 4 below. This alternative would avoid triggering deficiencies along the Canyon Interceptor or the Yew Avenue Pump Station forcemain and eliminate surcharging in the collection system upstream of the Yew Avenue Pump Station, thereby eliminating upgrades to the upstream collection system pipe network. In addition to the expansion of the Yew Avenue Pump Station firm capacity, the WWCSMP identified the need to increase the pumping capacity for future demand. Replacing the existing pumps with two (2) new 14 horsepower pumps will increase the pumping capacity of the Pump Station from 434 gpm to 560 gpm. In 2025, the existing influent to the pump station is 170 gpm. An increase in the pumping capacity to 560 gpm would allow 390 gpm to be allocated to the SRT, aligning with the annexation agreement between the City and DSL. The estimated cost of upgrading the pumps is approximately $150,000 and upgrading the pump stations firm capacity would cost approximately $3 million. The cost to extend the East

Spruce Interceptor is $15 million. All three of these project costs are accounted for within Collection System Master Plan and are anticipated to be included in the System Development Charge Update in Spring 2026. The breakdown of the cost is shown in Table 8:

Table 8. Alternative 4 improvements

Capital Improvement Program Project Number	Sewer Improvement	Cost
LS-01	Yew Lift Station Pump Upgrade	$150,000 (City)
LS-02	Yew Lift Station Capacity Upgrade	$3,000,000 (SDC)
P-02	East Spruce Interceptor Extension	$15,000,000 (SDC)

Figure 4. Yew Avenue Alternative 4 - Combination of Yew Avenue PS and East Spruce Interceptor



Source: Figure 5-5B from the WWCSMP

TRANSPORTATION INFRASTRUCTURE

Potential Transportation System Improvements

In order to evaluate the current employment forecasts for the SRT, Kittelson & Associates, Inc. updated the regional Travel Demand Model and included revised transportation improvements needed in the 20-year horizon to accommodate this growth. In July 2025, the City formally adopted these findings into an Amendment to the City's 2020 Transportation System Plan (TSP).

The Amended TSP increases the employment assumptions in the 2020 TSP from 1.5 employees per acre to 10-15 employees per acre (6,550 to 9,820 employees at build out) and updates the regional Travel Demand Model. Based on these revised assumptions, the following City of Redmond intersections fail within the 20-year planning horizon:

1. SW 19th and Airport Way
2. SW Canal Blvd./27th St/ Yew Ave. Roundabout
3. SW 21st St and Airport Way

To bring the deficient areas into compliance with accepted mobility standards, the improvements outlined in Table 4 will be required. Table 4 also identifies the employment triggers for each of the improvements. Figure 5 is a map of the required improvements and employment triggers.

At 6,500 employees, the transportation model reveals that an additional connection to US 97 south of Yew Ave. is required unless significant improvements to the existing Yew Ave Interchange and the Airport Way corridor are made. For the purpose of development considerations within the SRT, a Southern Interchange is not included as a burden of development within the SRT. This project is contemplated to be led by the Oregon Department of Transportation, in close coordination with the City and County at a future date.

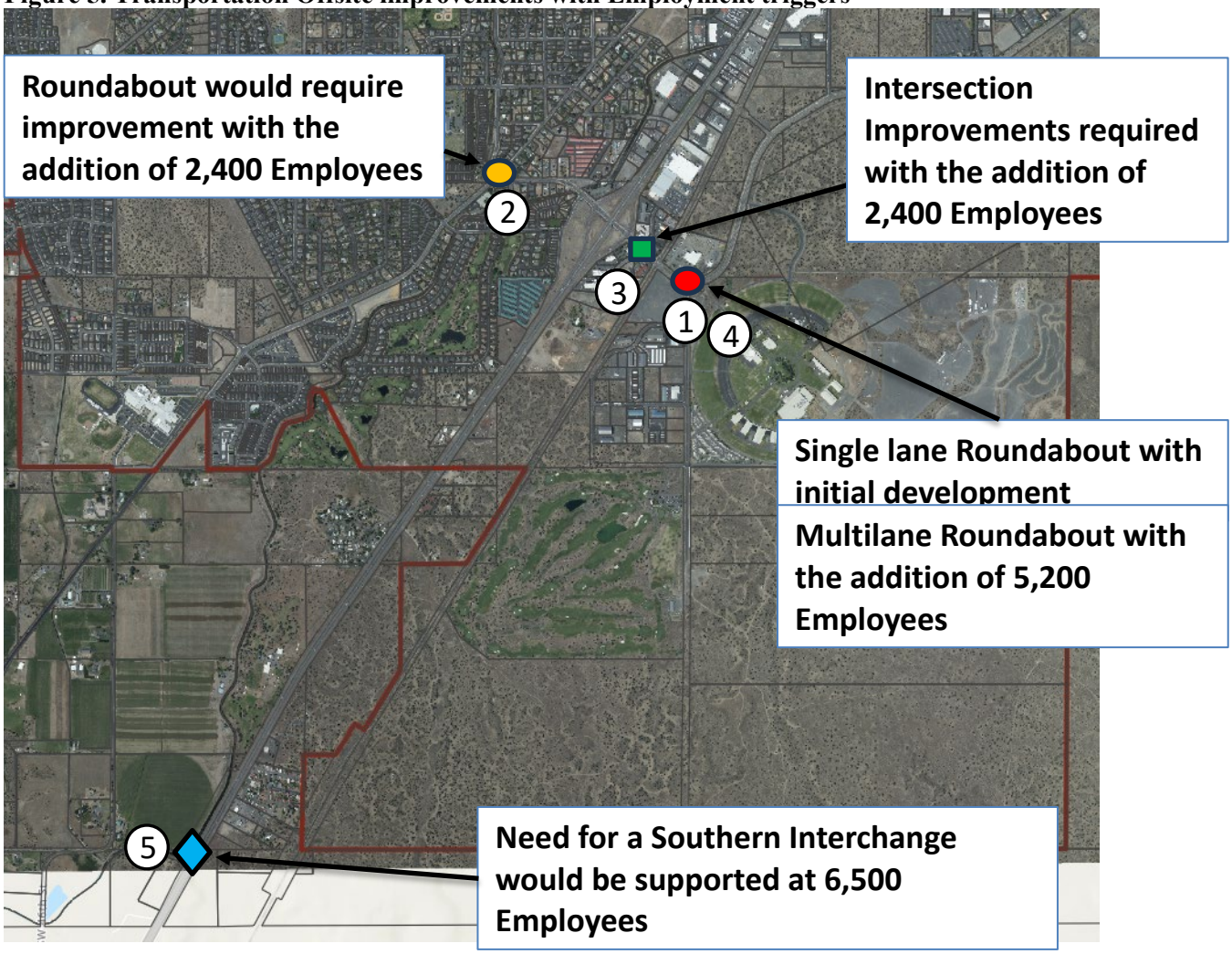
Table 9. Priority Intersection Capacity Improvements

Intersection	Estimated Cost[1]	Employment Trigger
19th and Airport Way Single Lane Roundabout	$3,000,000 (SDC)	Immediately, needed with first development
Canal Blvd/27th/Yew Roundabout Improvements	$3,000,000 (SDC)	2,400 Employees
21st and Airport Way Right in and Right out improvements	$1,000,000 (Proportionate Share)	2,400 Employees
19th and Airport Way Multi-Lane Roundabout	$3,000,000 (Proportionate Share)	5,200 Employees
Southern Interchange	$50,000,000-$80,000,000 (Unfunded[2])	6,500 Employees

1. Costs provided in 2020 dollars.

2. There are no funds allocated or planned for this project.

Figure 5. Transportation Offsite improvements with Employment triggers



Oregon
Tina Kotek, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

State Land Board

Tina Kotek
Governor

Tobias Read
Secretary of State

Elizabeth Steiner
State Treasurer

May 29, 2026

City of Redmond
Attn: Jessica MacClanahan
243 E. Antler Ave.
Redmond, OR 97756

RE: South Redmond Large Lot Industrial Lands Master Plan

Dear City of Redmond,

On behalf of the Department of State Lands (DSL), I would like to thank you for the tremendous efforts put forth by the city to work through a master plan to identify all infrastructure required to serve DSL's South Redmond Tract Large Lot Industrial (LLI) lands. We appreciate the staff time, funds and continuous collaborative work over the past two years that has been essential to getting this plan in place.

Through the course of this master planning work the city has identified three main infrastructure categories to address for DSL LLI lands to be fully served for development. Those categories are transportation improvements, sewer infrastructure upgrades, and water infrastructure upgrades. For each of the categories the city has identified certain trigger levels of employment numbers indicating when infrastructure improvements are required. However, it is also understood that for any new development to come in, there is a baseline level of improvements that need to be met to serve the site.

To guarantee that the baseline level of improvements are met to unlock site development, the city has identified approximately $15 million in infrastructure that requires funding not currently supported in the city's Transportation Systems Plan or Public Works Master Plan. The city has proposed that this cost be roughly split in thirds and that the city will invest approximately $5 million in infrastructure upgrades, with the remaining $10 million to be split between DSL and the future developer(s).

Attached with this letter is a summary of DSL's understanding of the infrastructure costs in the master plan to-date (note the master plan is not finalized as of the writing of this letter).

The extension of SW 19th Street and upgrading of the water main infrastructure and appropriate sewer infrastructure beneath SW 19th Street has an estimated cost of $10 million over the life of the project.

DSL has offered and agrees to take on the cost burden of the extension of SW 19th Street and upgrading of the water main and appropriate sewer infrastructure below SW 19th Street to cover two-thirds of the unfunded infrastructure costs. DSL will work with developers on installing the necessary infrastructure as land is purchased and development is built out. Based on our last discussion this commitment will be formalized through amending the annexation agreement to DSL's LLI lands. With the submission of this letter, DSL desires to move forward with finalizing the master plan and amending the annexation agreement as quickly as possible.

Sincerely,

Kaitlin Lovell
Director
Department of State Lands

SUMMARY OF INFRASTRUCTURE COSTS

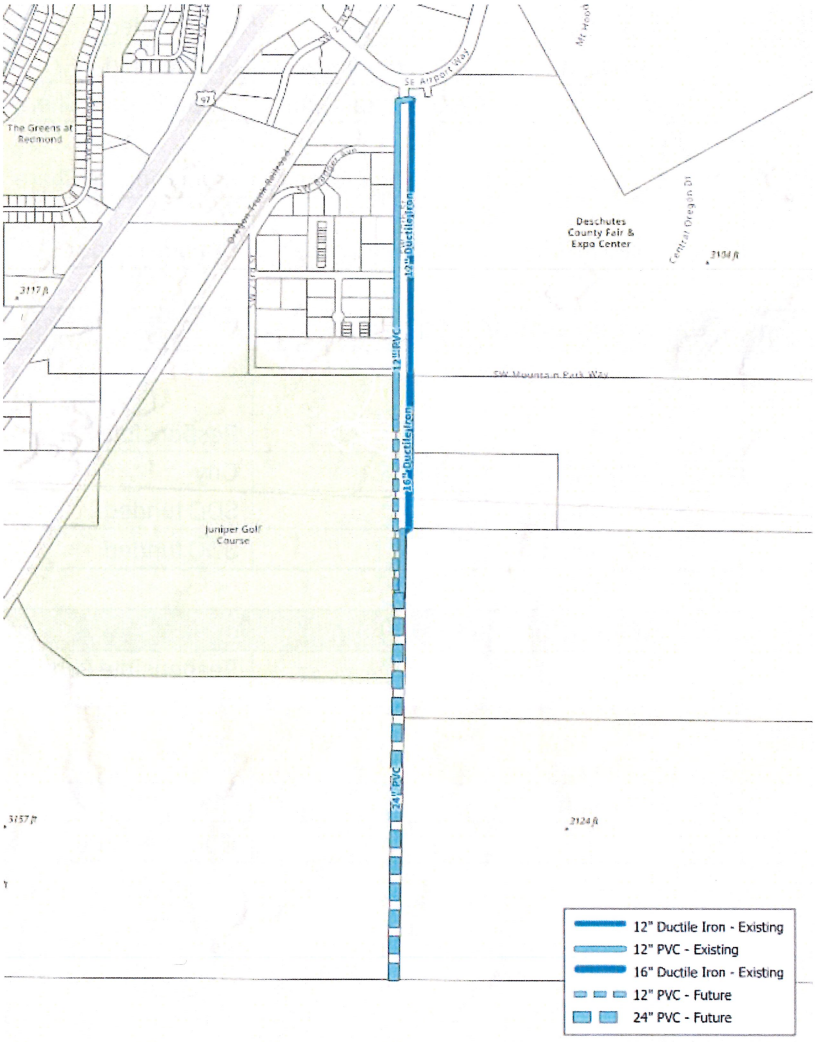
TRANSPORTATION INFRASTRUCTURE			
Intersection	Cost	Employment Trigger	Responsible Party
19th St. and Airport Way Single Lane Roundabout	$3 million	Underway	SDC funded
Canal/27th/Yew Roundabout Improvements	$3 million	2,400 Employees	SDC funded
21st and Airport Way Improvements	$1 million	2,400 Employees	Proportionate Share
19th St. and Airport Way Multi-Lane Roundabout	$3 million	5,200 Employees	Proportionate Share
Southern Hwy 97 Interchange	$50 - $80 Million	6,500 Employees	Outside scope

WASTEWATER INFRASTRUCTURE			
Wastewater Improvement, Capital Improvement Program Project Number	Cost		Responsible Party
Yew Lift State Pump Upgrade, LS-01	$152,440		City
Yew Lift Station Capacity Upgrade, LS-02	$2.96 million		SDC funded
East Spruce Interceptor Extension, P-02	$14.7 million		SDC funded

WATER INFRASTRUCTURE			
Improvement	Cost		Responsible Party
Improvement 1: Water main upsizing and 19th Street Improvements	$10 million		DSL
Improvement 2: Fire Pump	$5 million		City
Improvement 3: Water main extension			Outside scope

19TH STREET EXTENSION AND INFRASTRUCTURE

SW 19th Street extension to the southern property line with appropriate sewer and water installed under the roadway. It also includes a parallel pipe main from the golf course driveway south to the end of the existing waterline (dashed lines in the map below show the water lines included).



CityRDMmasterPlanLetter_20260529

Final Audit Report 2026-05-29

Created:	2026-05-29
By:	Amber McKernan (Amber.McKernan@DSL.Oregon.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAA2LTSDSsWAAsFtDQ3_CIL_I-Tj3-NTNQR

"CityRDMmasterPlanLetter_20260529" History

Document created by Amber McKernan (Amber.McKernan@DSL.Oregon.gov)
2026-05-29 - 11:06:54 PM GMT

Document emailed to Kaitlin Lovell (Kaitlin.Lovell@dsl.oregon.gov) for signature
2026-05-29 - 11:06:59 PM GMT

Email viewed by Kaitlin Lovell (Kaitlin.Lovell@dsl.oregon.gov)
2026-05-29 - 11:27:41 PM GMT

Document e-signed by Kaitlin Lovell (Kaitlin.Lovell@dsl.oregon.gov)
Signature Date: 2026-05-29 - 11:29:42 PM GMT - Time Source: server - Signature Appearance Selected: IMAGE

Agreement completed.
2026-05-29 - 11:29:42 PM GMT

Adobe Acrobat Sign

APPENDIX B: CONSOR MODELING RESULTS

Consor modeled the following scenarios at the direction of the City:

Scenario 1: Existing Capacity

- Assume current buildout
- Assume 200 Acres developed in LLI is light industrial equating to a total average daily demand of 160 gpm (development located at TL 1513330000300)

Scenario 1A: Existing Capacity + dual mains in 19th

- Assume 200 Acres is Light industrial and would have an average gpm of 160.
- Requires extending existing 12-inch or 16-inch mains in 19*th* , then single 24-inch continuing south to increase transmission capacity

Scenario 2: Buildout of UGB + Dual mains in 19th

- Requires extending existing 12-inch or 16-inch mains in 19*th* , then single 24-inch continuing south to increase transmission capacity
- Assume buildout of UGB

Scenario 3: Buildout of UGB + Buildout of LLI + Dual mains in 19*th* + fire booster pump

- Requires extending existing 12-inch or 16-inch mains in 19*th* , then single 24-inch continuing south to increase transmission capacity
- Assume buildout of LLI
- Assume buildout of UGB
- Add fire pump with 3,500 gpm capacity that connects to dual mains in 19th

Scenario 4: Buildout of UGB + Buildout of LLI + Dual mains in 19*th* + fire booster pump + Wester Loop

- Requires extending existing 12-inch or 16-inch mains in 19*th* , then single 24-inch(?) continuing south to increase transmission capacity
- Assume buildout of LLI
- Assume buildout of UGB
- Add fire pump with 3,500 gpm capacity that connects to dual mains in 19th
- Add Western Loop connection at Elkhorn

****For all scenarios, reserve 3,500 gpm fire flow and report remaining average daily gpm**

Consor Produced the following results:

Scenario 1. Existing Capacity

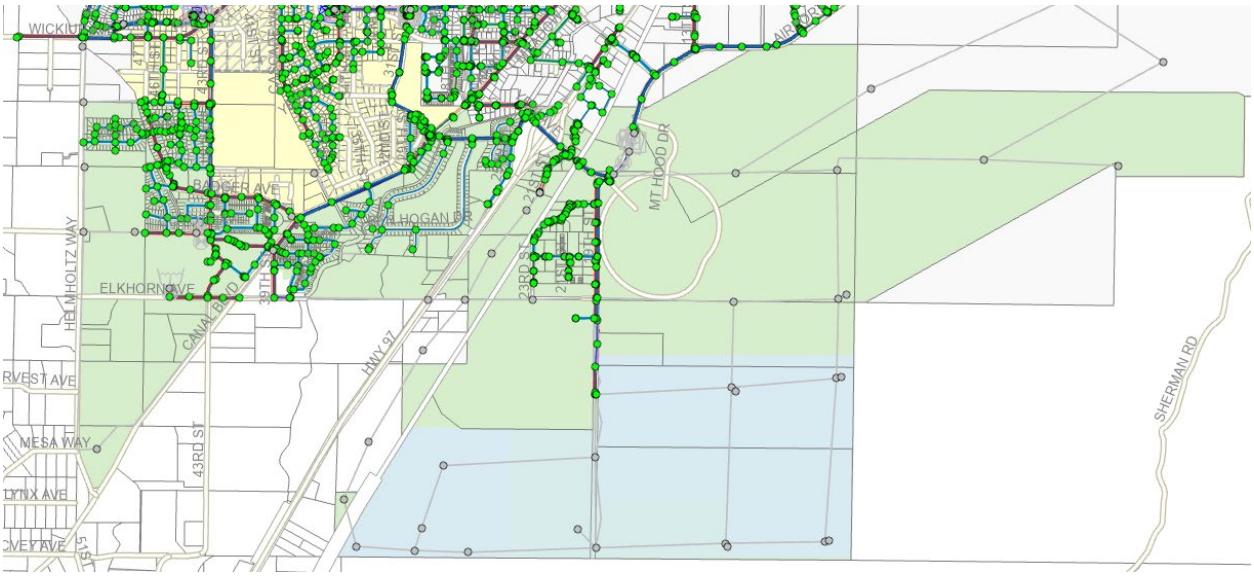
The table below summarizes results for Scenario 1. Results indicate that with the existing network and existing service area extent, and the demands identified by the City for 200 acres assigned as Lot 1 of the DSL at 160 gpm ADD (240 gpm PHD), only another approximately 250 gpm PHD (167 gpm ADD), can be served with adequate system pressure. Pipeline capacity is the limiting factor to the additional demand that can be served. Maximum velocities on 19th St will be excessive serving fire flow, over 10 ft/sec.

Scenario 1. EXISTING CAPACITY

Existing facilities and pipelines with best recent estimate of MDD and PHD in 1A as shown by data in July 2023 and 2024

Horizon	Zone	ADD (gpm)	MDD (gpm)	PHD (gpm)	PHD +FIRE (gpm)	Note Value Column: Theoretical Firm capacity to serve PHD + fire (7,150 gpm from 1A pump station, possible 1,500 gpm from Zone 1 PRV)	Note
	Zone 1		742	2,520	4,020		
Existing Demand for 2025 Analysis	Zone 1A Existing		992	1,810	5,310	Per 2023 MDD, 2024 PHD	
Based on 2023 MDD 1A	Zone 1A West Existing		726	1,449			Demand is scaled to 2024 SCADA for PHD, MDD is from 2023, these were similar Max Days, PHD 2023 was not available
PHD is from 2024 which had a similar Max Day	Zone 1A East Existing		266	361			
	DSL Lot 1 as 200 ac	160	240	240			Hydraulic Result
	Remaining 1A East Available	**167**	**250**	**250**			This includes only existing pipelines and existing service extent
	New 1A East Total	327	756	851			
	New Zone 1A Total		**1,482**	**2,300**	**5,800**	**8,650**	Supply capacity from the PRV and 1A Pump Station.
	Scenario 1A Background Total		1,232	2,050	5,550	3,100	Theoretical Calculated Available based on supply Capacity. Pipelines on 19th limit available capacity
	Zone 2		**9,324**	**18,156**			
	New System Total		11,547	22,976			

The screen shot below indicates the evaluated service area extent. Inactive, unused or future expansion facilities not used in this scenario are in gray, existing active facilities are shown in color.



<u>Scenario 1A.</u> Existing with improvement on 19th

The table blow summarizes results for scenario 1A, existing network and demands with improvements to pipelines on 19th St as identified by the City.

Scenario 1A. Dual Mains on 19th, Existing Demand, Existing Extent

Horizon	Zone	ADD (gpm)	MDD (gpm)	PHD (gpm)	PHD +FIRE (gpm)	Note Value Column: Theoretical Firm capacity to serve PHD + fire (7,150 gpm from 1A pump station, possible 1,500 gpm from Zone 1 PRV)	Note
	Zone 1		742	2,520	4,020		
Existing Demand for 2025 Analysis	Zone 1A Existing		992	1,810	5,310	Per 2023 MDD, 2024 PHD	
Based on 2023 MDD in 1A	Zone 1A West Existing		726	1,449		1.82	Demand is scaled to 2024 SCADA for PHD, MDD is from 2023, these were similar Max Days, PHD 2023 was not available
PHD is from 2024 which had a similar Max Day	Zone 1A East Existing		266	361			
	DSL Lot 1 as 200 ac	160	240	240			**Hydraulic Result**
	Remaining 1A East Available	**533**	**800**	**800**			This applies only existing pipelines and existing service extent **<u>With Dual Pipelines Added</u>**
	New 1A East Total	693	1,306	1,401			
	New Zone 1A Total		**2,032**	**2,850**	**6,350**	**8,650**	Supply from the PRV and 1A Pump Station.
	Scenario 1A Background Total		1,232	2,050	5,550	3,100	Theoretical Calculated Available based on supply Capacity Transmission capacity is still limiting
	Zone 2		**9,324**	**18,156**			
	New System Total		12,097	23,526			

The table above summarizes that with the existing service extent and development of Lot 1 of the DSL as 200 acres at 160 gpm ADD (240 gpm PHD), and parallel 12-inch pipeline improvements on 19th as described, the remaining additional demand that can be served increases to 533 gpm ADD (800 gpm PHD) with adequate system performance. Transmission capacity is still less than the available supply under this scenario. The network is not yet serving the future highest elevation areas under this scenario.

<u>Scenario 2</u>. Buildout of the UGB but not the full DSL

The table below summarizes demands for Scenario 2. Supply is not adequate to serve PHD+Fire under this scenario without the addition of a fire pump station. This scenario adjusts Buildout demands on the East side of Zone 1A. Only Lot 1 is developed with higher than planning demand for this lot at City request (160 gpm ADD, 240 gpm PHD). The demand **increase** that this represents for Lot 1 at Buildout is shown in the table below.

The rest of the planned DSL area demand was removed. These demand adjustments to the WMP planned buildout demand are shown in the table below. Even with only Lot 1 included, supply is not adequate to serve PHD+Fire in Zone 1A for this scenario. **Hydraulic analysis is not relevant if supply is not adequate.** Table analysis of demands is provided, and a description of the requested network and demands.

In addition to removal of specific CIP pipelines on the East side of Zone 1A as requested by the City, the improvement north of Badger Ave, and on Elkhorn Ave are not included. The parallel 12-inch improvements on 19th St are included. Main extension on 19th is 24-inch.

Scenario 2. Dual Mains on 19th,
Main Extension as 24-inch on 19th, Improvement North of Badger is not included, Elkhorn is not included

Buildout of the UGB except for the DSL Area, where only Lot 1 is developed Per City, Buildout network excludes specific CIP Looping per city

Horizon	Zone	ADD (gpm)	MDD (gpm)	PHD (gpm)	PHD +FIRE (gpm)	Note Value Column: Theoretical Firm capacity to serve PHD + fire (7,150 gpm from 1A pump station, possible 1,500 gpm from Zone 1 PRV)	Note
Build-out demand and extent but Only Lot 1 of DSL developed with Adjusted Demand per City. Removes only DSL Lots 2 and 3 from Buildout demands	Zone 1	710	1,480	3,410	4,910		
	Zone 1A Plan Buildout	1,740	3,350	6,390	9,890		
	Zone 1A West Plan Buildout		2,081	4,775	8,275		These are the planned demands
	Zone 1A East Plan Buildout		1,270	1,615	5,115		
	DSL Lot 1, increase above planning loading	77	115	115			Adjustments to planned buildout demands.
	Other DSL Area Planning Demand Remove	-243	-365	-365			Note that Lot 1 is included in original planning buildout
							This analysis adds 77gpm ADD, that is 115 gpm MDD, that is 115 gpm PHD to that original planned demand
	Remaining DSL Available if only Lot 1 of 200 ac at 160gpm ADD has been developed					-940	Excess PHD+Fire Demand Calculated based on pumping capacity, even with 0 demand for remaining DSL lots
	New 1A East Total		1,020	1,365			
	New Zone 1ATotal	**1,574**	**3,101**	**6,140**	9,640	8,700	**Available Firm pumping capacity**
	Scenario Zone 1A Buildout Background Demand	1,574	3,101	6,140	9,640		**is not adequate**
	Zone 2	7,710	17,240	35,030			
	Buildout System Total	9,994	21,820	44,580			

Scenario 3. Buildout of the UGB but not the full DSL with a Fire pump station

Scenario 3 results are summarized in the table below. A fire pump station is added to the previous scenario to serve buildout demands and the buildout service extent. Specific CIP looping is removed per city request.

Operation of the fire pump station targets providing supply only during fire, and not Peak Hour Demand without fire. This operational objective is difficult without the parallel CIP improvement north of Badger Ave, or Elkhorn Ave. This scenario also does not include CIP improvements on Elkhorn Ave. Further refinement of the operation of this pump station may refine results.

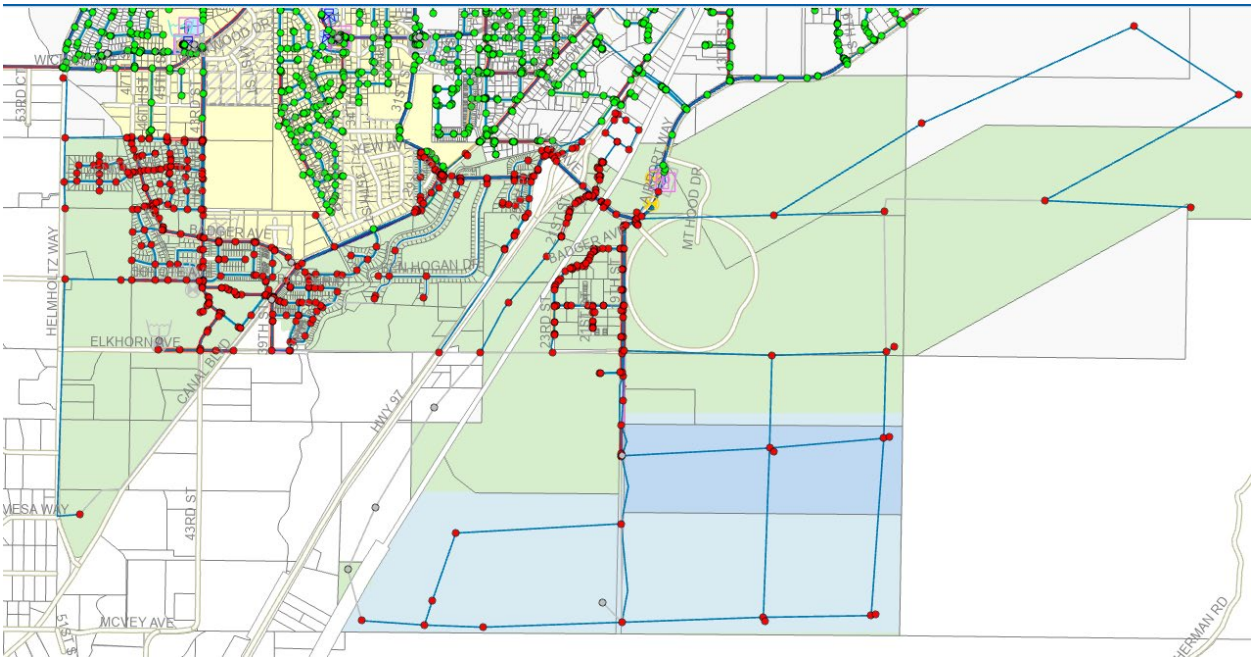
Scenario 3. Up to **3,500 gpm produced from the new Fire pump** between Zone 2 and Zone 1A. Dual mains on 19th and and main Extension as 24-inch on 19th,
Buildout of the UGB Except for the DSL Area where Only DSL Lot 1 is developed Per City request,

Bulidout network excludes specific CIP Looping per city request, Improvement North of Badger is not included, Elkhorn is not included

Horizon	Zone	ADD (gpm)	MDD (gpm)	PHD (gpm)	PHD +FIRE (gpm)	Note Value Column: Theoretical Firm capacity to serve PHD + Fire (7,150 gpm from 1A pump station, possible 1,500 gpm from Zone 1 PRV, up to 3,500 gpm new fire pump station)	Note
Build-out demand and extent but Only Lot 1 of DSL developed with Adjusted Demand per City. Removes only DSL Lots 2 and 3 from Buildout demands	Zone 1	710	1,480	3,410	4,910		
	Zone 1A Buildout	1,740	3,350	6,390	9,890		
	Zone 1A West Buildout		2,081	4,775	8,275		These are the planned demands
	Zone 1A East Buildout		1,270	1,615	5,115		
	DSL Lot 1, increase above planning loading	77	115	115			Adjustments to planned buildout demands.
	Other DSL Area Planning Demand Remove	-243	-365	-365			Note that Lot 1 is included in original planning buildout
							This analysis adds 77gpm ADD, that is 115 gpm MDD, that is 115 gpm PHD to that original planned demand
	Remaining DSL Available if only Lot 1 of 200 ac at 160gpm ADD has been developed	200	**300**	**300**		2,560	Theoretical Remaining PHD Demand Calculated based on pumping capacity
	New 1A East Total Max		1,320	1,665			
	New Total Zone 1A Buildout Plus East Total Max	**1,774**	**3,401**	**6,440**	**9,940**		
	Scenario Zone 1A Buildout Background Demand	1,574	3,101	6,140	9,640	**12,200**	**Available Firm Pumping Capacity maximum 3,500 gpm fire pump. Under this scenario, operational controls of this pump station may result in lower flow rate**
							Hydraulic results suggest that the fire flow scenario does not use the PRV,
	Zone 2	7,710	17,240	35,030			
	Buildout System Total Max	10,194	22,120	44,880			

Active facilities are shown in color in the figure below. Specific Buildout CIP Pipelines have been inactivated (gray) to prevent them from providing looping, (supporting overall

transmission). In some cases, the dead-eds created by this inactivation serve only to deliver the scenario demand to the intended point of use, such as on 19th St.



Scenario 4. Addition of Elkhorn Ave

This Scenario adds CIP pipeline on Elkhorn Ave. With the addition of the improvements on Elkhorn Ave, an additional 1,000 gpm PHD can be served (667 gpm ADD). As Peak Hour demand increases, it becomes more difficult for the same fire pump station control that adequately serves fire demand, to not be called on during PHD. A strong transmission network improves this, however operational conflict between the 1A pump station and the fire pump station still needs to be avoided. The applied fire pump station operation attempts to balance these considerations. Further refinement of the operation of the fire pump station may refine results.

Without the pipeline improvement north of Badger Ave, fire flow velocities in the area are in the range of 7 to 9 ft/sec.

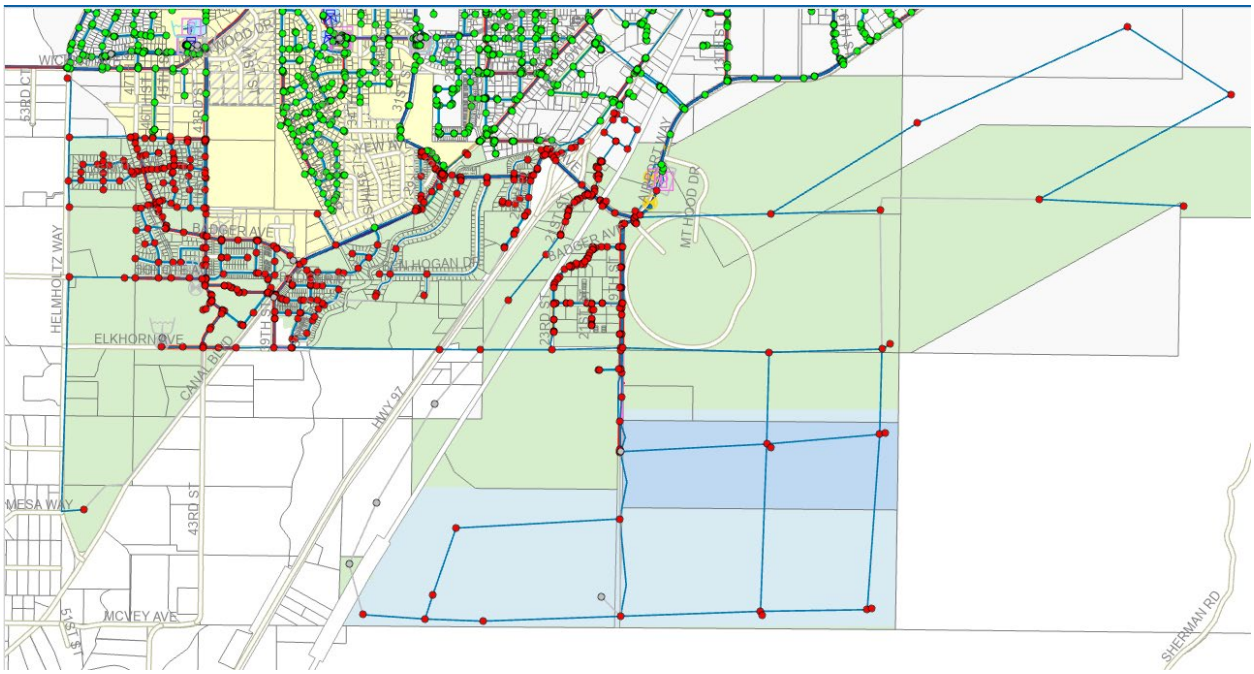
Scenario 4. Up to 3,500 gpm produced from the new Fire pump between Zone 2 and Zone 1A. Dual mains on 19th and and main Extension as 24-inch on 19th,
Buildout of the UGB Except for the DSL Area where Only DSL Lot 1 is developed Per City,

Buildout network excludes specific CIP Looping per city, Improvement North of Badger is not included, **Elkhorn is included**

this scenario actually does not use the PRV, but beyond design point supply from pump station 1A.

Horizon	Zone	ADD (gpm)	MDD (gpm)	PHD (gpm)	PHD +FIRE (gpm)	Note Value Column: Theoretical Firm capacity to serve PHD + Fire (7,150 gpm from 1A pump station, possible 1,500 gpm from Zone 1 PRV, up to 3,500 gpm new fire pump station)	Note
Build-out demand and extent but Only Lot 1 of DSL developed with Adjusted Demand per City. Removes only DSL Lots 2 and 3 from Buildout demands	Zone 1	710	1,480	3,410	4,910		
	Zone 1A	1,740	3,350	6,390	9,890		
	Zone 1A West		2,081	4,775	8,275		These are the planned demands
	Zone 1A East		1,270	1,615	5,115		
	DSL Lot 1, increase above planning loading	77	115	115			Note that Lot 1 is included in original planning buildout demand
	Other DSL Area Planning Demand Remove	-243	-365	-365			This analysis adds 77gpm ADD, that is 115 gpm MDD, that is 115 gpm PHD to that planned demand
	Remaining DSL Available if only Lot 1 of 200 ac at 160gpm ADD has been developed	667	**1,000**	**1,000**			
	New 1A East Total Max		2,020	2,365			
	New Total Zone 1A Buildout Plus East Total Max	**2,240**	**4,101**	**7,140**	**10,640**	1,560	unused capacity due to hydraulic restriction
	Scenario Zone 1A Buildout Background Demand	**1,574**	**3,101**	**6,140**	**9,640**	12,200	**Available Firm Pumping Capacity maximum 3,500 gpm fire pump. Under this scenario, operational controls of this pump station may result in lower flow rate. Without the improvement parallel to Badger, avoiding some PHD support while serving fire flow is difficult.**
							Hydraulic results suggest that the fire flow scenario does not use the PRV,
	Zone 2	7,710	17,240	35,030			**It uses beyond design point supply from pump station 1A.**
	Buildout System Total Max	10,660	22,820	45,580			Velocities at Badger Ave and 43rd going south and east are 7 ft/sec to 9 ft/sec under FF

The screen shot of the active system shows where dead-end pipelines may be used to deliver demand to the point of use on the network, such as 19th St, without providing overall transmission.



KITTELSON & ASSOCIATES
1001 SW Emkay Drive, Suite 140
Bend, OR 97702
P 541.312.8300

MEMORANDUM

March 13, 2024 Project# 27371

To: Jessica MacClanahan, John Roberts, Kyle Roberts, Morgan Snyder & Lindsey Cromsigt, City of Redmond
Tyler Deke, Bend MPO
Bob Townsend & David Amiton, ODOT
Chris Doty, Cody Smith, & Tarik Rawlings, Deschutes County

From: Matt Kittelson, Julia Kuhn, Cameron Thompson

RE: Redmond Large Lot Industrial (LLI) Lands Transportation System Plan (TSP) Amendment

Redmond is amending its Transportation System Plan (TSP) to reflect an increase in future employment growth in the Large Lot Industrial (LLI) lands in the southeast part of the City. This TSP Amendment will enable the City to work with the County and ODOT to identify, evaluate and plan for the transportation infrastructure needed to support the development of these lands during the next twenty years.

To date, the City has coordinated with ODOT and the County on revised employment forecasts for the LLI lands as well as the transportation scenarios to be evaluated. This memo summarizes the transportation needs associated with the increased employment and compares those to the transportation projects in the adopted TSP as well as identifies additional changes in the transportation system needed to accommodate the LLI lands and the potential timing of these changes.

As described herein, the analyses of the employment and transportation scenarios revealed the following:

- Regardless of the employment density considered on the LLI lands, the following locations will not meet the applicable mobility targets by 2040:
  - Canal Boulevard/27th Street/Yew Avenue – this existing roundabout is a documented capacity deficiency and also a location where safety improvements will be needed to address identified crash histories. Right-of-way constraints at this location limit what changes can be made here.
  - 21st Street/Airport Way – due to previously identified capacity constraints, this intersection has been planned for conversion to a right-in-right-out and/or be grade separated, both of which have impacts to the surrounding properties and local streets as well as right-of-way constraints.
  - Yew Avenue/US 97 NB Ramp Terminals – ODOT adopted an alternative mobility target (v/c of 1.0) at this intersection, but this target will be exceeded upon development of the LLI lands unless other broader transportation system changes are made. ODOT currently has no plans to improve the Yew Avenue interchange.
- Depending on the employment density achieved within the LLI lands and in the absence of broader transportation system changes, the 19th Street/Airport Way may need to be expanded beyond the single lane roundabout currently planned.
- It does not appear to be feasible to widen Airport Way/Yew Avenue much beyond its current cross-section between 21st Street and the Canal Boulevard/27th Street/Yew Avenue intersection without

major capital expenditures, significant right-of-way impacts and significant rail impacts. This suggests broader transportation system changes and/or considerations are needed to continue to facilitate economic growth in Redmond and the region, particularly related to development of the LLI lands.

- A preliminary assessment of potential timing of when changes to the transportation may be needed revealed the following if no southern interchange were added.
  - The Canal Boulevard/27th Street/Yew Avenue roundabout is forecast to exceed mobility standards by 2027/2028;
  - The 21st Street/Airport Way intersection is forecast to exceed mobility standards by 2027/2028;
  - The 19th Street/Airport Way single lane roundabout is forecast to exceed mobility standards by 2035/2036;
  - The Yew Avenue/US 97 NB Ramp Terminal is forecast to operate acceptably when compared to the alternative mobility target until 2039/2040 with 6,500 jobs added.
- If a Southern Interchange is constructed:
  - The timing of the needs at the Canal Boulevard/27th Street/Yew Avenue roundabout and 21st Street/Airport Way intersection do not change.
  - The Yew Avenue/US 97 NB Ramp Terminal would not require changes to meet mobility targets, regardless of the employment scenario considered.
- We further note that broader transportation system changes beyond those currently identified in the TSP would provide a number of broader benefits to this area, such as:
  - Transportation network redundancy in the case of an emergency as well as providing for future economic development opportunities that benefit Central Oregon and Redmond. The LLI land could facilitate more than 9,800 people working in this area in the future (which is approximately one-third of the overall number of jobs anticipated in the Redmond UGB by 2040).
  - The Deschutes County Fairgrounds and Expo Center rely on 19th Street, Airport Way, and the Yew Avenue interchange for ingress and egress, especially during large events. Future expansion plans for the fairgrounds, including larger and more frequent events, would benefit from other transportation system changes for operational purposes and for emergency response scenarios.
  - Resiliency Planning: the Redmond Municipal Airport is a key location for resiliency planning for a Cascadia subduction event; adding a southern interchange can provide alternative access to the airport.
- There are a number of future considerations that the City can pursue as it continues to plan for growth in this area, such as:
  - Relevant transportation-related considerations identified during the upcoming Land Use Refinement Studies that the City is undertaking
  - Potential new funding opportunities to provide broader transportation system changes, such as by applying for funding via the Infrastructure Investment and Jobs Act (IIJA) program and/or other federal, state and public/private funding opportunities.

More details on the analysis methodology and findings are described herein.

EMPLOYMENT SCENARIOS EVALUATED

As shown in Figure 1, the LLI lands are generally located to the south and southwest of the Deschutes County Fair and Expo Center. Today, these lands are accessed via the connection of SW 19th Street with SW Airport Way. The adopted TSP reflects future development of these lands with industrial-related uses that would be staffed by only approximately 1,000 employees, which equates to approximately 1.5 employees per acre. Since the TSP was adopted, the City has re-evaluated the potential employment growth expected during the next 15 – 20 years and is expecting a much higher density of employment growth in this area. As a result of these updated forecasts, the City is interested in understanding the transportation needs associated with the potential for up to 15 employees per acre on these lands. Accordingly, the following land use scenarios were evaluated using the Bend-Redmond Travel Demand Model (BRM):

- The existing TSP with 1.5 employees per acre = 1,000 employees
- Land Use Scenario A: A revised lower bound of 10 employees per acre = 6,550 employees
- Land Use Scenario B: An upper bound of 15 employees per acre = 9,820 employees

The following sections summarize the resultant year 2040 traffic volumes and the forecast transportation needs and possible solutions to address the deficiencies. A comparison of the needed solutions to those in the adopted Redmond TSP is also provided.

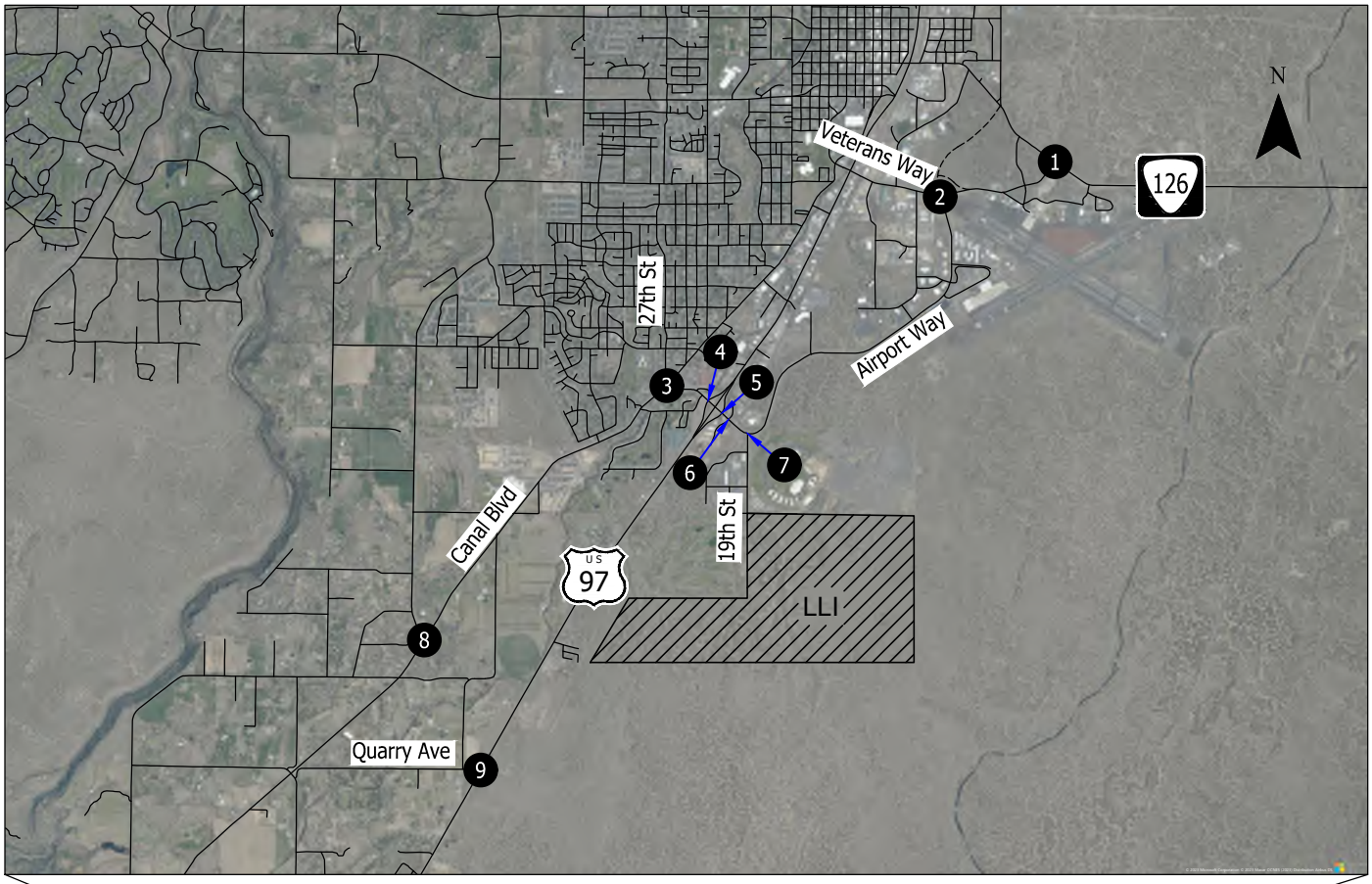
TRANSPORTATION NETWORK SCENARIOS EVALUATED

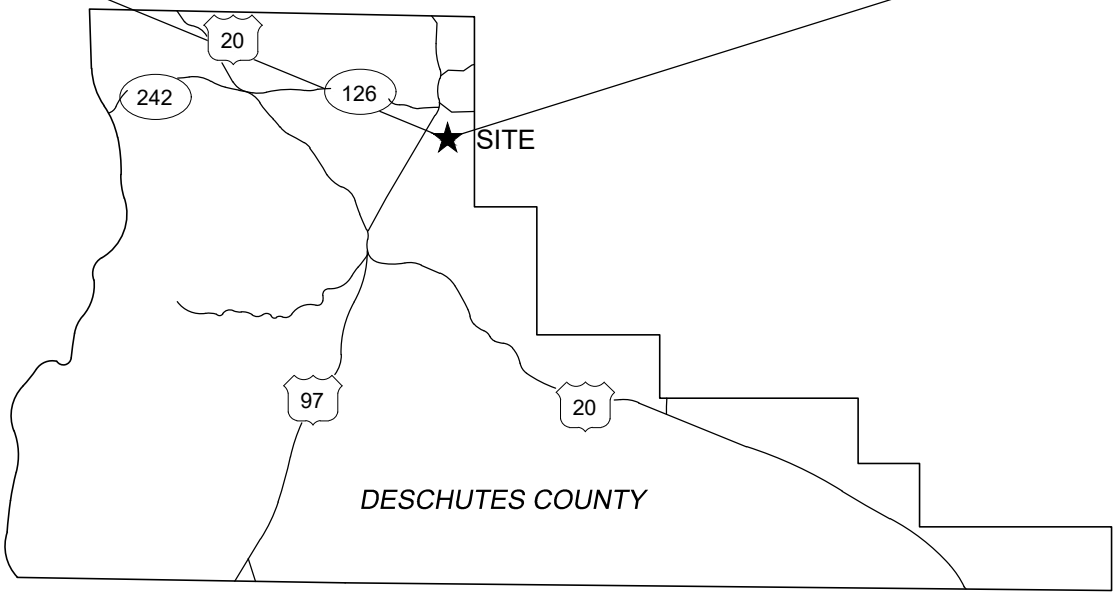
Two primary transportation network scenarios were tested as part of evaluating the increased employment densities. These scenarios were evaluated to understand whether there are any material differences in the transportation deficiencies associated with the adopted 1.5 employees per acre versus the potential for 10 – 15 employees per acre. The two primary transportation network scenarios are:

- The adopted list of projects contained within the 2020 TSP, including the US 97 South Redmond Corridor Facility Plan recommendations; and,
- The potential for the extension of SW 19th Street south of the City's Urban Growth Boundary (UGB) to a new interchange with US 97 at either McVey or at Quarry Road (recognizing that the State would need to review and approve a "Goal Exception" associated with the construction of a roadway outside of the UGB to serve the employment lands if this scenario were to materialize). This scenario is herein referred to as a "southern interchange."

For reference purposes, the adopted TSP includes the following transportation changes in the vicinity of the LLI lands:

- 9th Street Extension: This project would extend 9th Street south from OR 126 to connect with Airport Way. Intersection improvements would be implemented at the OR 126 / 9th Street intersection and new 9th Street / Veterans Way intersection, both of which are planned to be roundabouts.
- 19th Street / Airport Way: This intersection is planned to be a roundabout in the future. The geometry and lane configuration of this future roundabout is dependent on the demand along Airport Way and 19th Street, which varies based on the Land Use and Transportation scenarios evaluated. This is discussed further below.





Site Vicinity Map
Redmond, OR

Figure
1

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Site Vicinity Map

- Yew Avenue / US 97 NB Ramp Terminals: No modifications are planned at this location in the 20-year horizon, but an alternative mobility target (v/c of 1.0) was adopted as part of the South Redmond Corridor Plan.

The TSP notes that two locations within the vicinity of the LLI lands are not forecast to meet operational standards, including:

- Canal Boulevard / 27th Street / Yew Avenue: This is an existing single roundabout that is a known capacity deficiency and also a location where safety improvements will be needed to address identified crash histories. Right-of-way constraints at this location limit what changes can be made here.
- 21st Street / Airport Way: This intersection would need to be restricted to right-in-right-out and/or be grade separated to meet performance standards.

COMPARISON OF TRAVEL PATTERNS AND VOLUMES

Appendix A, Figures A-1 through A-4 compare the year 2040 travel demand estimates associated with the scenarios modeled versus the year 2040 travel demand associated with the adopted TSP transportation network and land use assumptions. These figures are direct output from the BRM model and reflect a comparison of the following scenarios (model output figures are shown in Appendix A):

- Figure A-1 = Scenario 1 (Land Use Scenario A: 10 employees per acre with the adopted TSP projects) versus the adopted TSP land use and transportation network.
- Figure A-2 = Scenario 2 (Land Use Scenario B: 15 employees per acre with the adopted TSP projects) versus the adopted TSP land use and transportation network.
- Figure A-3 = Scenario 3 (Land Use Scenario A: 10 employees per acre with the adopted TSP projects and a southern interchange) versus the adopted TSP land use and transportation network.
- Figure A-4 = Scenario 4 (Land Use Scenario B: 15 employees per acre with the adopted TSP projects and a southern interchange) versus the adopted TSP land use and transportation network.

In reviewing these figures, we note the following:

- When comparing Scenarios 1 and 2 to the adopted TSP scenario, either the 10 and 15 employee per acre density results in an increase of more than 100 PM peak hour vehicles being added along the Airport Way/Yew Avenue, US 97, and Canal Boulevard/Old Bend-Redmond Highway corridors. Similar volume increases along these corridors would also be expected in the AM peak hour.
- When comparing Scenarios 1 and 2 to the adopted TSP scenario, we note that both US 97 and the Old Bend-Redmond Highway corridor are expected to experience a significant increase in southbound traffic in the weekday PM peak hour. This is likely due to the fact that US 97 is shown to be capacity-constrained in the future, even under the adopted TSP scenario so the increase in volumes associated with higher employment densities would need to be facilitated on both corridors.
- As expected, the addition of a southern interchange (Scenarios 3 and 4) would reduce the demand on the Airport Way/Yew Avenue and Canal Boulevard corridors for those trips headed to/from Bend and areas to the south.
- Even with a new interchange, there is still a significant increase on the Old Bend-Redmond Highway corridor given the capacity constraints on US 97 between Bend and Redmond.

- Regardless of the scenario considered, all would require additional changes to intersections within the City's UGB beyond those included in the adopted TSP. Further details of the specific locations are provided in the sections below.

We also compared the change in travel demand with and without the southern interchange under each of the two increased land use scenarios rather than to the demand under the adopted TSP as described above. These comparisons are presented as follows (model output figures are shown in Appendix A):

- Figure A-5 = Scenario 1 (Land Use Scenario A: 10 employees per acre with the adopted TSP projects) versus Scenario 3 (Land Use Scenario A: 10 employees per acre with the southern interchange).
- Figure A-6 = Scenario 2 (Land Use Scenario B: 15 employees per acre with the adopted TSP projects) versus Scenario 4 (Land Use Scenario B: 15 employees per acre with the southern interchange).

In reviewing these two figures, we note that approximately 35% of the trips associated with the LLI employment is forecast to travel to and from the south via the southern interchange and/or the connection of a southerly extension of 19th Street and the Old Bend-Redmond Highway. With the potential up to nearly 10,000 new employees that could work in this area, the travel forecasts confirm that these employees would likely live in the broader Central Oregon region in addition to the City of Redmond, including Bend, Sisters, Tumalo, La Pine, and Prineville.

In reviewing all six figures, it is important to note that capacity constraints on specific roadways both within the city as well as on US 97 result in some variability in travel demands between scenarios within the BRM model but that the overall trends and patterns are reasonable.

DEVELOPMENT OF INTERSECTION VOLUMES

Using the travel demand forecasts, we developed year 2040 traffic volumes at key intersections near the LLI lands for each of the four land use/transportation network scenarios evaluated. For comparison purposes, we also evaluated year 2023 intersection operations to establish a baseline as well as year 2030 intersection operations to understand the potential for phasing.

The existing intersection operations were based on turning movement count data collected in April 2023 that was seasonally adjusted to reflect 30th highest hour conditions per the ODOT Analysis and Procedures Manual (APM). All year 2040 travel demand estimates were post-processed in accordance with the ODOT APM.[1]

The study intersections are listed below and shown in Figure 1.

1. Veterans Way / OR 126
2. Airport Way / Veterans Way
3. Canal Boulevard / 27th Street / Yew Avenue

[1] The land use and network assumptions from the adopted TSP were used to develop an updated baseline 2040 scenario for the purpose of this evaluation. This updated scenario was based on the most recent version of the Bend-Redmond Travel Demand Model, which was used for other evaluation scenarios. Comparing post-processed outputs from Scenarios 1-4 to this updated baseline scenario provides a more clear comparison of changes that should result from increased density on the LLI lands. Post-processed turning movement forecasts for this scenario are shown in Figure B-2 in Appendix B.

4. US 97 Southbound Ramps / Yew Avenue
5. US 97 Northbound Ramps / Yew Avenue
6. 21st Street / Airport Way
7. 19th Street / Airport Way
8. Canal Boulevard / Helmholtz Way
9. US 97 / Quarry Avenue (modeled to reflect a "southern interchange")

The following section highlights the key findings and outcomes of the operational analysis.

Post-processed turning movement counts and intersection operations are presented in Appendix B for the following scenarios. Traffic operation reports are shown in Appendix C:

Existing (2023) Conditions

- Figure B-1: Existing (2023) Conditions

2040 Conditions with Baseline Transportation Network

- Figure B-2: Updated 2040 Baseline TSP Scenario
- Figure B-3: Scenario 1: 2040 Conditions with Land Use Scenario A (10 Employees per Acre)
- Figure B-4: Scenario 2: 2040 Conditions with Land Use Scenario B (15 Employees per Acre)

2040 Conditions with Southern Interchange

- Figure B-5: Updated 2040 Baseline TSP Scenario with Southern Interchange Connection
- Figure B-6: Scenario 3: 2040 Conditions with Land Use Scenario A (10 Employees per Acre
- Figure B-7: Scenario 4: 2040 Conditions with Land Use Scenario B (15 Employees per Acre) with Southern Interchange

EXISTING (2023) CONDITIONS

All intersections operate within applicable City and ODOT performance standards today, with the exception of the SW 21st Street/SW Airport Way intersection. This intersection is closely spaced to the Yew Avenue interchange and drivers attempting to make southbound or northbound left turns at this location often experience high delays during peak periods. The City has plans to eventually limit this intersection to right-in-right-out conditions only. Long-term, the City may pursue a grade separation of the railroad, which would change this intersection configuration.

If the City were to limit this intersection to right-in-right-out movements only via a median on SW Airport Way, implementation would need to be associated with a more detailed review of local access needs as well as how other transportation system changes, including a roundabout at the SW 19th Street/SW Airport Way intersection could facilitate this change.

2040 INTERSECTION OPERATIONS FOR SCENARIO 1 AND SCENARIO 2

Based on the year 2040 traffic volumes, we analyzed intersection operations assuming increased employment density and implementation of the TSP projects. As shown in Appendix B, the intersection operations for the two employment scenarios would suggest the following:

- The need for changes to key intersections does not materially change regardless of whether 10 or 15 employees per acre are realized.
- The previously noted Canal Boulevard/27th Street/Yew Avenue and SW 21st Street/SW Airport Way deficiencies would be exacerbated.
- The SW 19th Street/SW Airport Way roundabout would need to be constructed with additional turn lanes (northbound left and left/right turn lanes and an additional westbound through lane) beyond those planned to meet operational requirements.
- The Yew Avenue / US 97 NB Ramp Terminal would exceed its alternative mobility target, indicating that the facility would operate in excess of capacity during an average day. Additional changes to this ramp terminal would be challenging due to the existing US 97 bridge and constrained right-of-way in the vicinity.

2040 INTERSECTION OPERATIONS FOR SCENARIO 3 AND SCENARIO 4

Based on the year 2040 traffic volumes, we also analyzed intersection operations assuming increased employment density and construction of a southern interchange. As shown in Appendix B, the intersection operations would suggest the following:

- The SW 19th Street/SW Airport Way roundabout would require a smaller overall cross-section due to reduced demand at the intersection compared to the non-interchange scenarios.
- Traffic volumes would be reduced at the US 97/Yew Avenue interchange, including allowing for the US 97 northbound ramp terminal to operate within the adopted mobility targets.
- The potential construction of the SW 19th Street extension and a new interchange is forecast to serve approximately 300 to 400 vehicles during the PM peak by 2040 on a typical weekday.

In addition to the intersection operations, we note that a southern interchange would have other regional benefits, such as:

- Network redundancy and access to a large employment area: The LLI area would facilitate up to 9,820 future employees. For context, the Redmond UGB is forecast to have 28,550 employees by 2040 according to the Redmond TSP. This level of employee concentration would benefit from multiple access points to and from US 97.
- Event traffic management: The Deschutes County Fairgrounds and Expo Center relies on 19th Street, Airport Way, and the Yew Avenue interchange for ingress and egress, especially during large events. Future expansion plans for the fairgrounds, including larger and more frequent events, would benefit from an additional connection to US 97 for operational purposes and for emergency response scenarios.
- Grade separated connection of the BNSF railroad: The existing BNSF crossing on Airport Way has several challenges that make it difficult to provide a grade separated crossing for vehicles, emergency services, and freight. A connection to US 97 via a southern interchange would be built to provide a grade separated crossing of the rail line, providing a reliable route for these important purposes.
- Resiliency Planning: the Redmond Municipal Airport is a key location for resiliency planning for a Cascadia subduction event; adding a southern interchange can provide alternative access to the airport.

MAJOR INVESTMENT POLICY CONSIDERATIONS

As noted in the TSP, City policies, the Comprehensive Plan, and Council priorities focus on strategic investments that support mixed-use neighborhoods, providing options for increased use of walking and cycling, enhancing safety, and continued support for the economic health and prosperity of the region. Further, the highest priority projects for strategic investments are those that (1) protect the existing system and (2) improve the efficiency and safety of existing multimodal facilities. We also note that ODOT policies focus on protecting the existing transportation system prior to consideration of new major capital investments.

With these considerations in-mind, we note the following related to the adopted TSP projects:

- SW Airport Way Grade Separated Crossing – this project was estimated to cost more than $16 million, not including right-of-purchases. Construction of this overcrossing would require major capital expenditures, significant right-of-way impacts, significant changes to the US 97/Yew Avenue interchange, and significant rail impacts. Further, widening from Airport Way/Yew Avenue would not address the existing deficiencies at the Canal Boulevard/Yew Avenue/27th Street intersection and therefore not address broader system needs.
- Construction of an Elkhorn extension to 19th Street, including an overcrossing with US 97. This project was estimated to cost more than $26 million, not including right-of-way acquisition and was not shown to provide material changes to the broader system needs nor does it align with Council priorities and the Comprehensive Plan policies. This extension would not enable a new connection to US 97 via an interchange and/or at-grade intersection as it would not meet either ODOT or federal policy and spacing considerations. Without material benefits, this very costly grade-separation is not supported by City, State or Federal priorities and policies.

We also note that future consideration of a southern interchange will need to be considered relative to feasibility of the existing transportation system to accommodate planned growth in the region, the state's Transportation Planning Rule and other Statewide Goal considerations, the judicious use of future funding opportunities, consistency with major investment policies, and other broader resiliency and economic benefits.

INTERIM YEAR (2030) INTERSECTION OPERATIONS AND POSSIBLE FUNDING NEEDS

In addition to the year 2040 analyses, we also evaluated year 2030 intersection operations to help inform how changes to the transportation system may be able to be phased over time. This evaluation was performed only for Scenarios 1 and 2 (i.e., no southern interchange). Traffic volumes for these scenarios were developed by assuming linear growth between existing (2023) and future (2040) conditions. In all cases, the transportation network assumed that the adopted TSP projects were in-place but the southern interchange was not.

Post-processed turning movement counts and intersection operations are presented in Appendix B for the following scenarios. Traffic operation reports are shown in Appendix C:

- Figure B-8: 2030 Baseline TSP Scenario
- Figure B-9: 2030 Conditions with Land Use Scenario A (10 Employees per Acre)
- Figure B-10: 2030 Conditions with Land Use Scenario B (15 Employees per Acre)

The key findings of this evaluation include:

- The Canal Boulevard/27th Street/Yew Avenue is forecast to exceed mobility standards by 2030 regardless of the employment scenario evaluated (including the adopted TSP employment density).
- The 21st Street/Airport Way exceeds performance metrics today and will continue to do so in 2030.
- The US 97 Northbound Ramps at the Yew Avenue Interchange would meet the alternative mobility targets regardless of the employment density achieved.
- The 19th Street/Airport Way intersection could operate as a single lane roundabout regardless of the employment density achieved.

These findings indicate that the transportation network could be improved in the near-term to serve the LLI lands without implementation of a southern interchange from an operational perspective. However, the other benefits of a southern interchange discussed previously, including redundancy with US 97 and event traffic, would still be applicable in 2030.

PHASING ANALYSIS

Based on the year 2030 results, we also evaluated a phased development scenario to help the City plan for when specific improvements may be needed. For this analysis, we used Employment Scenario 1 (i.e., 10 jobs per acre for a total of 6,550 people working on the LLI lands) and evaluated the following scenarios based on a possible linear growth in job development. The interim employment numbers correlate to an approximate year that the employment would occur. For analysis purposes background traffic was assumed to be consistent with 2040 projections.

- Approximately 2,400 jobs added by 2027/2028
- Approximately 3,800 jobs added by 2031/2032
- Approximately 5,200 jobs added by 2035/2036
- Approximately 6,500 jobs added by 2039/2040 (buildout) [Note: analysis presented previously in Figure B-3 and Figure B-6]

Each of these scenarios was evaluated with and without a Southern Interchange. Key findings of these evaluations are discussed below.

Post-processed turning movement counts and intersection operations are presented in Appendix B for the following scenarios. Traffic operation reports are shown in Appendix C:

- Figure B-11: 2,400 Jobs added by 2027/2028
- Figure B-12: 3,800 jobs added by 2031/2032
- Figure B-13: 5,200 jobs added by 2035/2036
- Figure B-14: 2,400 Jobs added by 2027/2028 with Southern Interchange
- Figure B-15: 3,800 jobs added by 2031/2032 with Southern Interchange
- Figure B-16: 5,200 jobs added by 2035/2036 with Southern Interchange

Based on this analysis, if a Southern Interchange is not added:

- The Canal Boulevard/27th Street/Yew Avenue roundabout is forecast to exceed mobility targets by 2027/2028;
- The 21st Street/Airport Way intersection is forecast to exceed mobility standards is forecast to exceed mobility targets by 2027/2028;
- The 19th Street/Airport Way single lane roundabout is forecast to exceed mobility standards by 2035/2036; and,
- The Yew Avenue/US 97 NB Ramp Terminal is forecast to operate acceptably when compared to the alternative mobility target until 2039/2040 with 6,500 jobs added.

If a Southern Interchange is constructed:

- The timing of the needs at the Canal Boulevard/27th Street/Yew Avenue roundabout and 21st Street/Airport Way intersection do not change.

- The Yew Avenue/US 97 NB Ramp Terminal would not require changes to meet mobility targets, regardless of the employment scenario considered.

FUTURE CONSIDERATIONS

As part of further planning and based on the above analyses that demonstrates changes will be needed to the transportation system in the next 3 – 4 years to support early development of the LLI lands, it appears that the City may want to consider applying for new funding opportunities available at the federal, state, and/or regional level as well as to pursue possible public/private partnerships. One possible funding source for further exploration is the Infrastructure Investment and Jobs Act (IIJA) program.

In addition, we understand that the City is undertaking a land use refinement study in the next few months to further identify considerations related to LLI development opportunities. This effort and our analyses can help inform an amendment to the existing TSP.

KEY FINDINGS & NEXT STEPS

As described herein, whether the LLI lands were to facilitate a density of 10 or 15 employees per acre, the transportation needs are essentially the same. The key locations that would require changes to the intersection configuration in the future include:

- The Canal Boulevard/27th Street/Yew Avenue is forecast to exceed mobility standards by 2027/2028 regardless of the employment or transportation scenario evaluated. This deficiency is highlighted in the TSP so no changes would be required as part of the TSP Amendment.
- The 21st Street/Airport Way exceeds performance metrics today and will continue to do so. This deficiency is highlighted in the TSP so no changes would be required as part of the TSP Amendment.
- The US 97 Northbound Ramps at the Yew Avenue Interchange would not meet the alternative mobility targets regardless of the employment density achieved by 2039/2040 if no southern interchange is constructed. This deficiency would need to be addressed as part of the TSP Amendment.
- The 19th Street/Airport Way intersection would not operate as a single lane roundabout regardless of the employment density or transportation network scenario evaluated and is anticipated to exceed applicable performance targets by 2034/2035. This deficiency would need to be addressed as part of the TSP Amendment. The addition of a southern interchange would help reduce the overall footprint of the intersection changes.
- The southern interchange could facilitate 300 – 400 vehicles per hour during peak periods but also has other regional benefits, including providing for alternative access to the Redmond Municipal Airport during a Cascadia subduction event, peak events at the Deschutes County Fairgrounds and Expo Center, as well as serving up to 9,820 employees in the LLI lands. Any further evaluation of the potential for a southern interchange would need to be explored through a Goal Exception Process as well as to consider such factors as the state's Transportation Planning Rule and other Statewide Goal considerations, the judicious use of future funding opportunities, consistency with major investment policies, and other broader resiliency and economic benefits.

We look forward to discussing our findings with you and identifying the next steps as part of the TSP Amendment.

Appendix A -

2040 Travel Demand Model Scenario Outputs

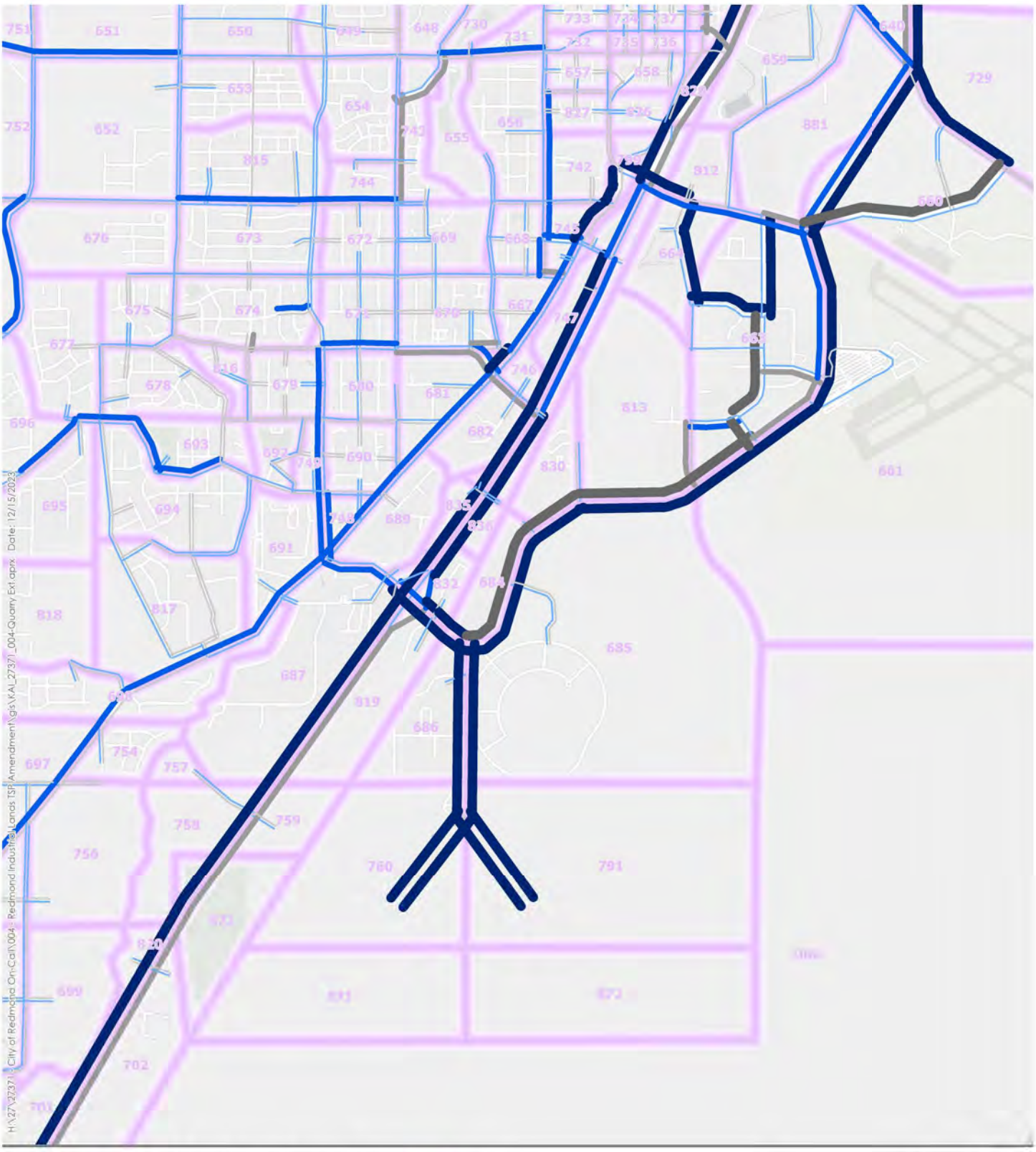


Figure A-1

2040 PM Peak Hour Travel Demand Comparison between Scenario 1 and the Adopted TSP

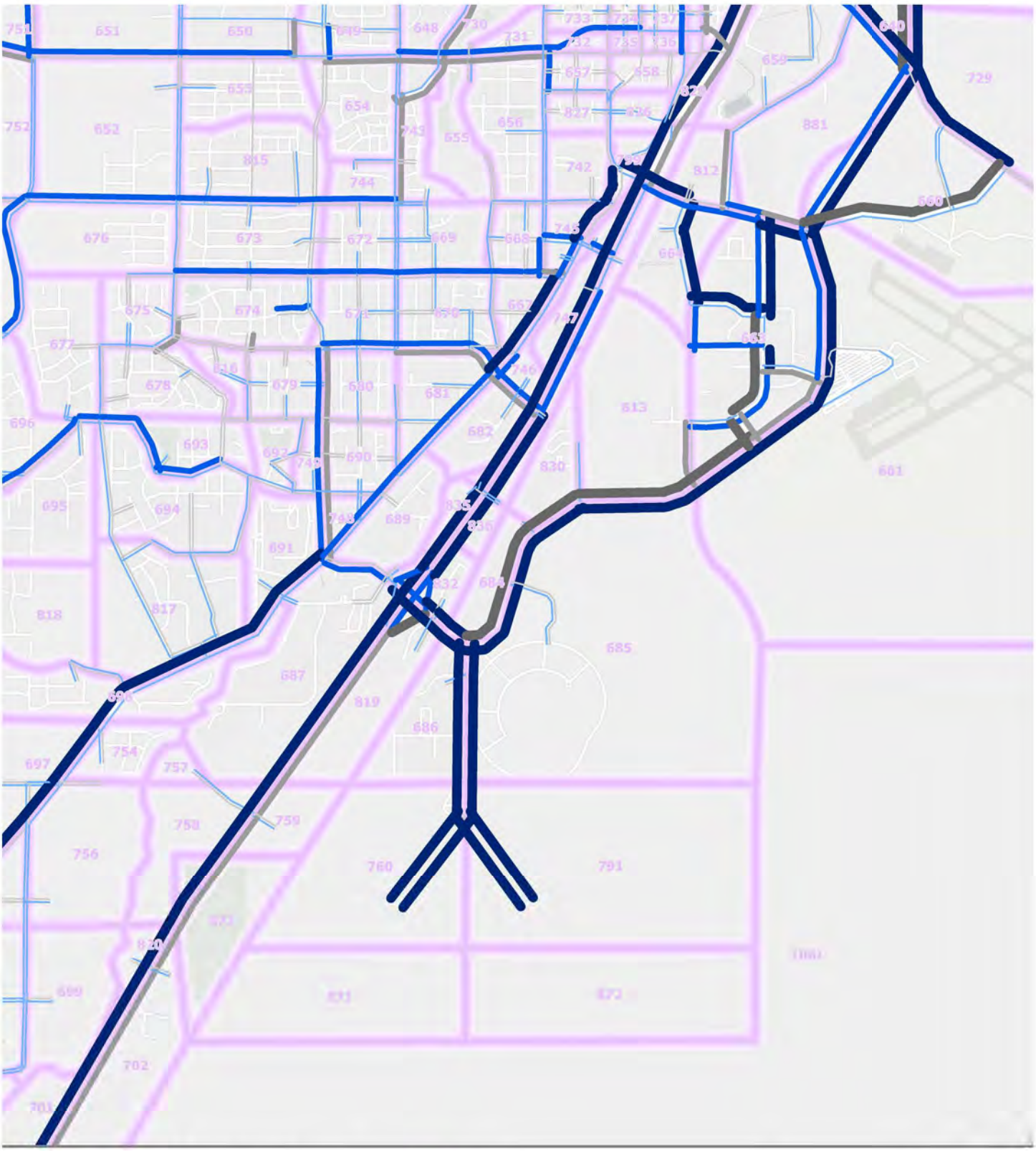


Figure A-2

2040 PM Peak Hour Travel Demand Comparison between Scenario 2 and the Adopted TSP

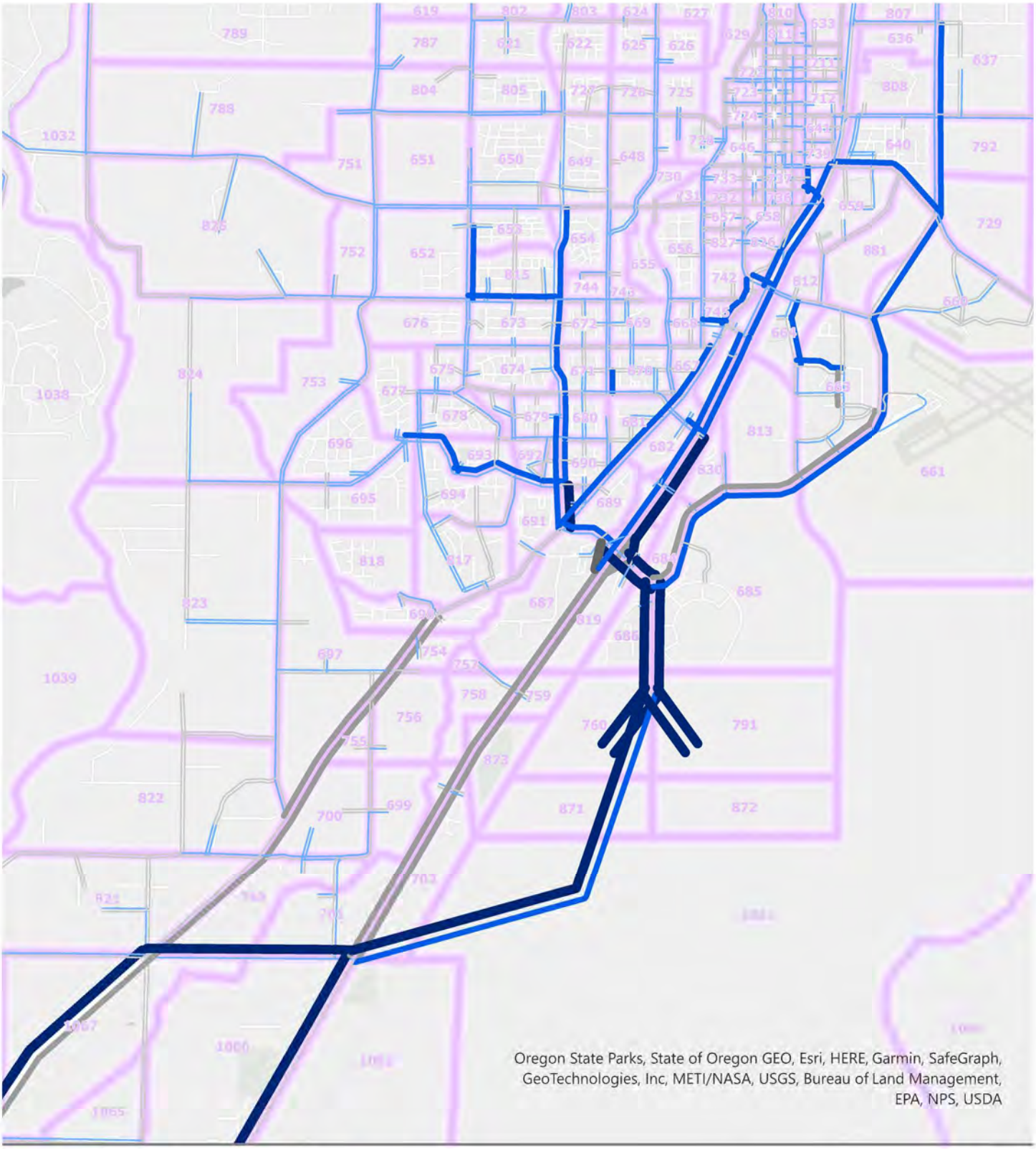


Figure A-3

2040 PM Peak Hour Travel Demand Comparison between Scenario 3 and the Adopted TSP

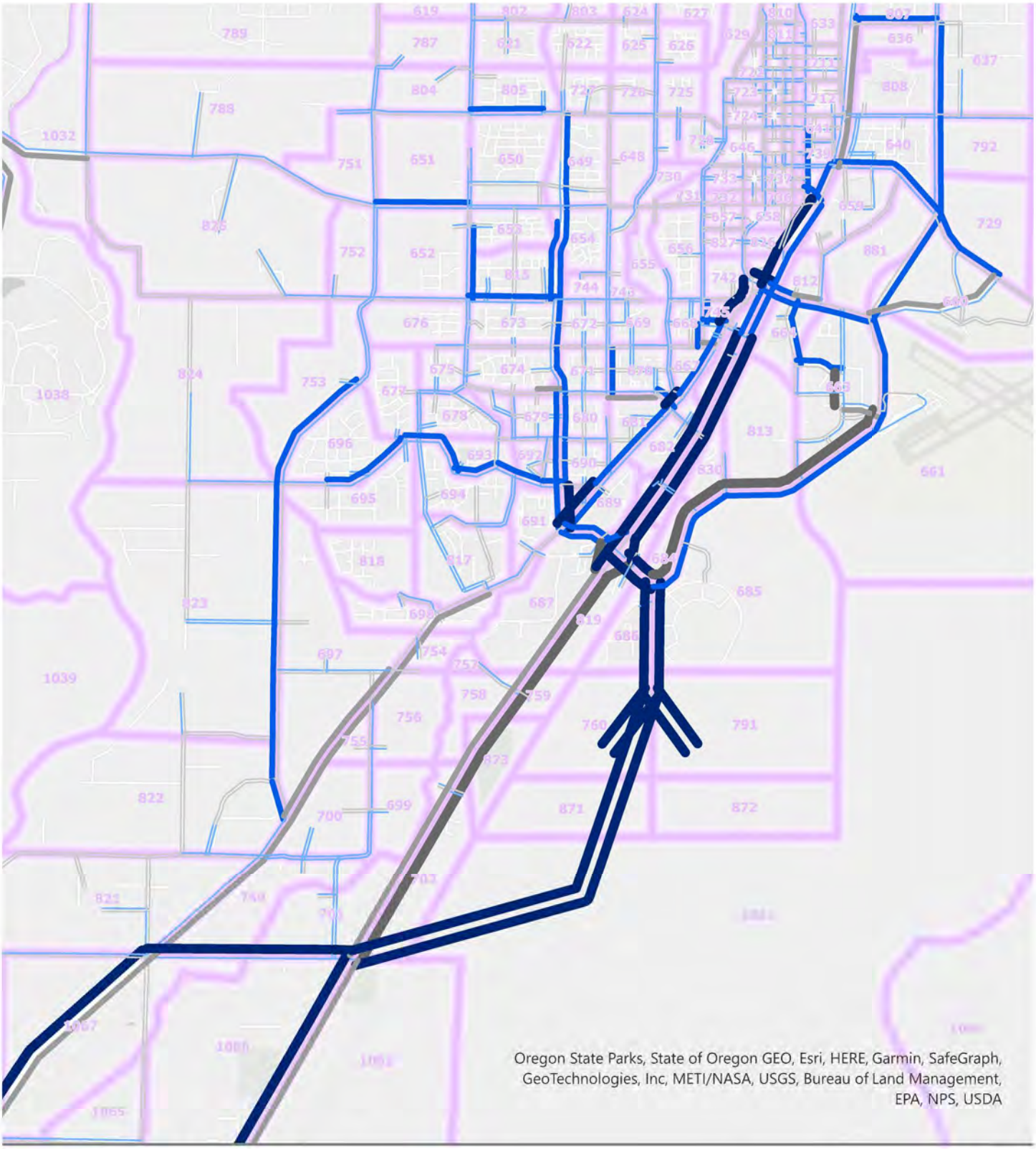


Figure A-4

2040 PM Peak Hour Travel Demand Comparison between Scenario 4 and the Adopted TSP

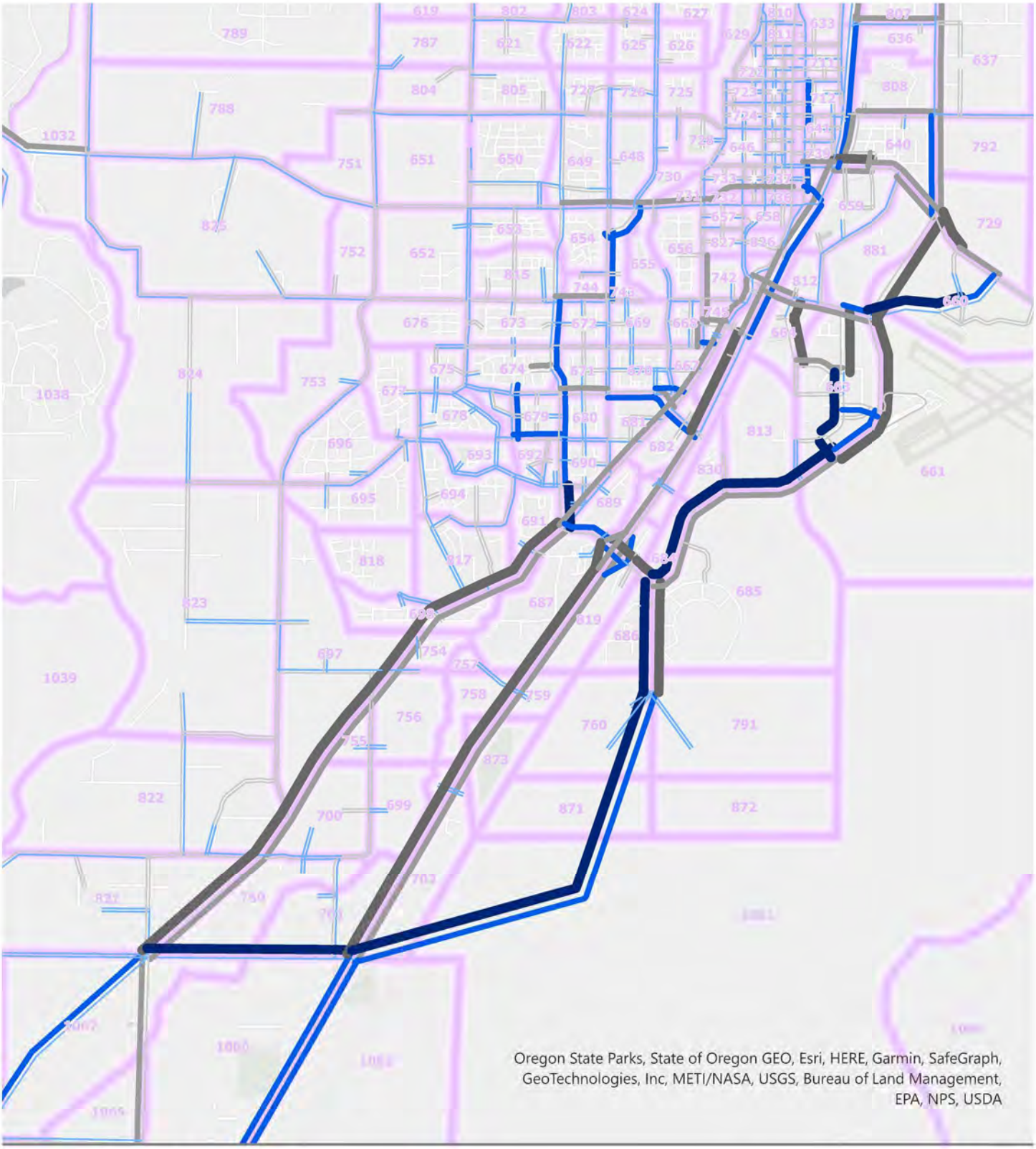


Figure A-5

2040 PM Peak Hour
Travel Demand Comparison of Scenario 1
With and Without the Southern Interchange

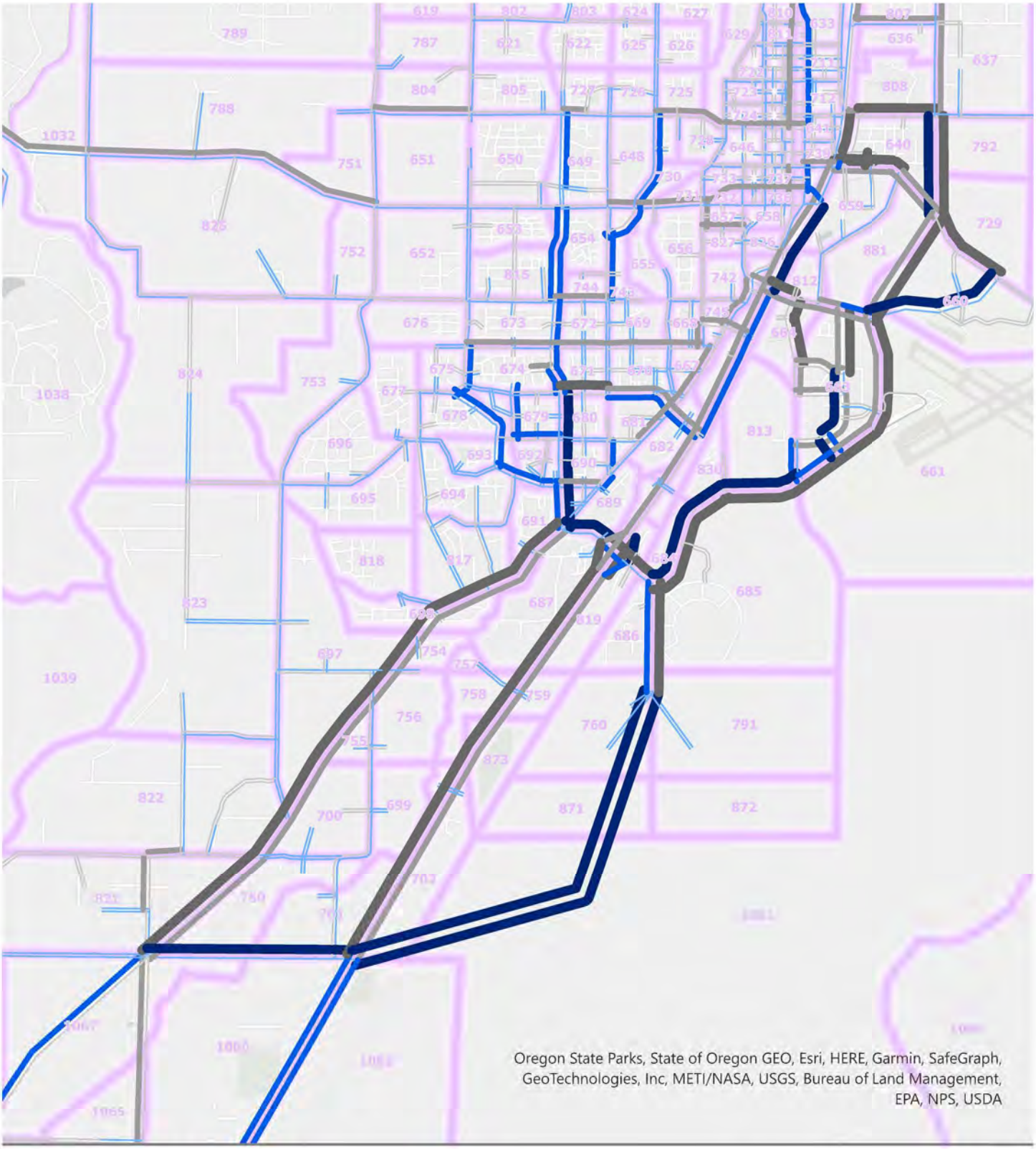
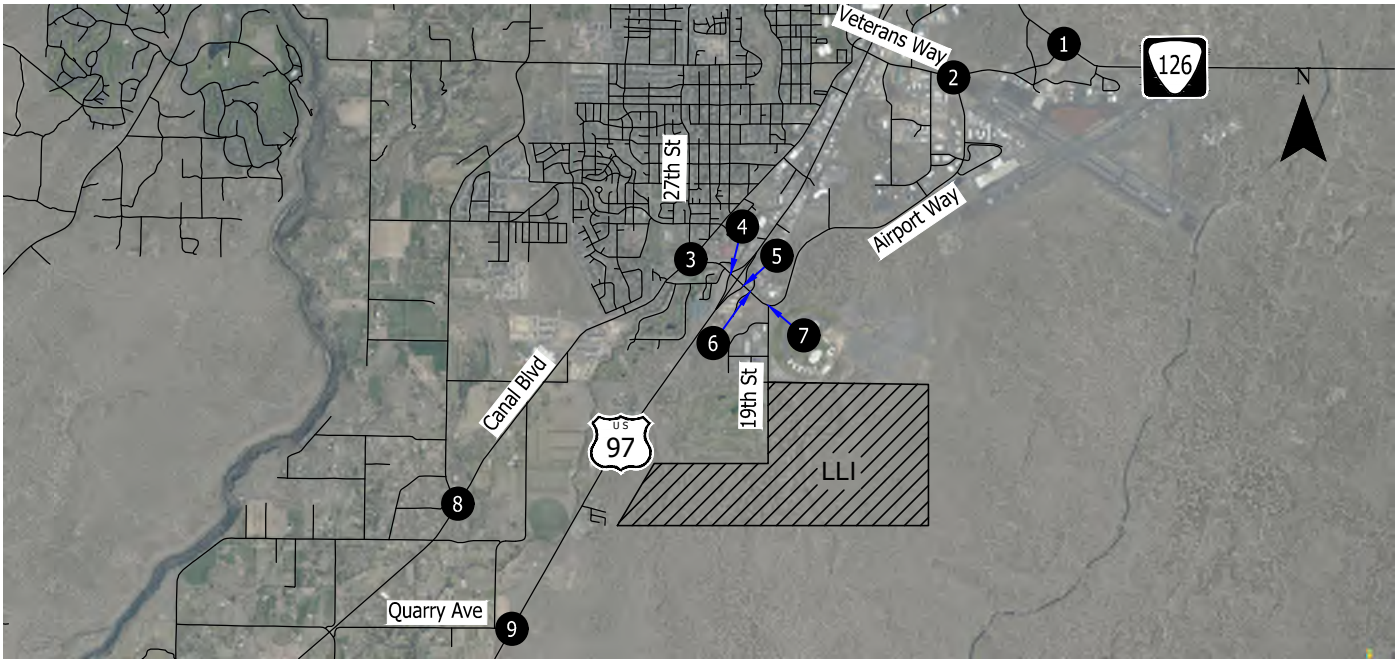


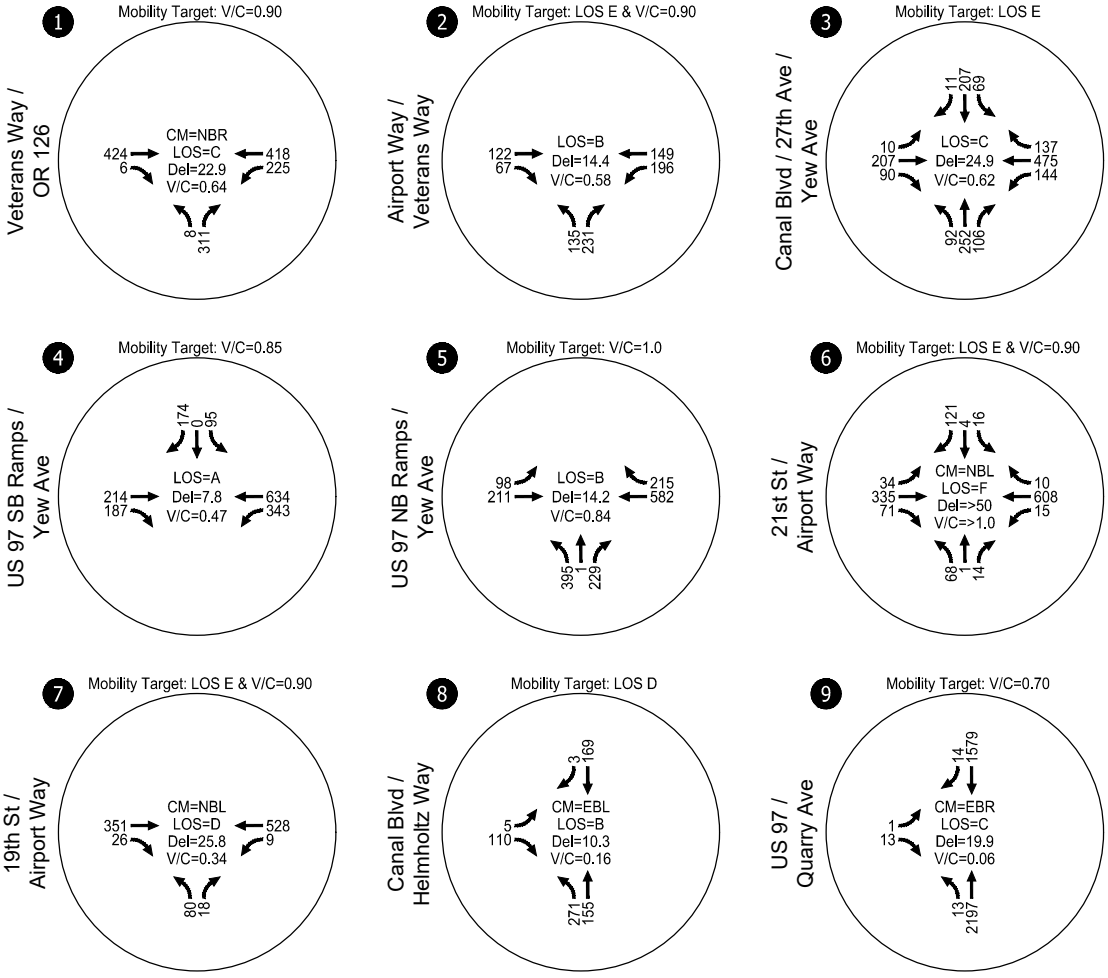
Figure A-6

2040 PM Peak Hour Travel Demand Comparison of Scenario 2 With and Without the Southern Interchange

Appendix B-
Traffic Volumes and Operations Figures

Section 1 - Existing Conditions





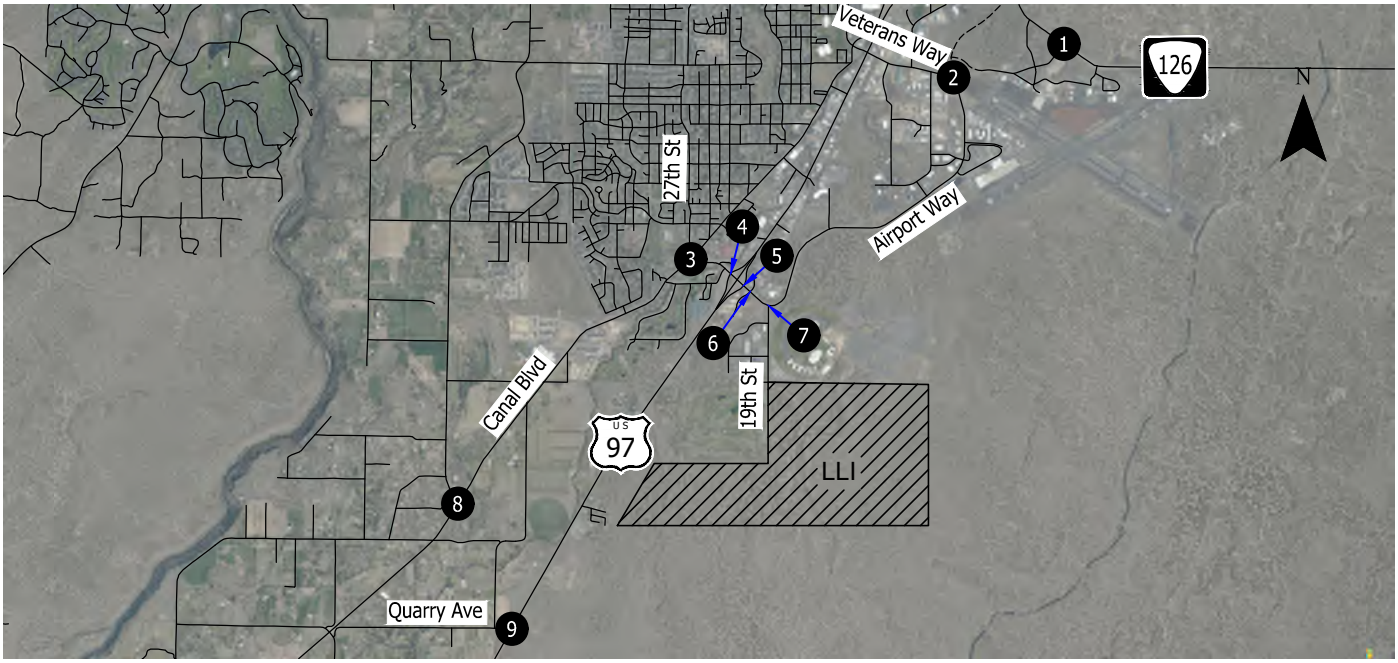
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

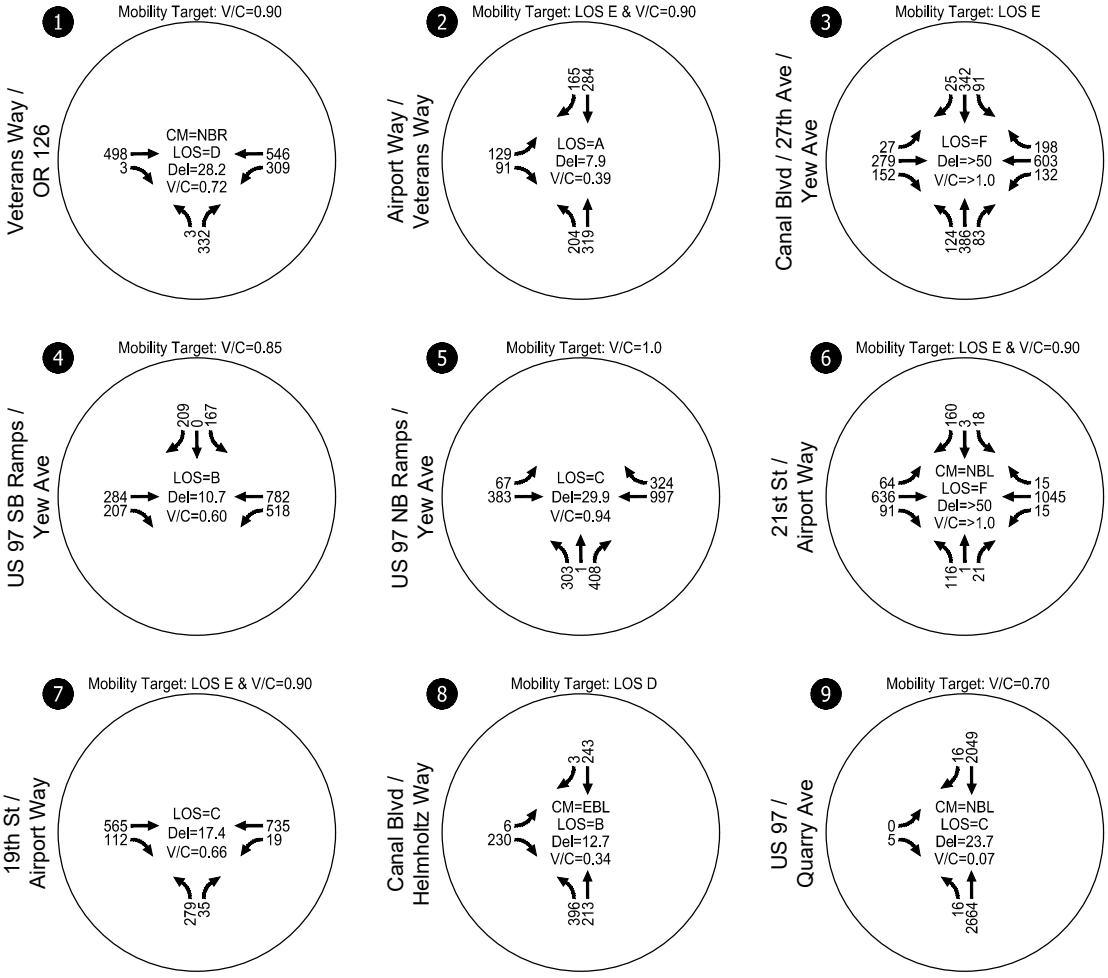
Existing Traffic Conditions
2023 PM Peak Hour
Redmond, OR

Figure
B-1

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: EX_PM

Section 2 - Year 2040 Scenarios



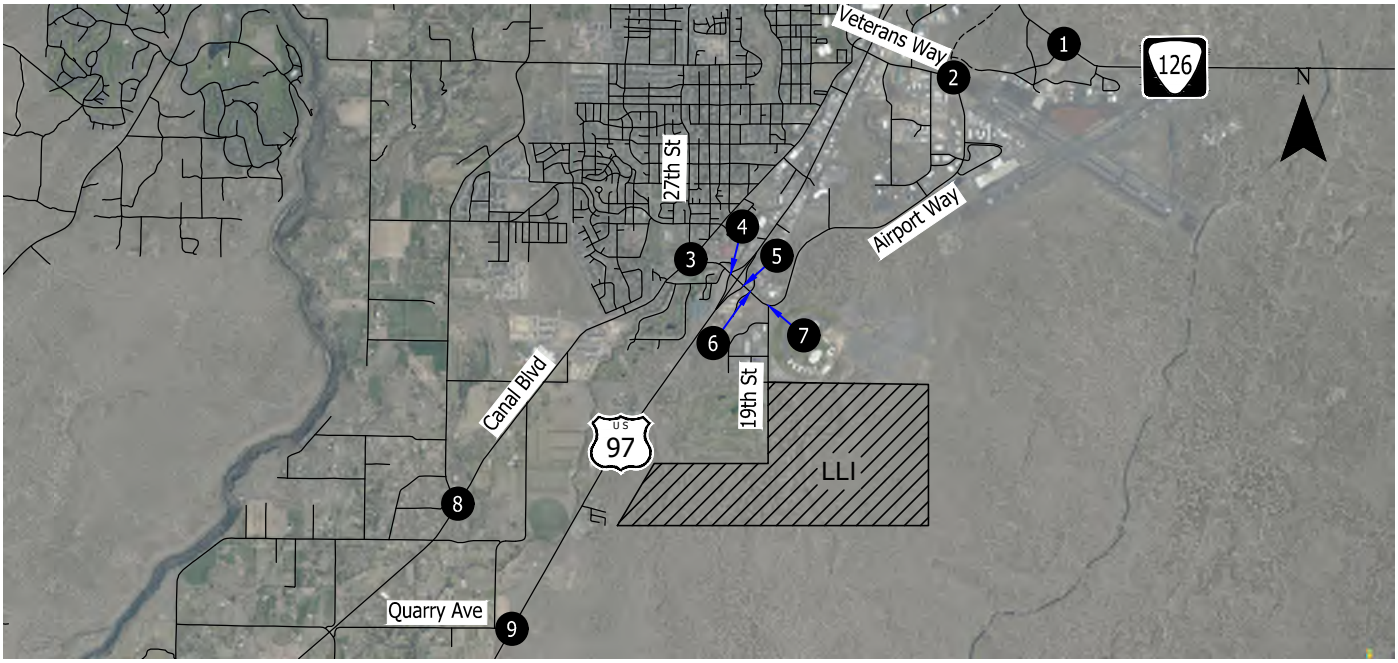


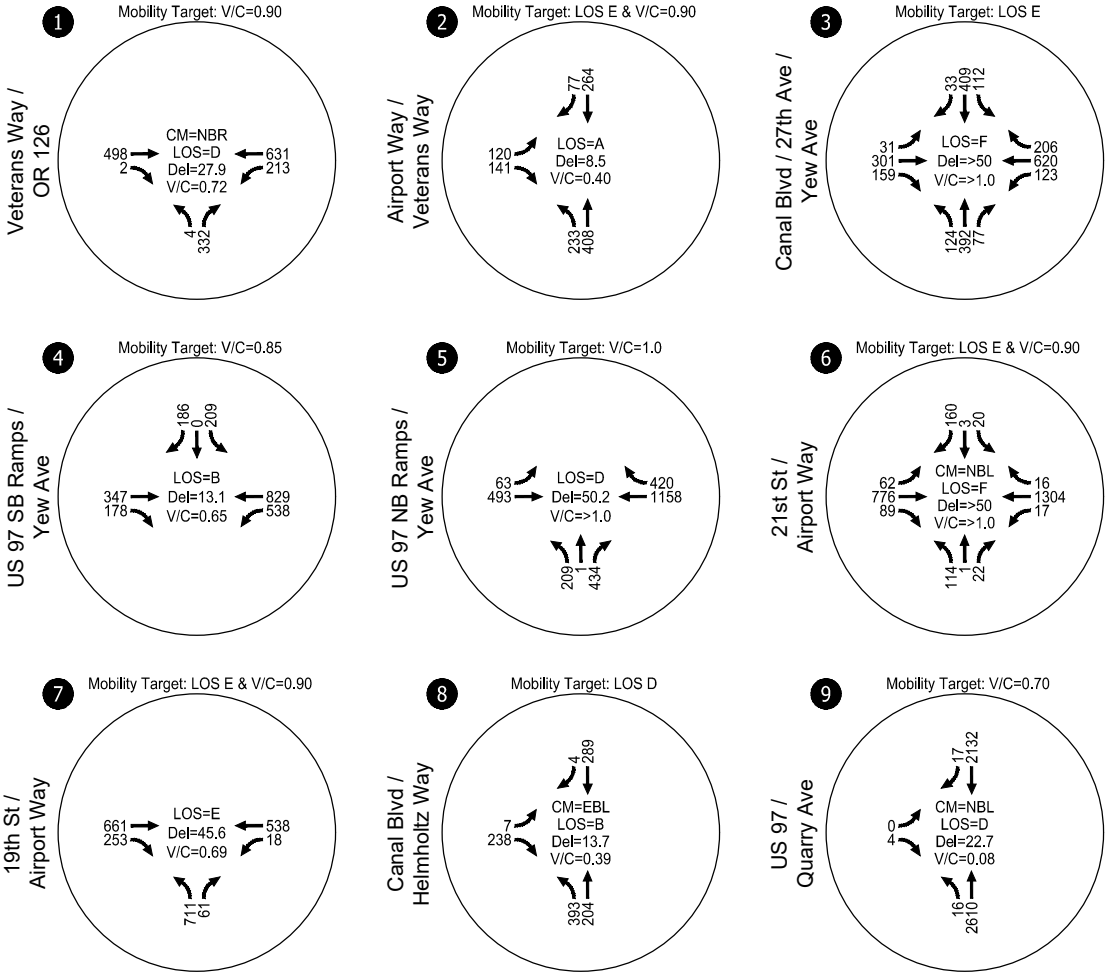
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Base TSP Growth Scenario
2040 PM Peak Hour
Redmond, OR

Figure
B-2

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_Base_PM



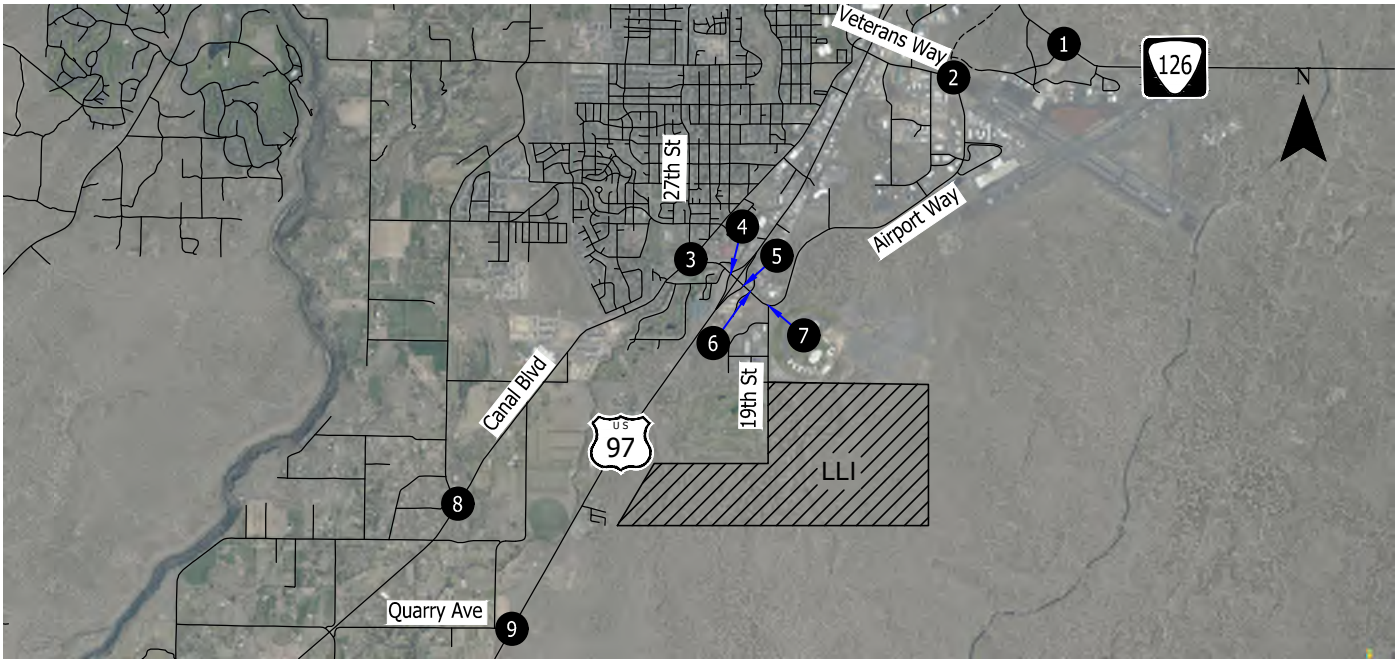


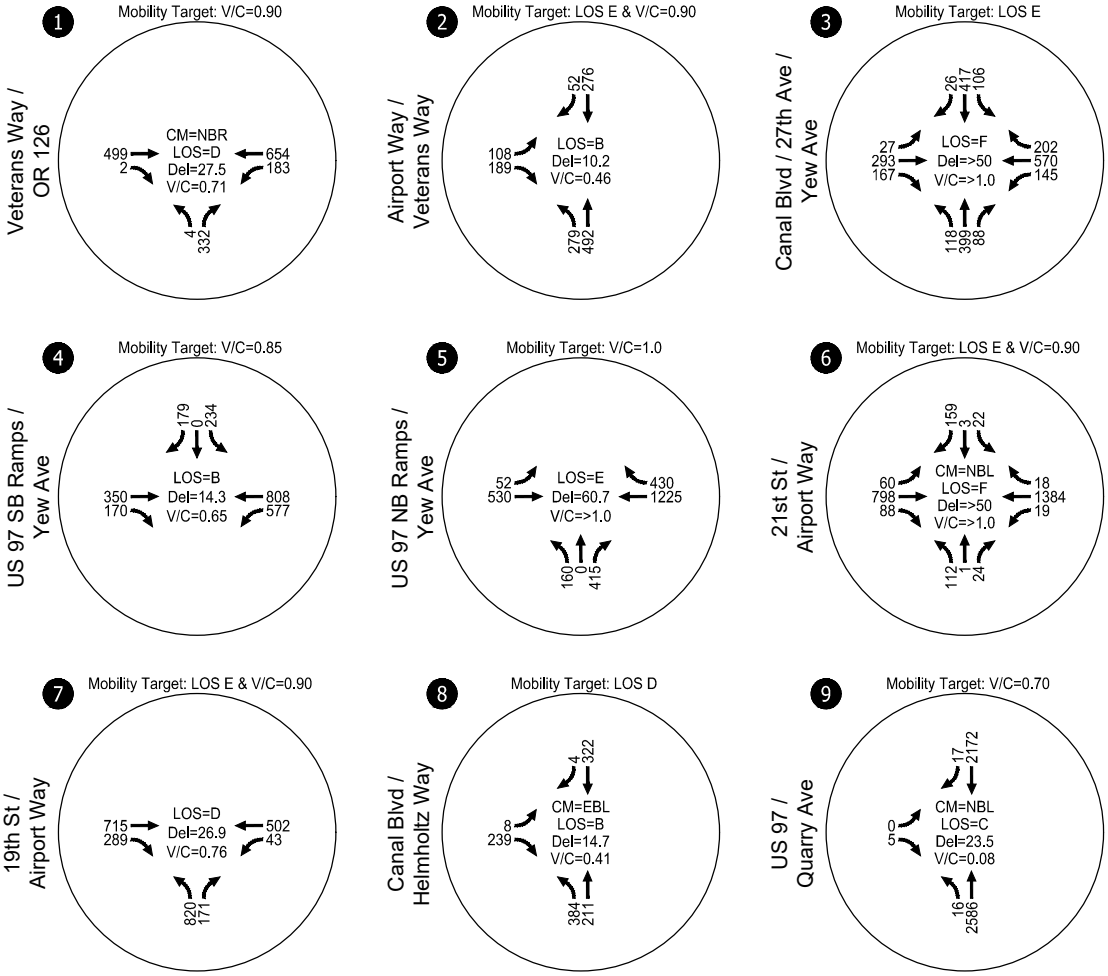
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Land Use Scenario A
No Southern Interchange
2040 PM Peak Hour
Redmond, OR

Figure
B-3

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_Scen 1_PM



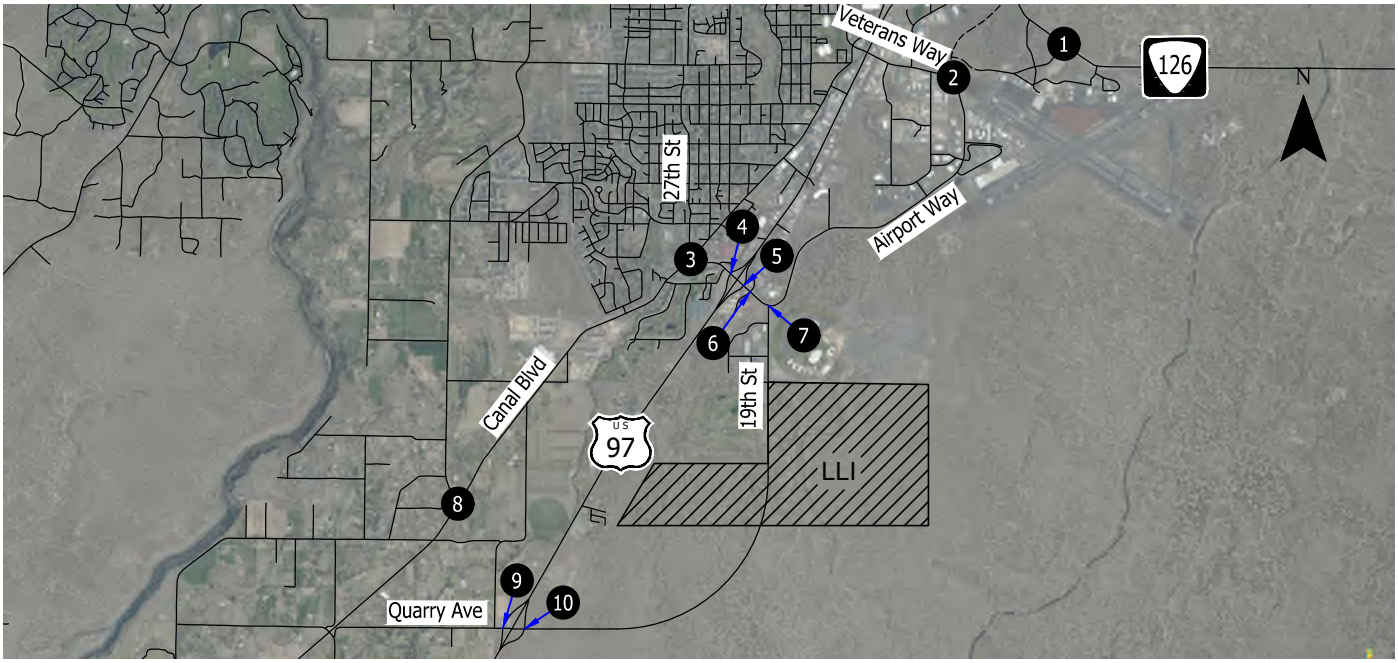


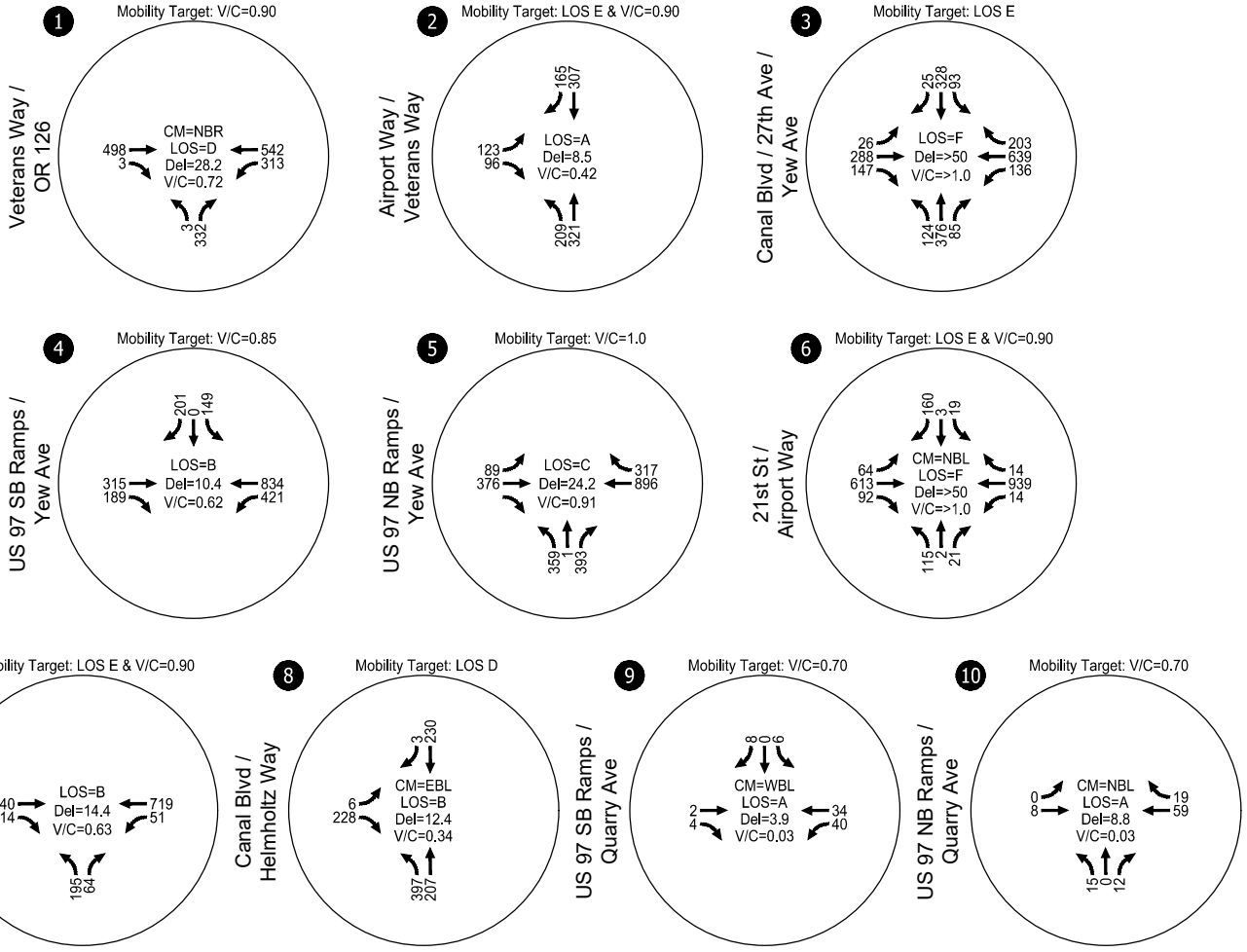
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Land Use Scenario B
No Southern Interchange
2040 PM Peak Hour
Redmond, OR

Figure
B-4

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_Scen 2_PM



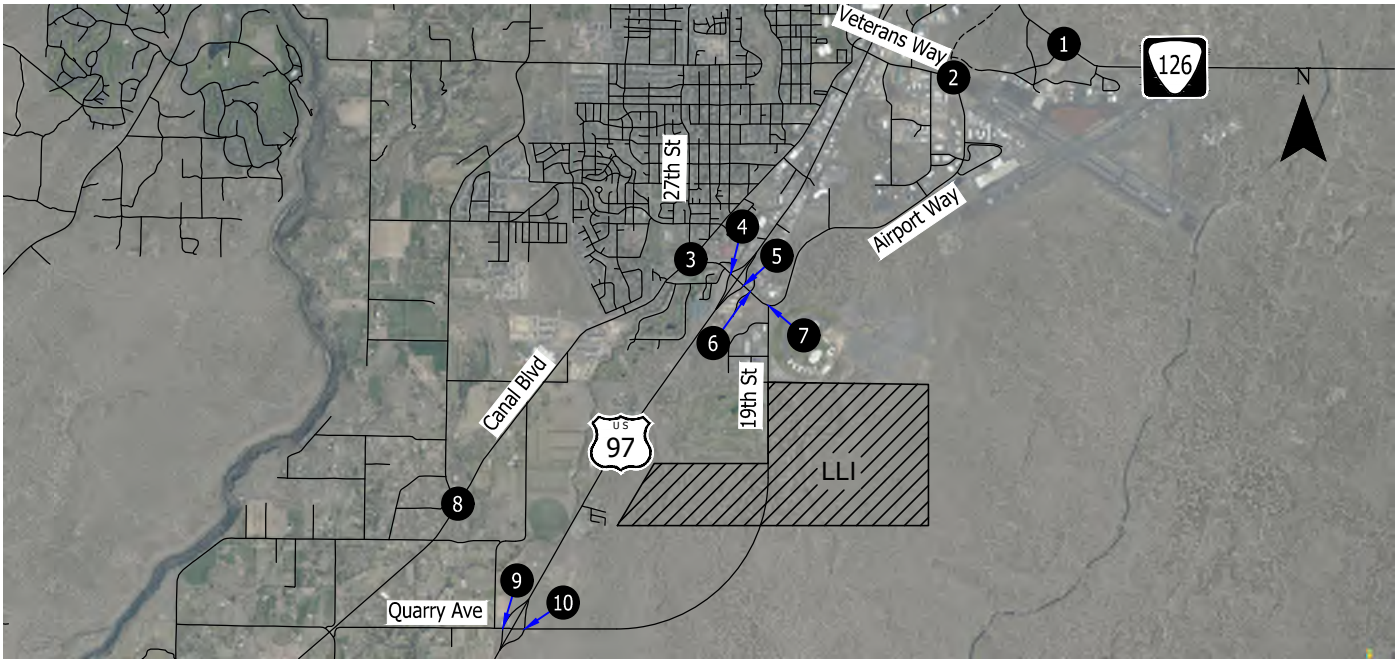


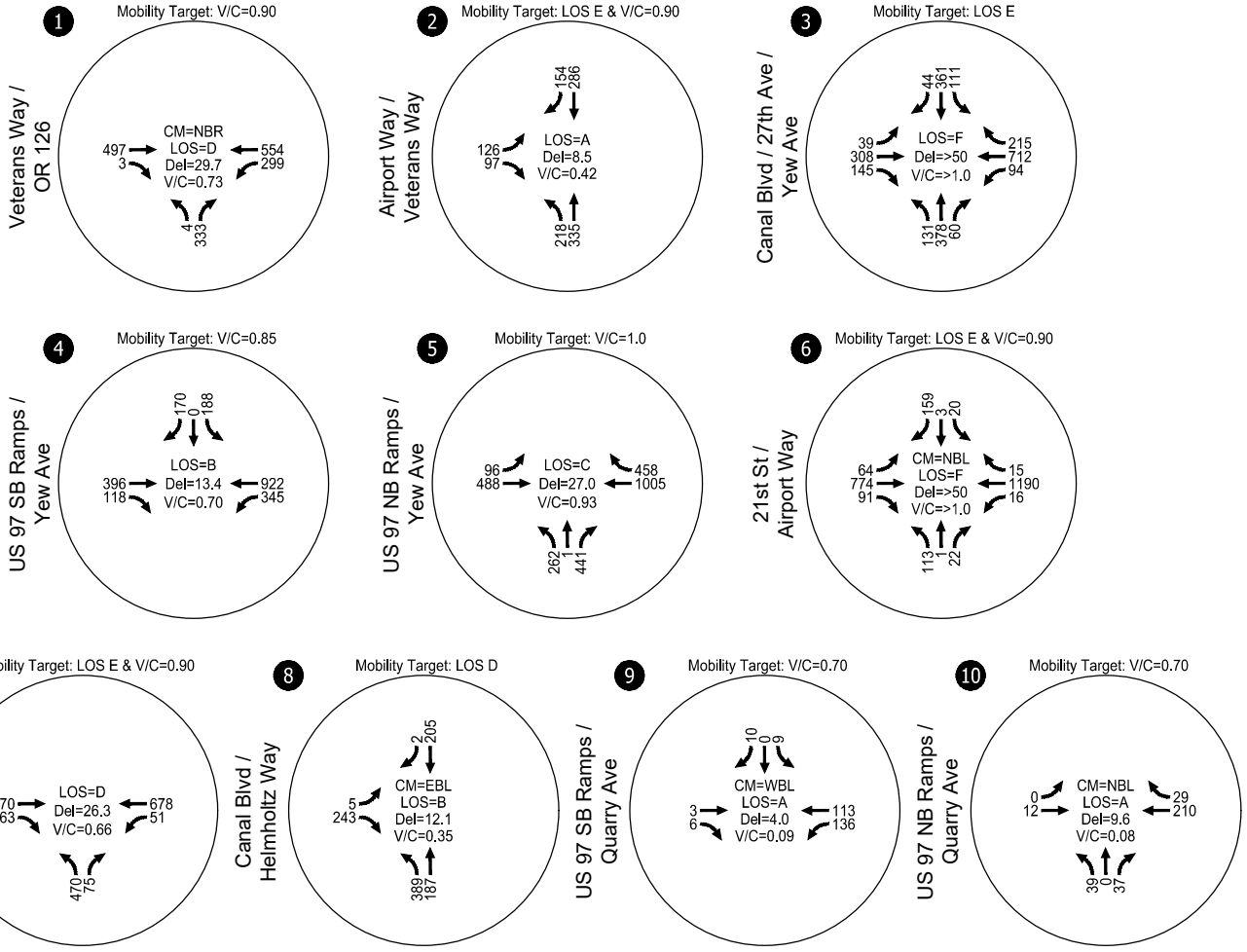
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Base TSP Growth Scenario With Southern Interchange 2040 PM Peak Hour Redmond, OR

Figure B-5

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_Base_PM



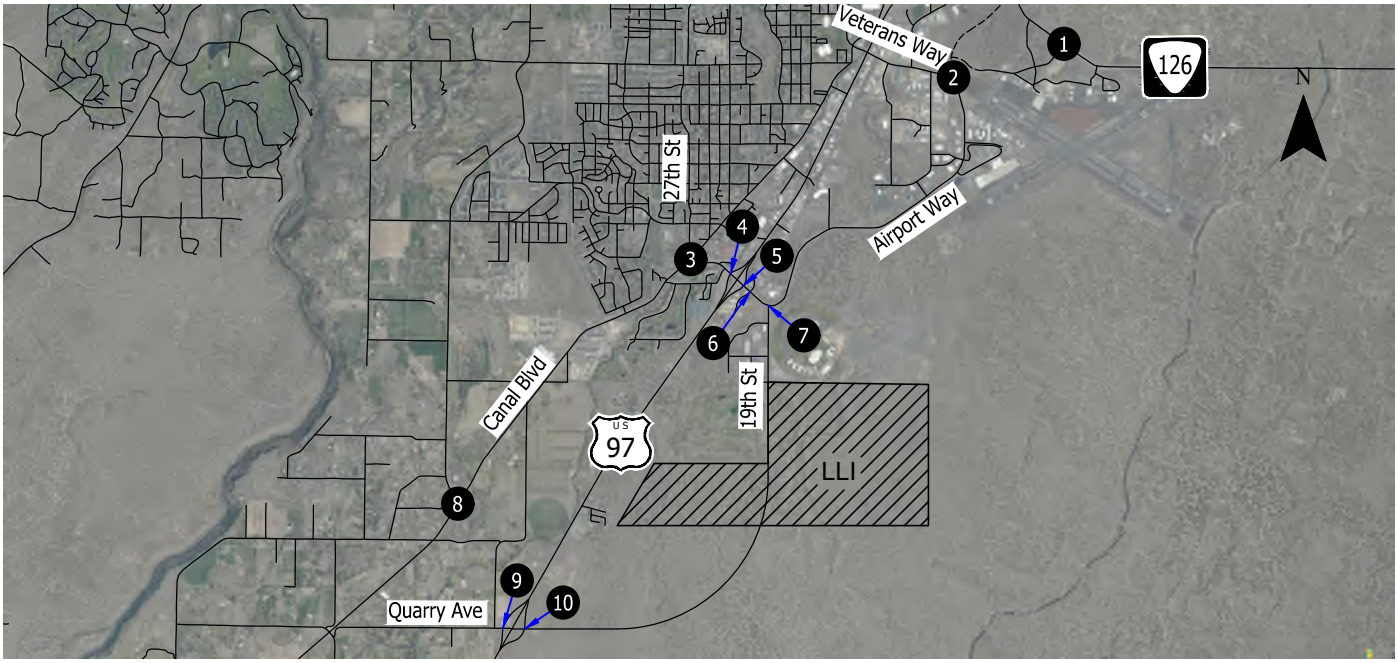


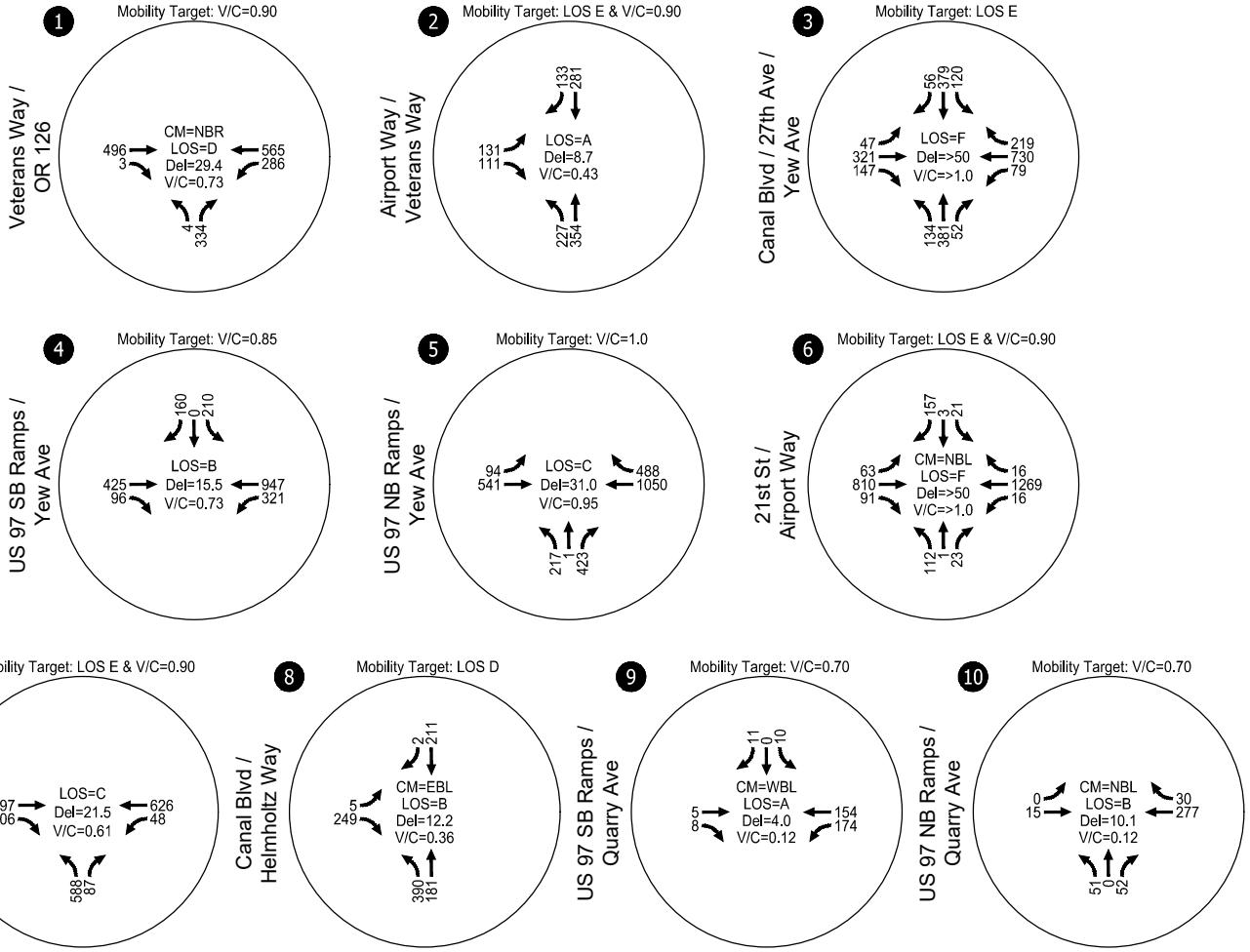
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Land Use Scenario A With Southern Interchange 2040 PM Peak Hour Redmond, OR

Figure B-6

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_Scen 1_PM





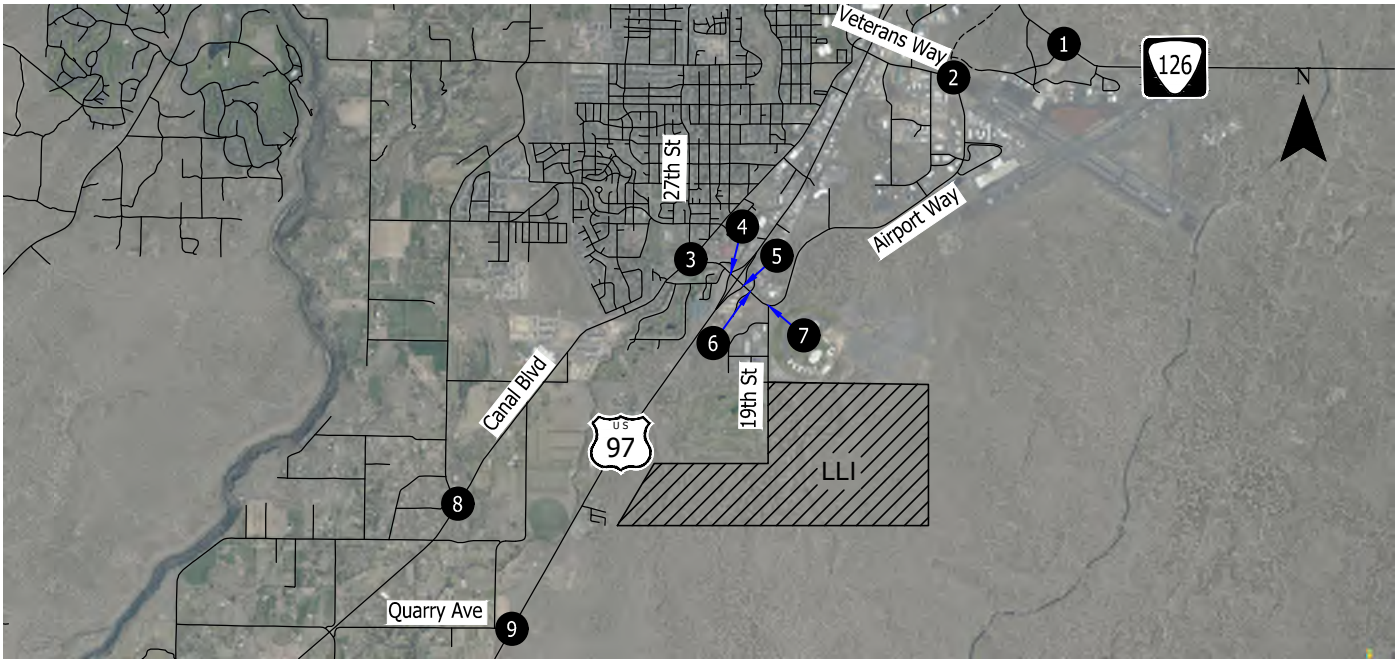
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

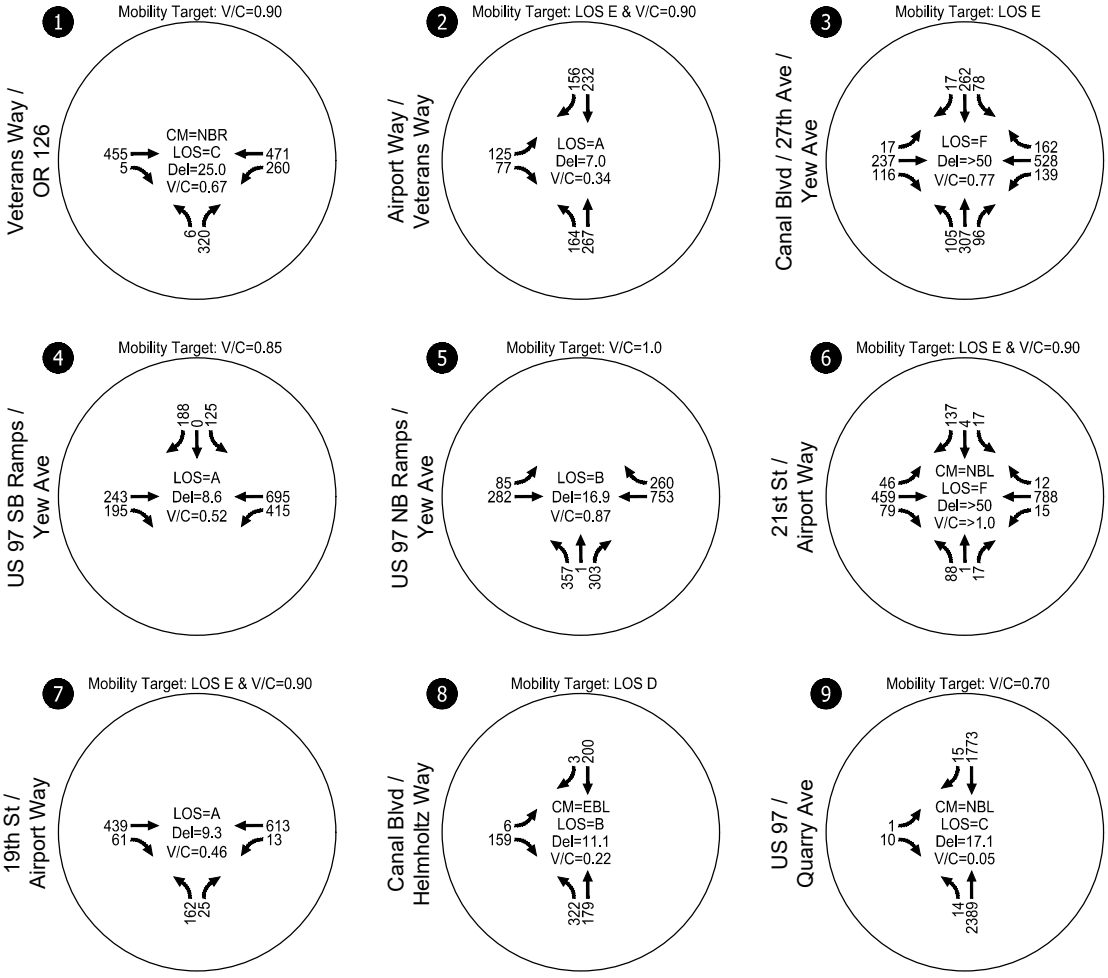
Land Use Scenario B With Southern Interchange 2040 PM Peak Hour Redmond, OR

Figure B-7

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_Scen 2_PM

Section 3 - Year 2030 Scenarios



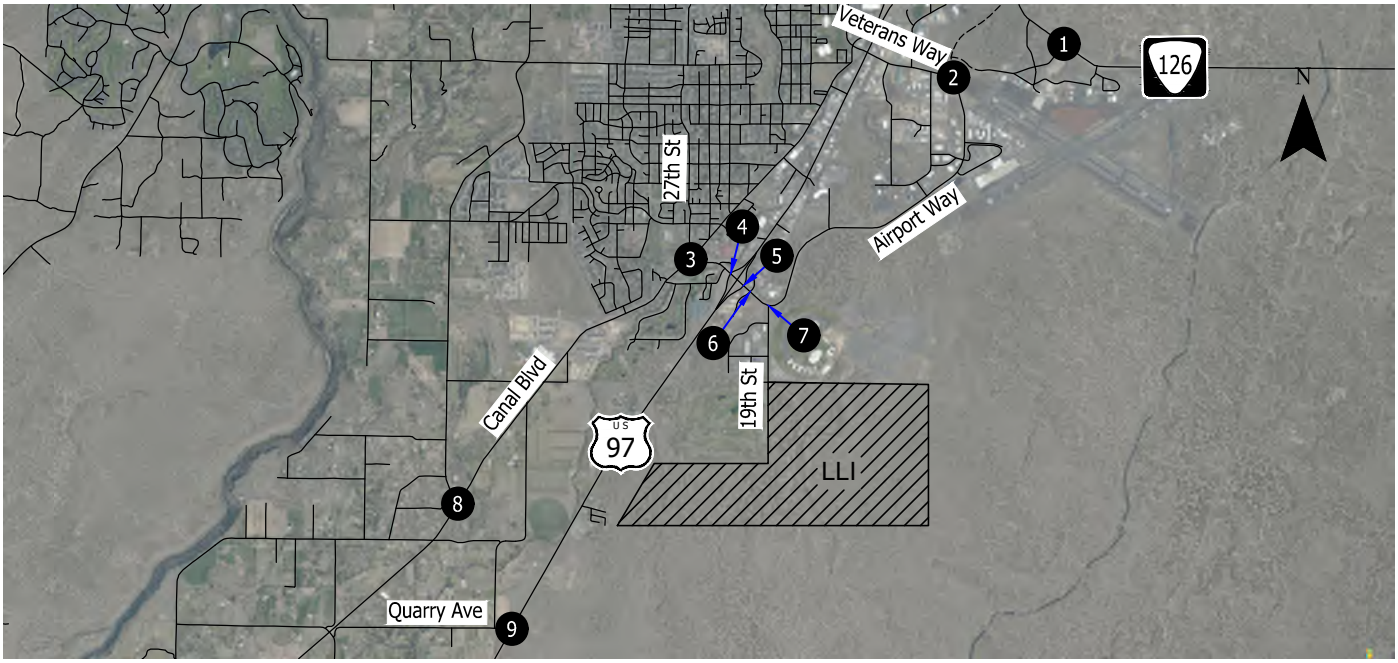


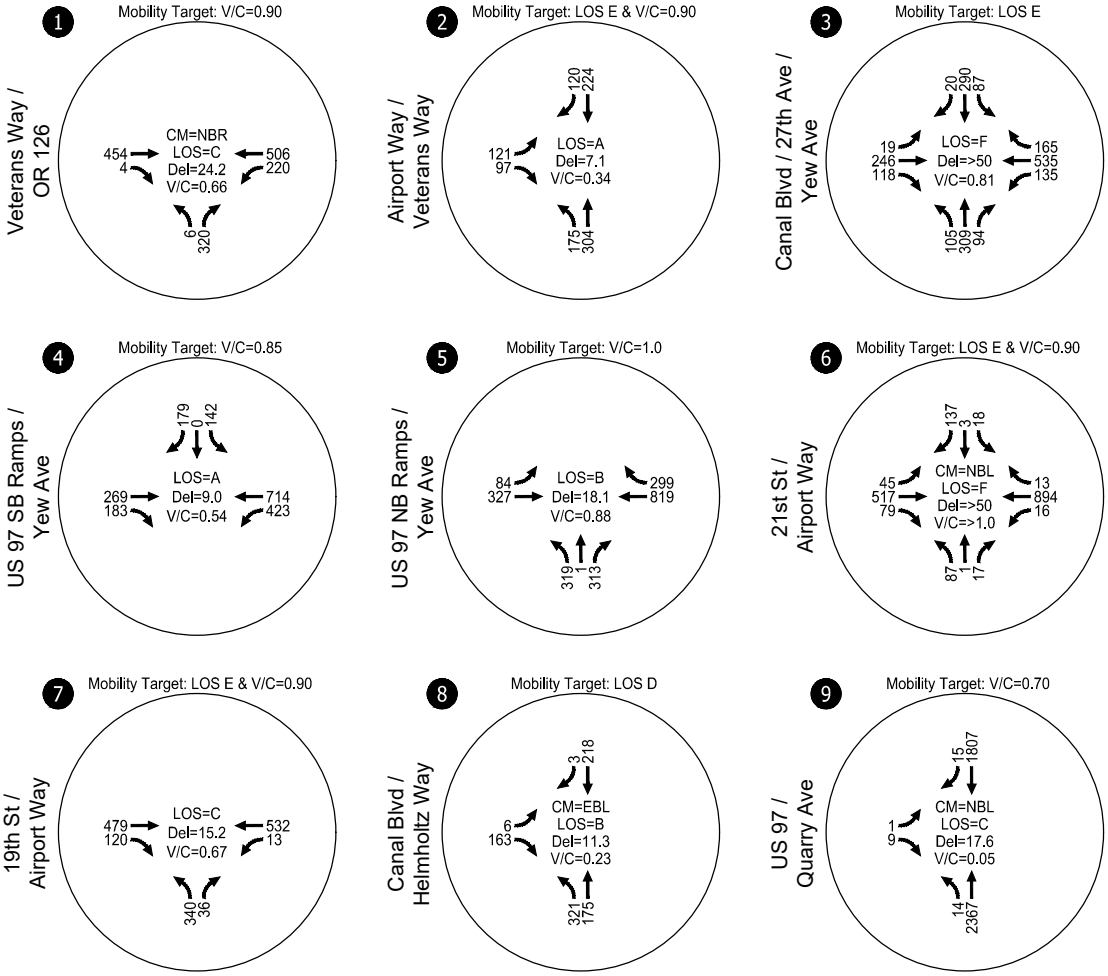
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Base TSP Growth Scenario 2030 PM Peak Hour Redmond, OR

Figure B-8

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2030_Base_PM



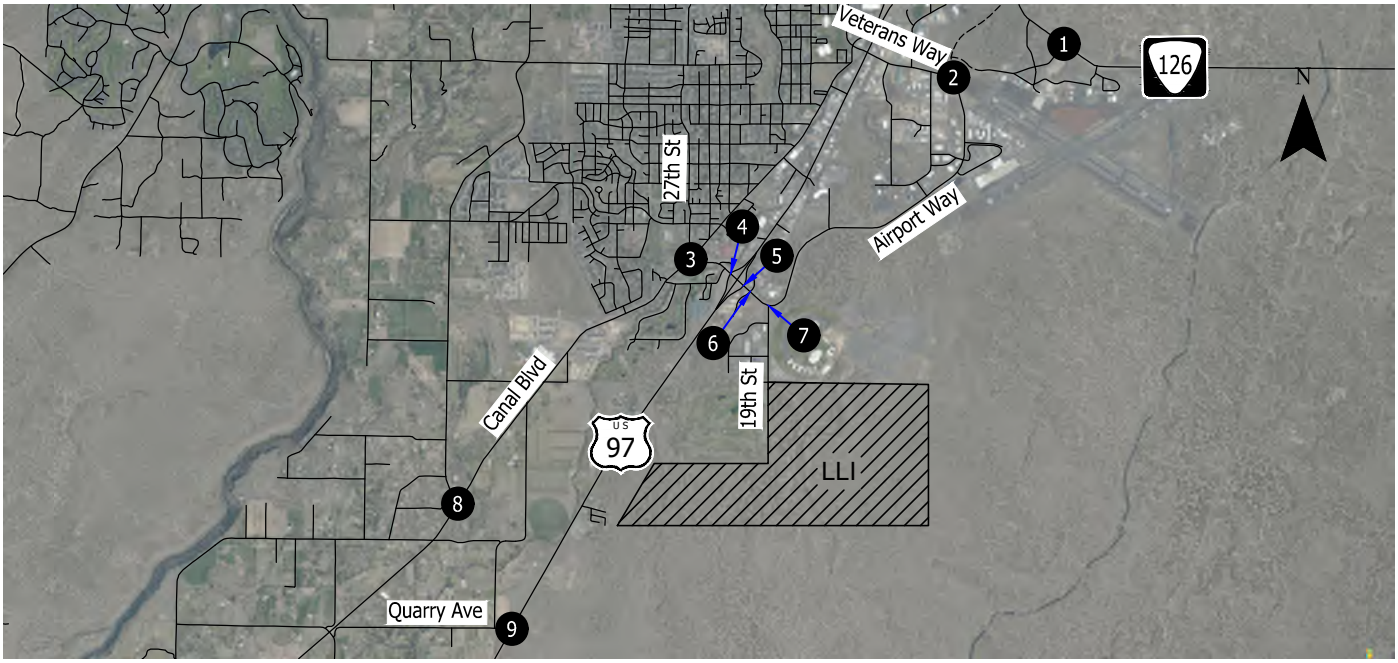


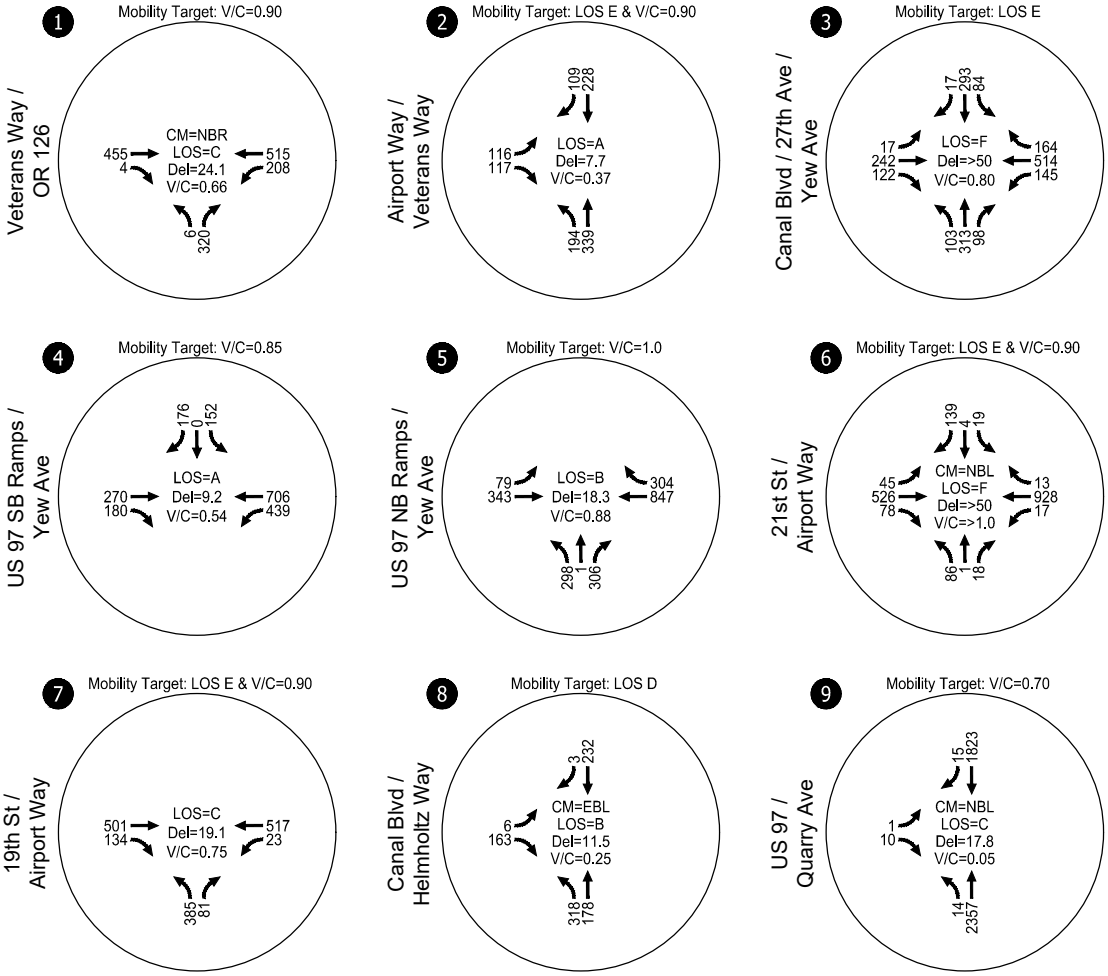
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

Land Use Scenario A
No Southern Interchange
2030 PM Peak Hour
Redmond, OR

Figure
B-9

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2030_Scenario 1_PM





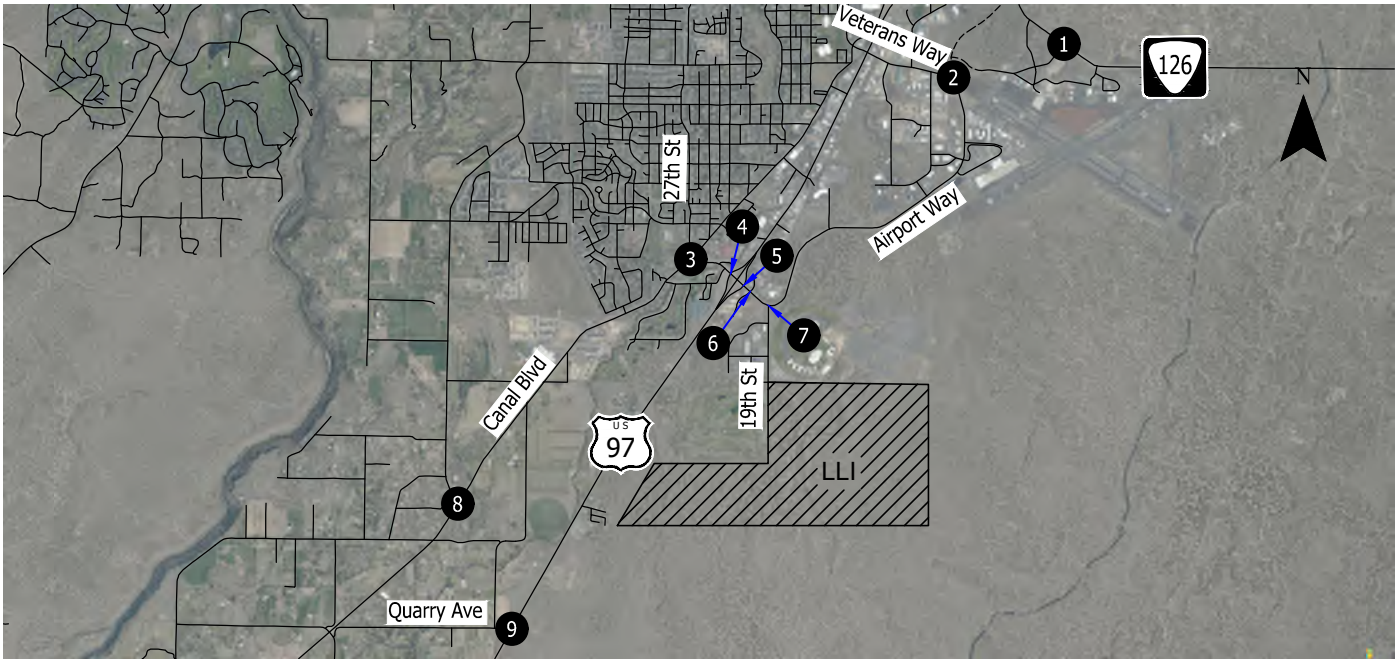
CM = INTERSECTION MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

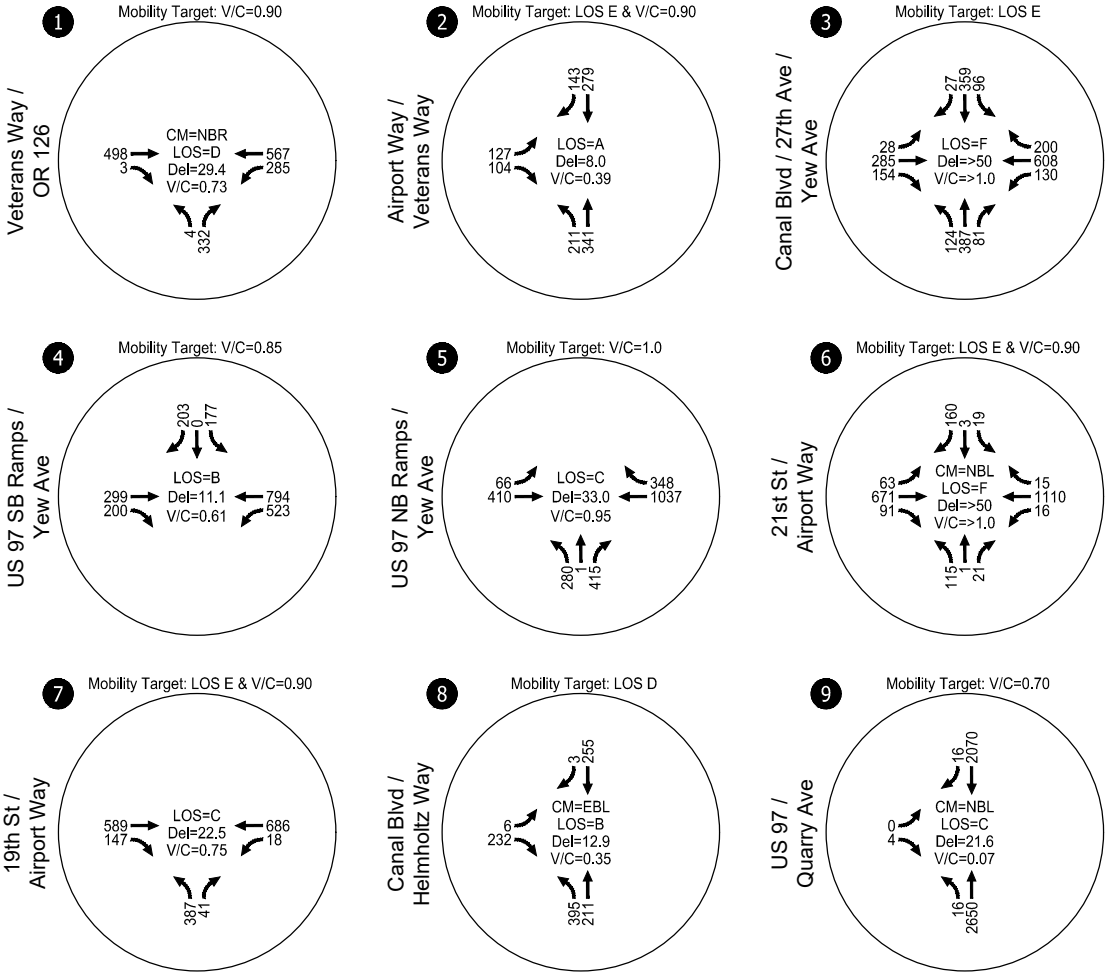
Land Use Scenario B
No Southern Interchange
2030 PM Peak Hour
Redmond, OR

Figure
B-10

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2030_Scenario 2_PM

Section 4 - Phasing Analysis Scenarios



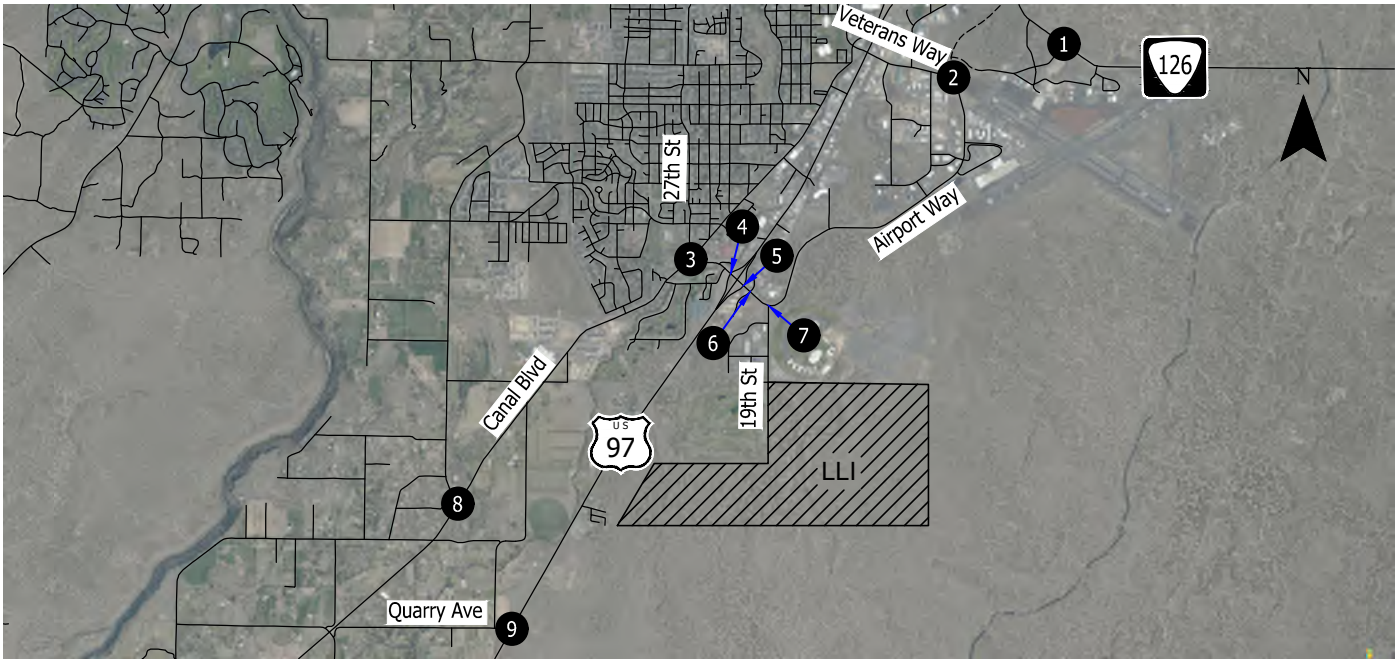


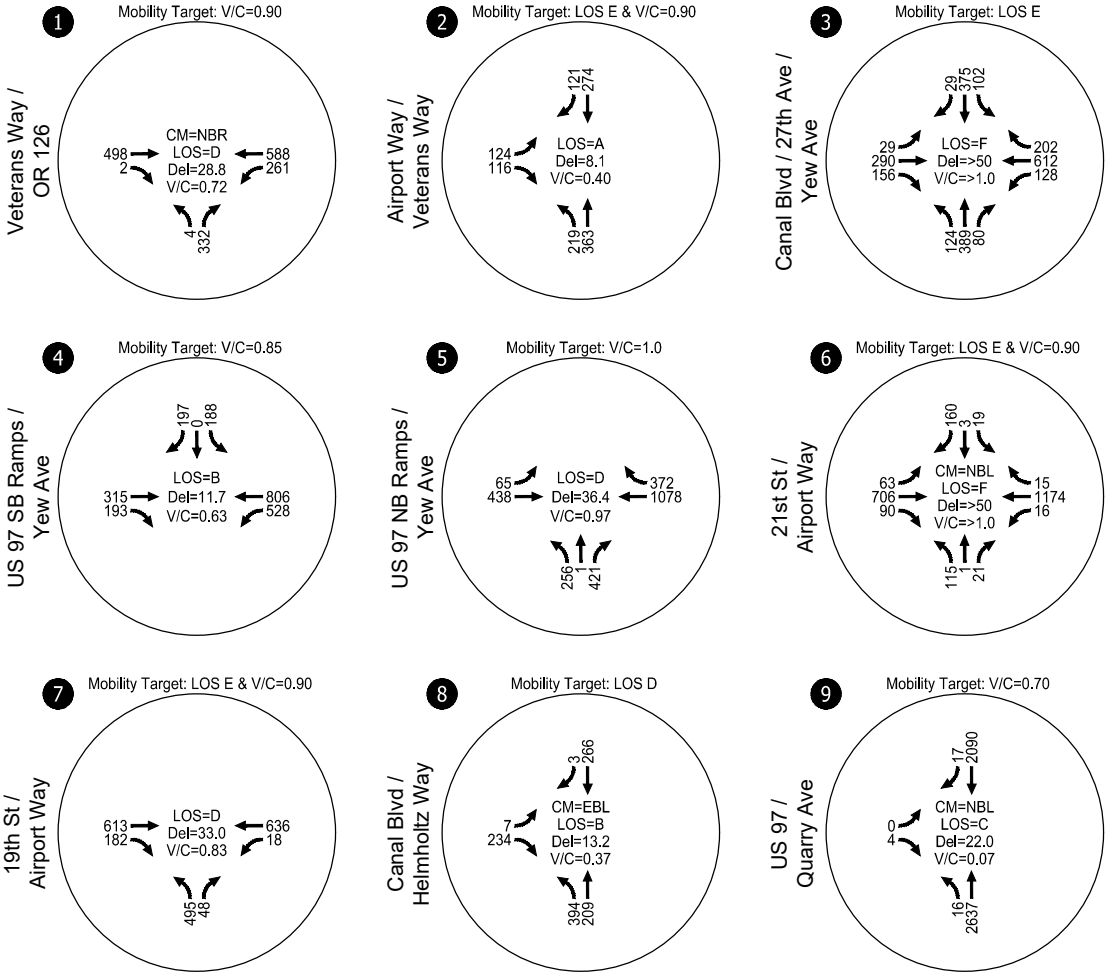
CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

2,400 Jobs Scenario
No Southern Interchange
2027/2028 PM Peak Hour
Redmond, OR

Figure
B-11

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_25%



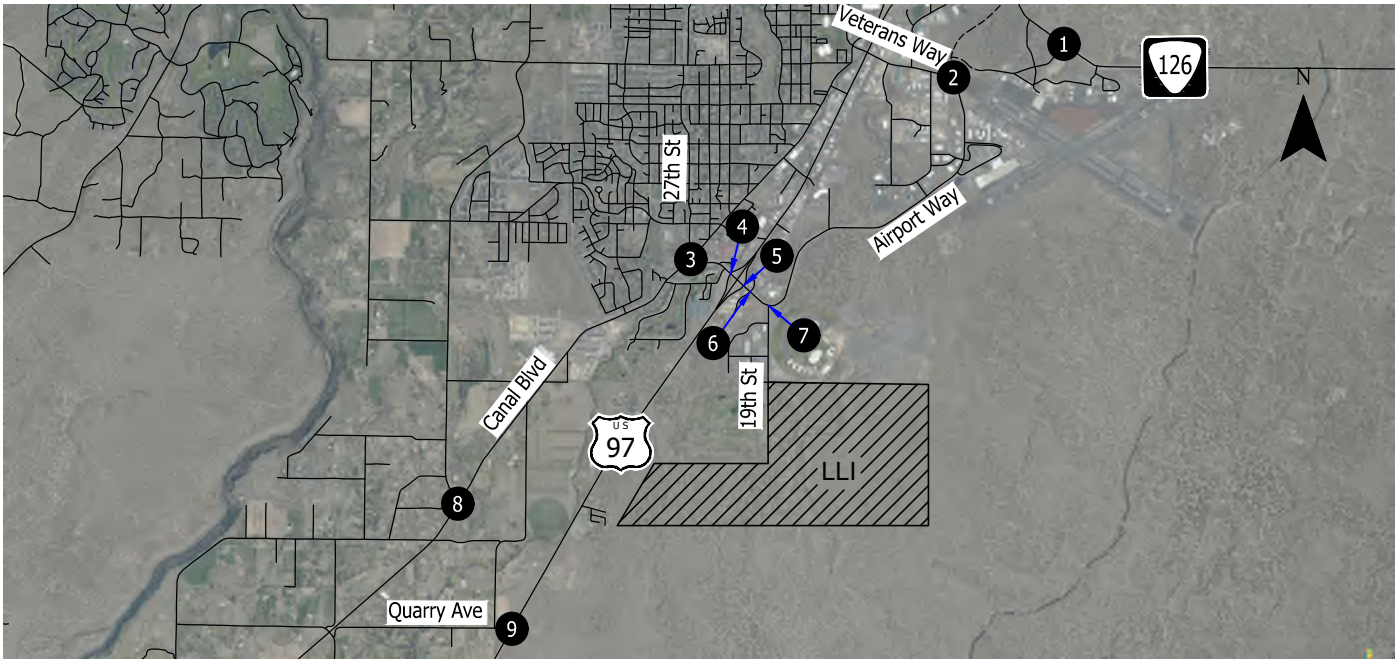


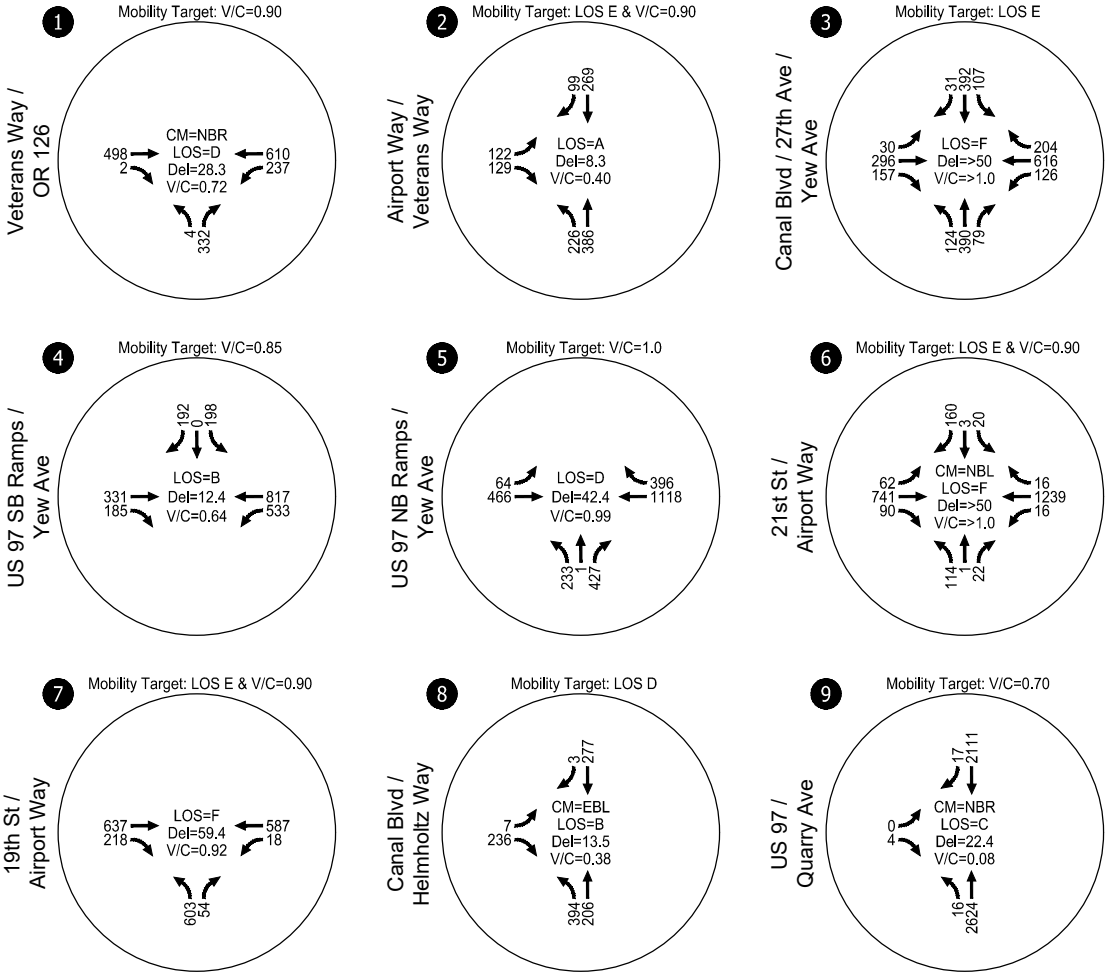
CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

3,800 Jobs Scenario
No Southern Interchange
2031/2032 PM Peak Hour
Redmond, OR

Figure
B-12

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_50%



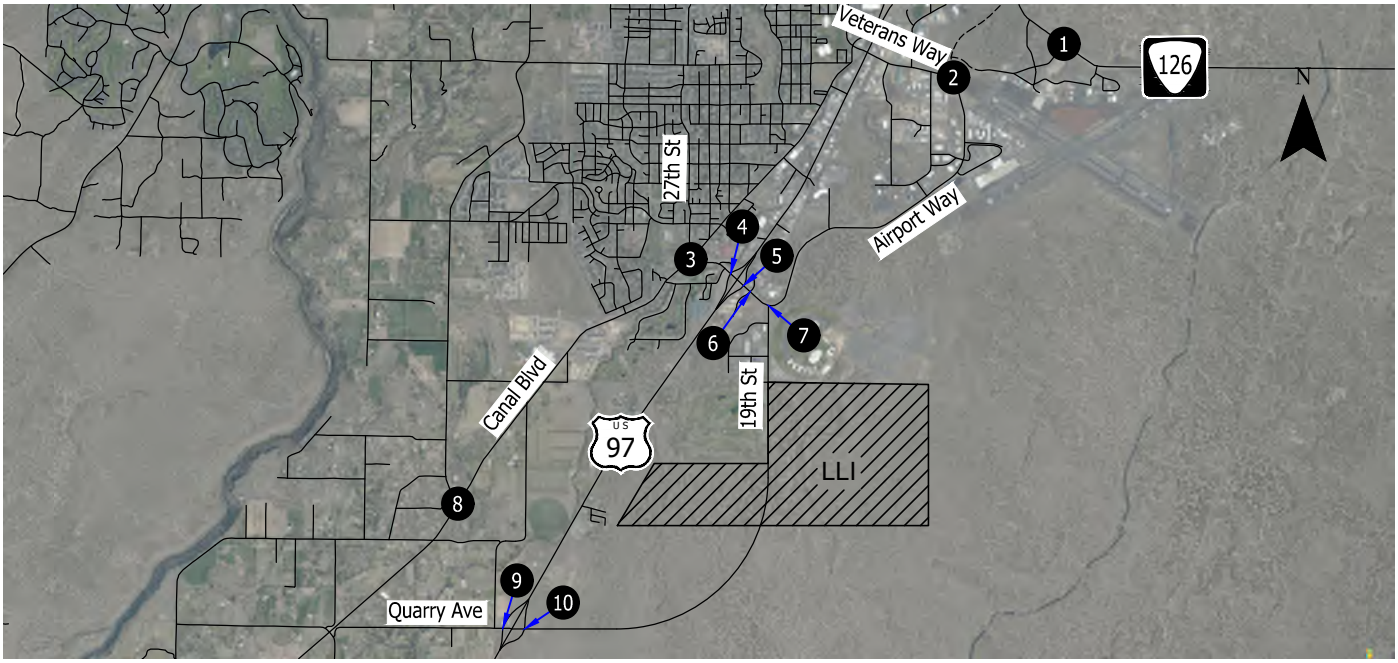


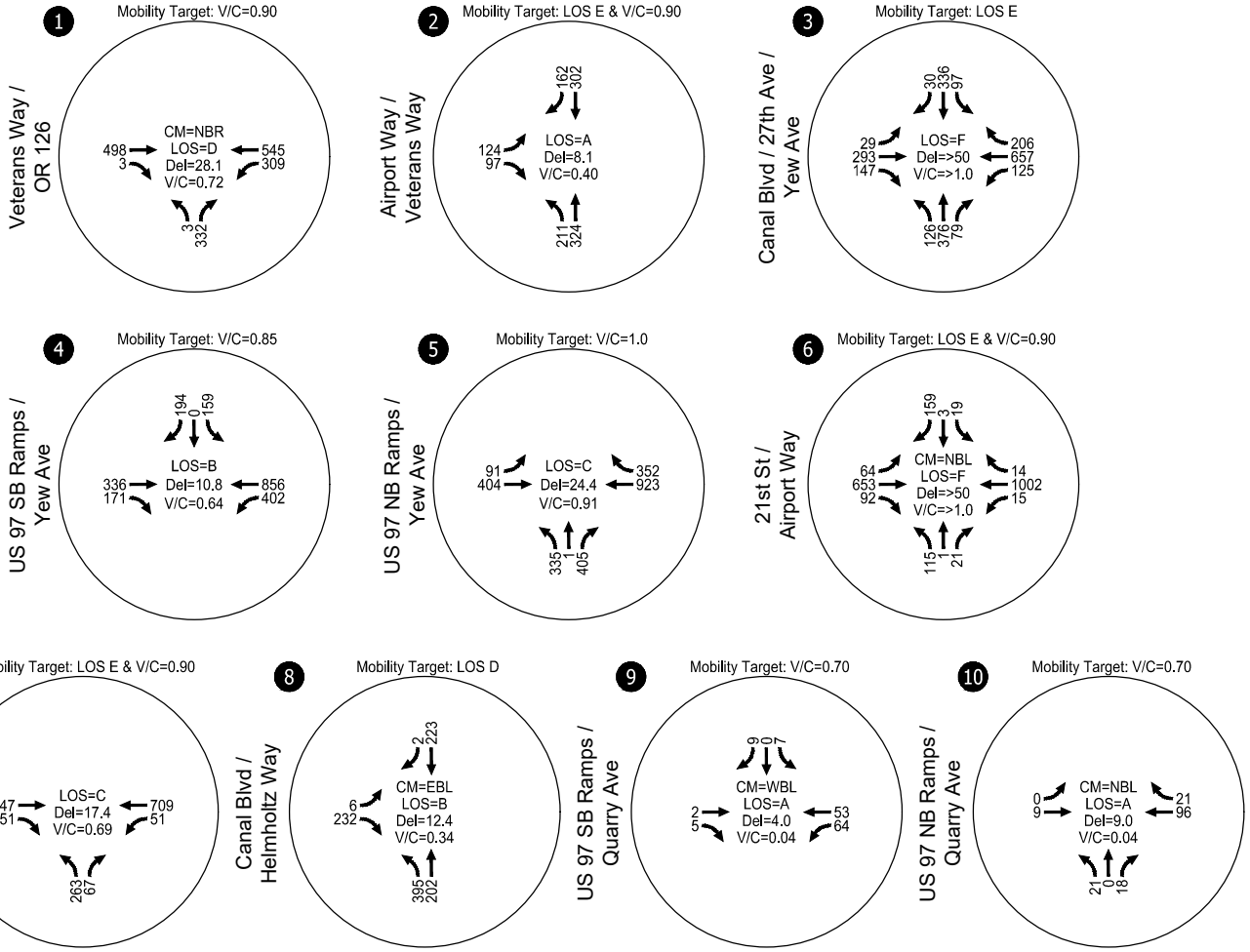
CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/
CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

5,200 Jobs Scenario
No Southern Interchange
2035/2036 PM Peak Hour
Redmond, OR

Figure
B-13

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: 2040_75%



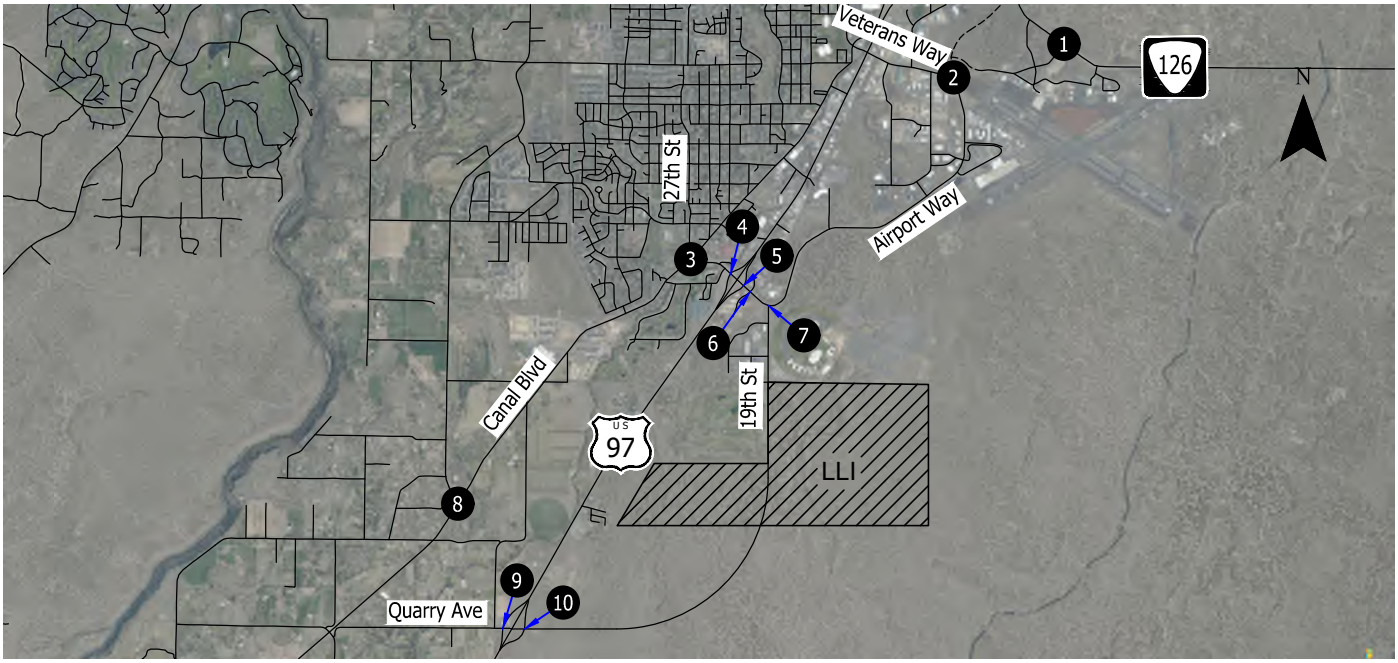


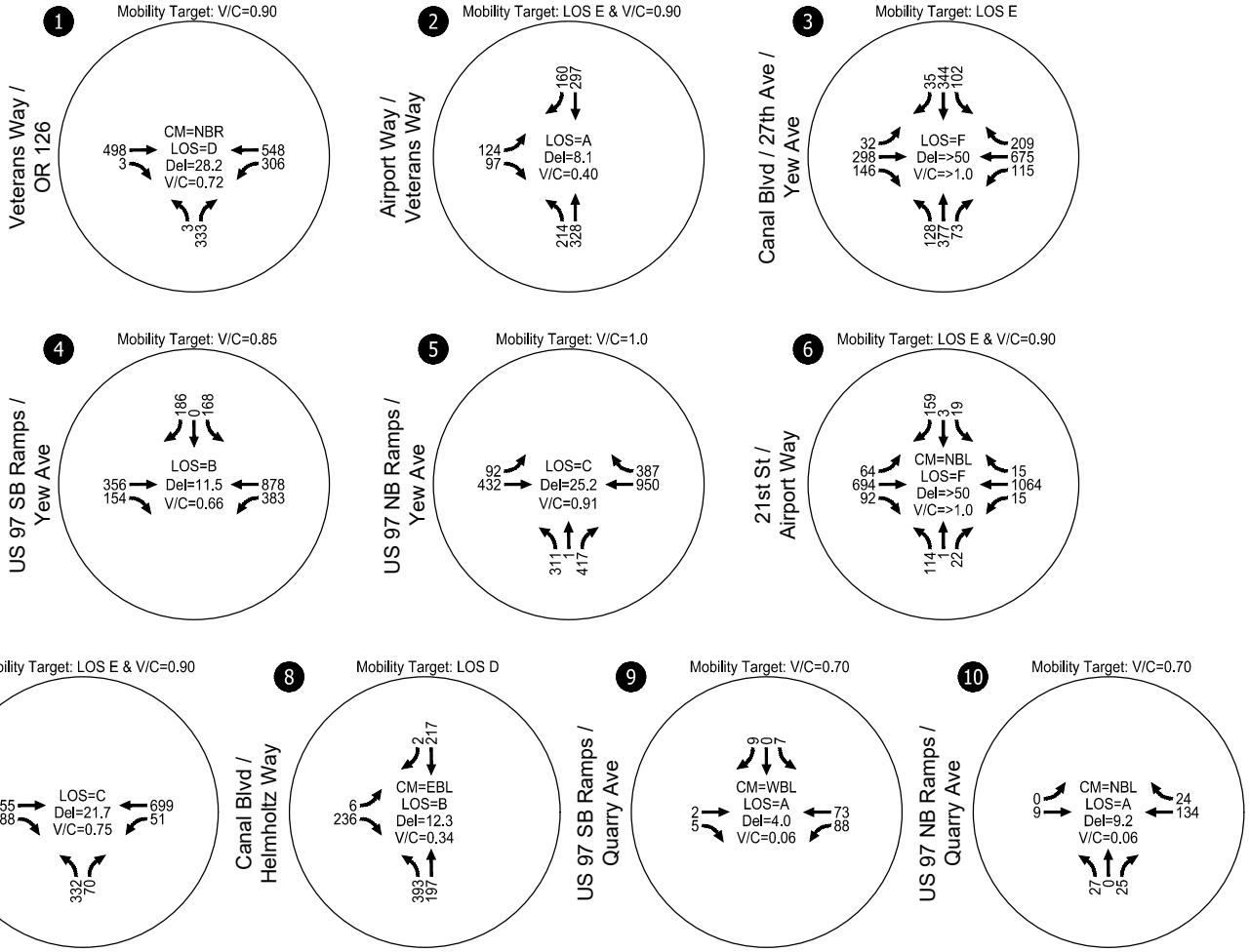
CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

2,400 Jobs Scenario With Southern Interchange 2027/2028 PM Peak Hour Redmond, OR

Figure B-14

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_25%



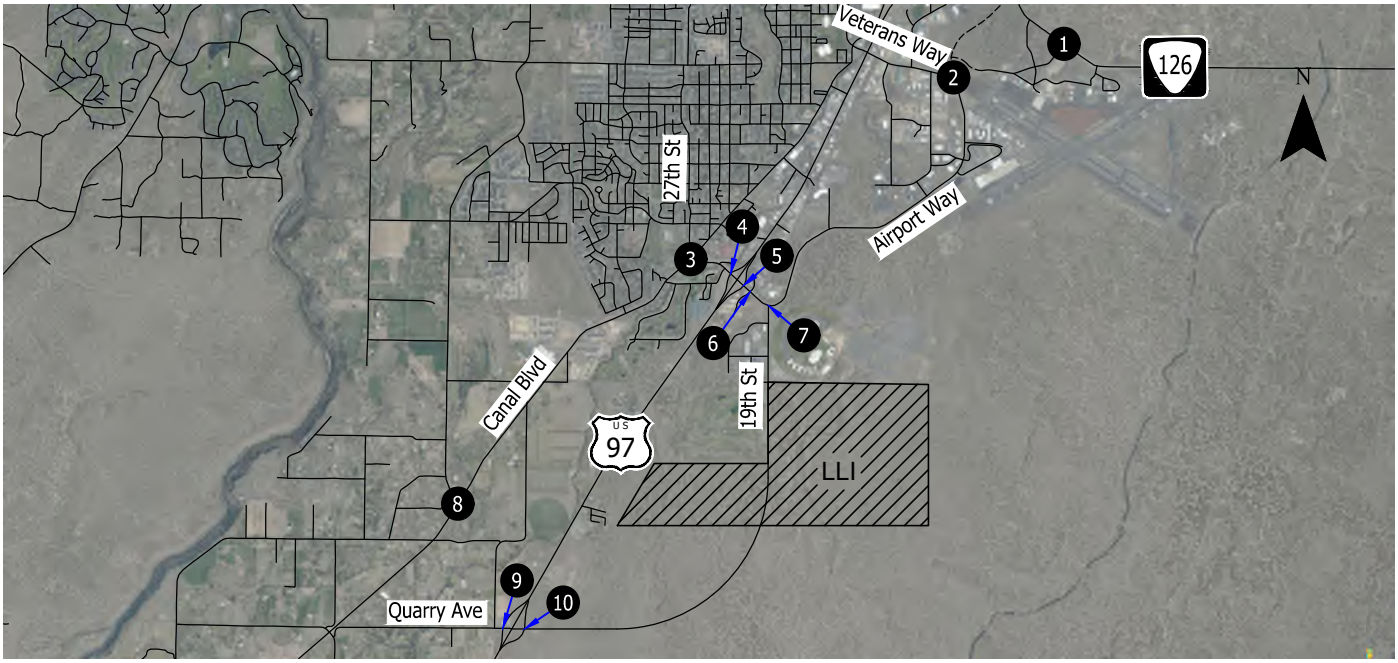


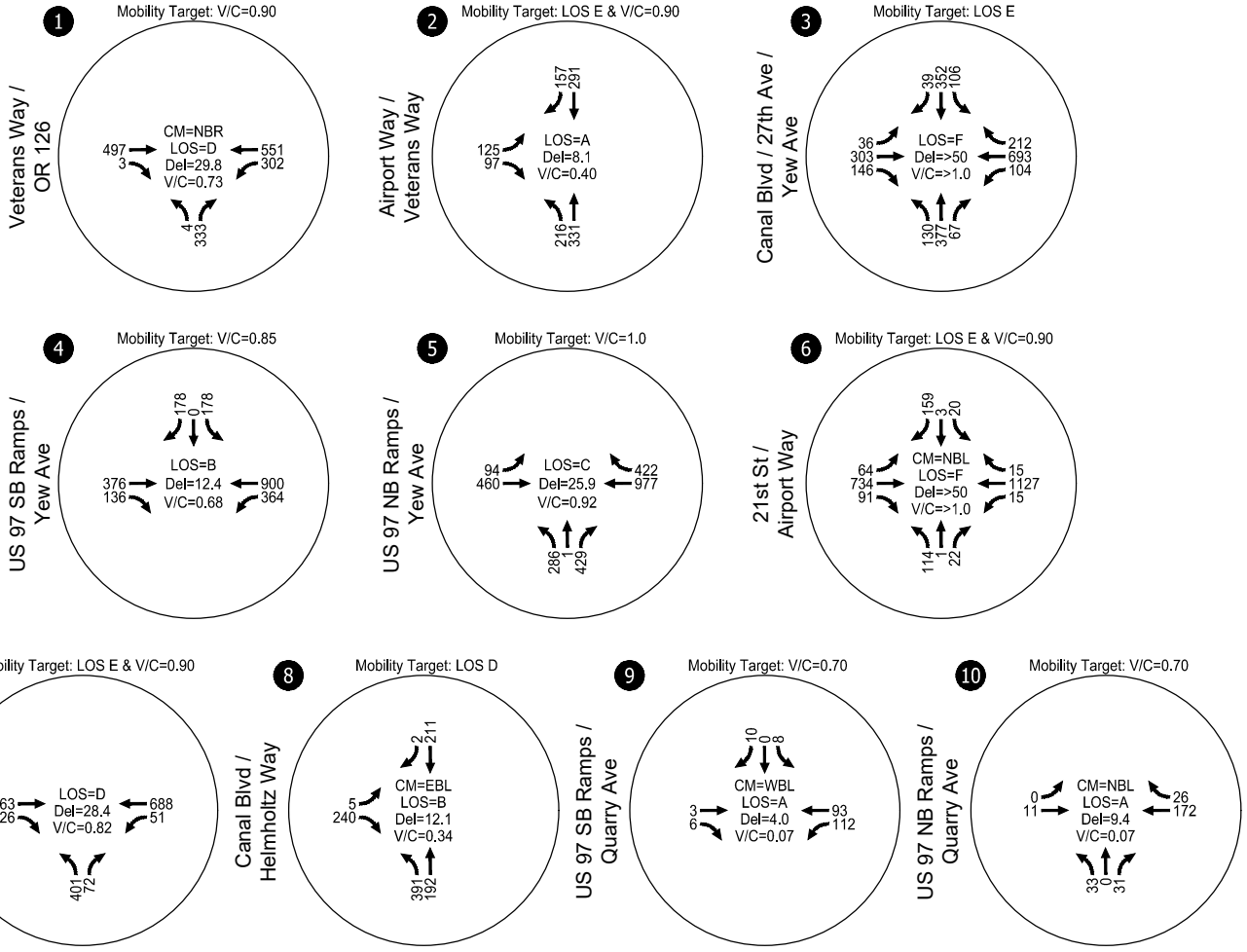
CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

3,800 Jobs Scenario With Southern Interchange 2031/2032 PM Peak Hour Redmond, OR

Figure B-15

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_50%





CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT DELAY (TWSC)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED, ROUNDABOUT, AWSC)/ CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (TWSC)

5,200 Jobs Scenario With Southern Interchange 2035/2036 PM Peak Hour Redmond, OR

Figure B-16

H:\27\27371 - City of Redmond On-Call\004 - Redmond Industrial Lands TSP Amendment\report\figs\dwg\27371-Redmond LLI Figures-Trigger Points.dwg Jul 16, 2025 - 1:29pm - cthompson Layout Tab: Q_2040_75%

Appendix C - Traffic Operations Worksheets

Section 1 - Existing Conditions

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	49.3
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.083

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	8	311	424	6	225	418
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	311	424	6	225	418
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	83	113	2	60	111
Total Analysis Volume [veh/h]	9	331	451	6	239	445
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.56	0.00	0.00	0.22	0.00
d_M, Delay for Movement [s/veh]	49.33	22.22	0.00	0.00	9.31	0.00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.47	4.47	0.00	0.00	0.85	0.00
95th-Percentile Queue Length [ft/ln]	111.74	111.74	0.00	0.00	21.32	0.00
d_A, Approach Delay [s/veh]	22.94		0.00		3.25	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	6.77					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	All-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	SE Airport Way		SE Veterans Way		SE Veterans Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	14.00	12.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way		SE Veterans Way		SE Veterans Way	
Base Volume Input [veh/h]	135	231	122	67	196	149
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	11.00	11.00	7.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	231	122	67	196	149
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	61	32	18	52	40
Total Analysis Volume [veh/h]	144	246	130	71	209	159
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	691	567	639	634
Degree of Utilization, x	0.56	0.23	0.11	0.58

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.55	0.88	0.37	3.73
95th-Percentile Queue Length [ft]	88.83	21.95	9.33	93.18
Approach Delay [s/veh]	14.75	10.26		16.21
Approach LOS	B	B		C
Intersection Delay [s/veh]	14.37			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	24.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	92	252	106	69	207	11	10	207	90	144	475	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	252	106	69	207	11	10	207	90	144	475	137
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	72	30	20	59	3	3	59	26	41	135	39
Total Analysis Volume [veh/h]	105	286	120	78	235	13	11	235	102	164	540	156
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	329			827			480			409		
Exiting Flow Rate [veh/h]	506			457			673			441		
Demand Flow Rate [veh/h]	92	252	106	69	207	11	10	207	90	144	475	137
Adjusted Demand Flow Rate [veh/h]	105	286	120	78	235	13	11	235	102	164	540	156

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	522	326	355	876
Capacity of Entry and Bypass Lanes [veh/h]	987	594	846	910
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	967	594	830	894
X, volume / capacity	0.53	0.55	0.42	0.96

Movement, Approach, & Intersection Results

Lane LOS	B	C	A	E
95th-Percentile Queue Length [veh]	3.18	3.33	2.10	16.01
95th-Percentile Queue Length [ft]	79.62	83.14	52.38	400.34
Approach Delay [s/veh]	10.46	15.95	9.54	43.15
Approach LOS	B	C	A	E
Intersection Delay [s/veh]	24.93			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	7.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	95	0	174	0	214	187	343	634	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	85	0	0	24	0	0	0
Total Hourly Volume [veh/h]	0	0	0	95	0	89	0	214	163	343	634	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	26	0	24	0	58	44	92	170	0
Total Analysis Volume [veh/h]	0	0	0	102	0	96	0	230	175	369	682	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		35	35	35	35	35	35
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		4	4	10	10	21	21
g / C, Green / Cycle		0.12	0.12	0.28	0.28	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate		0.05	0.06	0.12	0.11	0.29	0.41
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1251	1673
c, Capacity [veh/h]		230	204	519	441	951	998
d1, Uniform Delay [s]		14.48	14.53	10.57	10.42	4.01	4.89
k, delay calibration		0.04	0.04	0.11	0.11	0.04	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.50	0.63	0.60	0.58	0.10	0.84
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.44	0.47	0.44	0.40	0.39	0.68
d, Delay for Lane Group [s/veh]		14.97	15.16	11.17	11.00	4.10	5.72
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		0.65	0.62	1.13	0.86	0.44	1.23
50th-Percentile Queue Length [ft/ln]		16.32	15.56	28.36	21.43	10.89	30.73
95th-Percentile Queue Length [veh/ln]		1.18	1.12	2.04	1.54	0.78	2.21
95th-Percentile Queue Length [ft/ln]		29.38	28.00	51.05	38.57	19.60	55.31

Movement, Approach, & Intersection Results

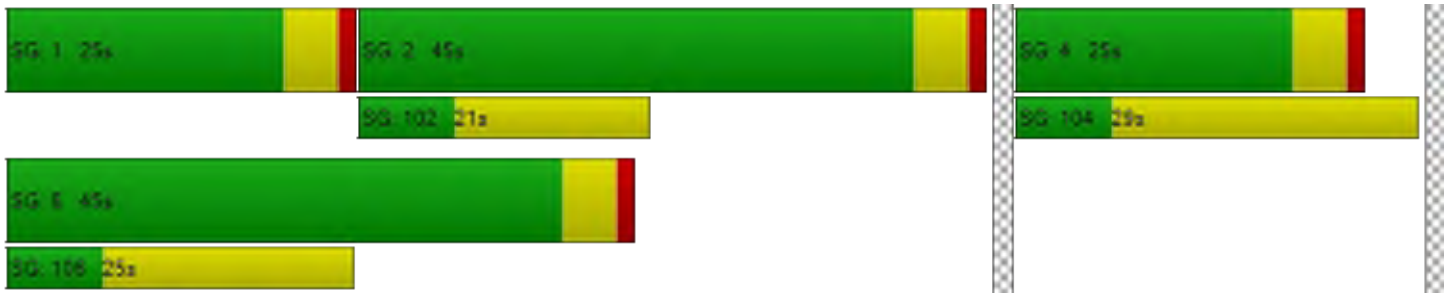
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	14.97	14.97	15.16	0.00	11.17	11.00	4.10	5.72	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			15.06			11.09			5.15		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	7.79											
Intersection LOS	A											
Intersection V/C	0.465											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	8.42	8.42	8.42	8.42
l_p,int, Pedestrian LOS Score for Intersection	2.095	2.096	2.407	2.407
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1129	2258	2258
d_b, Bicycle Delay [s]	17.72	3.36	0.29	0.29
l_b,int, Bicycle LOS Score for Intersection	4.132	2.577	2.113	3.140
Bicycle LOS	D	B	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	395	1	229	0	0	0	98	211	0	0	582	215
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	108	0	0	0	0	0	0	0	0	105
Total Hourly Volume [veh/h]	395	1	121	0	0	0	98	211	0	0	582	110
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	0	30	0	0	0	25	53	0	0	146	28
Total Analysis Volume [veh/h]	395	1	121	0	0	0	98	211	0	0	582	110
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	47	47		47	47	47	47
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	12	12		25	25	17	17
g / C, Green / Cycle	0.26	0.26		0.53	0.53	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.21	0.07		0.10	0.13	0.31	0.07
s, saturation flow rate [veh/h]	1852	1681		943	1643	1884	1543
c, Capacity [veh/h]	476	432		522	875	659	540
d1, Uniform Delay [s]	16.65	14.13		7.85	5.96	14.51	10.78
k, delay calibration	0.04	0.04		0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.45	0.13		0.06	0.05	1.60	0.07
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.28		0.19	0.24	0.88	0.20
d, Delay for Lane Group [s/veh]	18.10	14.26		7.91	6.01	16.11	10.85
Lane Group LOS	B	B		A	A	B	B
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.65	0.92		0.33	0.75	4.88	0.65
50th-Percentile Queue Length [ft/ln]	91.25	23.05		8.16	18.73	121.91	16.34
95th-Percentile Queue Length [veh/ln]	6.57	1.66		0.59	1.35	8.50	1.18
95th-Percentile Queue Length [ft/ln]	164.24	41.49		14.68	33.71	212.44	29.42

Movement, Approach, & Intersection Results

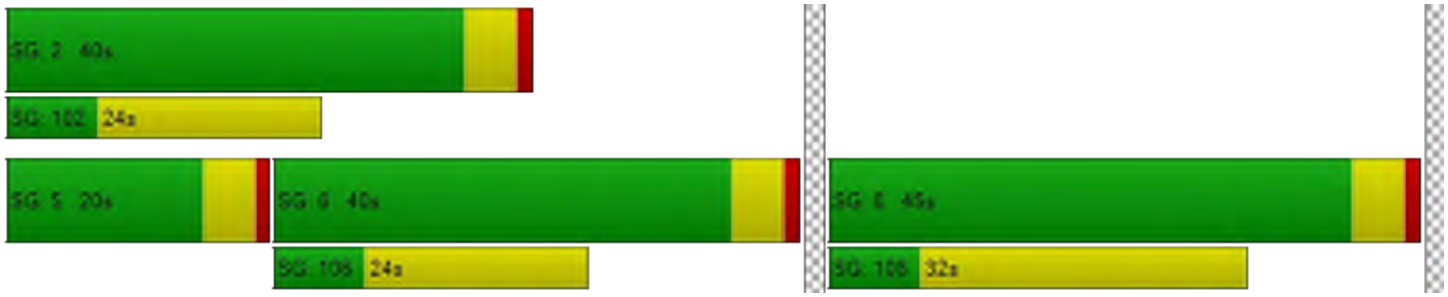
d_M, Delay for Movement [s/veh]	18.10	14.26	14.26	0.00	0.00	0.00	7.91	6.01	0.00	0.00	16.11	10.85
Movement LOS	B	B	B				A	A			B	B
d_A, Approach Delay [s/veh]	17.19			0.00			6.61			15.28		
Approach LOS	B			A			A			B		
d_I, Intersection Delay [s/veh]	14.17											
Intersection LOS	B											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	13.94	13.94	13.94	13.94
l_p,int, Pedestrian LOS Score for Intersection	2.260	1.747	2.391	2.522
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1690	0	1479	1479
d_b, Bicycle Delay [s]	0.57	23.67	1.61	1.61
l_b,int, Bicycle LOS Score for Intersection	3.126	4.132	1.915	2.721
Bicycle LOS	C	D	A	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	220.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.072

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	68	1	14	16	4	121	34	335	71	15	608	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	1	14	16	4	121	34	335	71	15	608	10
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	0	4	5	1	36	10	100	21	4	181	3
Total Analysis Volume [veh/h]	81	1	17	19	5	144	40	399	85	18	724	12
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.07	0.01	0.03	0.15	0.04	0.34	0.05	0.00	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	220.11	195.85	178.45	39.31	38.62	17.69	9.29	0.00	0.00	8.36	0.00	0.00
Movement LOS	F	F	F	E	E	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	6.72	6.72	6.72	0.65	0.65	1.47	0.14	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	167.93	167.93	167.93	16.32	16.32	36.72	3.57	0.00	0.00	1.26	0.00	0.00
d_A, Approach Delay [s/veh]	212.71			20.76			0.71			0.20		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	16.23											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	25.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.344

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	170.00	100.00	100.00	100.00	60.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	80	18	351	26	9	528
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	18	351	26	9	528
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	5	99	7	3	148
Total Analysis Volume [veh/h]	90	20	394	29	10	593
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.03	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	25.81	10.74	0.00	0.00	8.17	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.47	0.10	0.00	0.00	0.03	0.00
95th-Percentile Queue Length [ft/ln]	36.80	2.39	0.00	0.00	0.66	0.00
d_A, Approach Delay [s/veh]	23.07		0.00		0.14	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.31					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	271	155	169	3	5	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	271	155	169	3	5	110
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	41	45	1	1	29
Total Analysis Volume [veh/h]	288	165	180	3	5	117
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.02	0.14
d_M, Delay for Movement [s/veh]	8.28	0.00	0.00	0.00	17.91	9.99
Movement LOS	A	A	A	A	C	A
95th-Percentile Queue Length [veh/ln]	0.78	0.00	0.00	0.00	0.54	0.54
95th-Percentile Queue Length [ft/ln]	19.56	0.00	0.00	0.00	13.43	13.43
d_A, Approach Delay [s/veh]	5.26		0.00		10.32	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	48.2
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	13	2197	1579	14	1	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	2197	1579	14	1	13
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	591	424	4	0	3
Total Analysis Volume [veh/h]	14	2362	1698	15	1	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.02	0.00	0.01	0.05
d_M, Delay for Movement [s/veh]	14.97	0.00	0.00	0.00	48.19	17.90
Movement LOS	B	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	2.90	0.00	0.00	0.00	3.78	3.78
d_A, Approach Delay [s/veh]	0.09		0.00		19.92	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	E					

Section 2 - Year 2040 Scenarios

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	89.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.057

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	3	332	498	3	309	546
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	332	498	3	309	546
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	82	145
Total Analysis Volume [veh/h]	3	353	530	3	329	581
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.33	0.01
d_M, Delay for Movement [s/veh]	89.33	27.63	0.00	0.00	10.32	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.66	5.66	0.00	0.00	1.44	0.00
95th-Percentile Queue Length [ft/ln]	141.54	141.54	0.00	0.00	35.90	0.00
d_A, Approach Delay [s/veh]	28.15		0.00		3.73	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.46					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	7.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	204	319	284	165	129	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	319	284	165	129	91
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	80	71	41	32	24
Total Analysis Volume [veh/h]	217	319	284	165	129	97
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	143		224		304	
Exiting Flow Rate [veh/h]	403		478		397	
Demand Flow Rate [veh/h]	204	319	284	165	129	91
Adjusted Demand Flow Rate [veh/h]	217	319	284	165	129	97

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.93
Entry Flow Rate [veh/h]	559	478	243
Capacity of Entry and Bypass Lanes [veh/h]	1193	1099	1013
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1145	1034	946
X, volume / capacity	0.47	0.43	0.24

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.56	2.23	0.93
95th-Percentile Queue Length [ft]	63.94	55.86	23.33
Approach Delay [s/veh]	8.23	8.30	6.20
Approach LOS	A	A	A
Intersection Delay [s/veh]	7.88		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	115.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	386	83	91	342	25	27	279	152	132	603	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	386	83	91	342	25	27	279	152	132	603	198
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	110	24	26	97	7	8	79	43	38	171	56
Total Analysis Volume [veh/h]	141	439	94	103	389	28	31	317	173	150	685	225
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	457			998			645			621		
Exiting Flow Rate [veh/h]	718			702			873			523		
Demand Flow Rate [veh/h]	124	386	83	91	342	25	27	279	152	132	603	198
Adjusted Demand Flow Rate [veh/h]	141	439	94	103	389	28	31	317	173	150	685	225

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	687	520	531	1079
Capacity of Entry and Bypass Lanes [veh/h]	866	499	715	733
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	850	499	702	720
X, volume / capacity	0.79	1.04	0.74	1.47

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.35	15.37	6.68	50.43
95th-Percentile Queue Length [ft]	208.67	384.37	166.99	1260.82
Approach Delay [s/veh]	22.34	80.98	22.13	237.46
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	115.46			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	167	0	209	0	284	207	518	782	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	102	0	0	27	0	0	0
Total Hourly Volume [veh/h]	0	0	0	167	0	107	0	284	180	518	782	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	45	0	29	0	76	48	139	210	0
Total Analysis Volume [veh/h]	0	0	0	180	0	115	0	305	194	557	841	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		41	41	41	41	41	41
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		6	6	10	10	25	25
g / C, Green / Cycle		0.14	0.14	0.24	0.24	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.10	0.07	0.16	0.12	0.43	0.50
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1283	1673
c, Capacity [veh/h]		264	234	452	384	923	1034
d1, Uniform Delay [s]		16.89	16.41	14.20	13.53	5.64	6.07
k, delay calibration		0.04	0.04	0.11	0.11	0.30	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.16	0.59	1.76	1.03	1.75	1.61
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.68	0.49	0.67	0.50	0.60	0.81
d, Delay for Lane Group [s/veh]		18.05	17.00	15.96	14.56	7.39	7.69
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.47	0.90	2.25	1.34	1.51	2.61
50th-Percentile Queue Length [ft/ln]		36.76	22.46	56.21	33.47	37.70	65.13
95th-Percentile Queue Length [veh/ln]		2.65	1.62	4.05	2.41	2.71	4.69
95th-Percentile Queue Length [ft/ln]		66.17	40.43	101.17	60.24	67.86	117.23

Movement, Approach, & Intersection Results

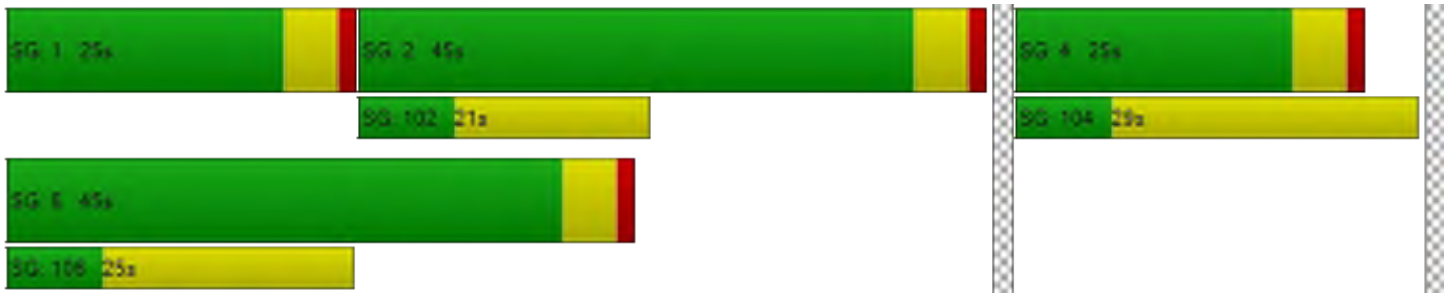
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	18.05	18.05	17.00	0.00	15.96	14.56	7.39	7.69	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			17.64			15.41			7.57		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	10.71											
Intersection LOS	B											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	11.07	11.07	11.07	11.07
l_p,int, Pedestrian LOS Score for Intersection	2.366	2.168	2.533	2.608
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	971	1941	1941
d_b, Bicycle Delay [s]	20.60	5.46	0.02	0.02
l_b,int, Bicycle LOS Score for Intersection	4.132	2.765	2.274	3.712
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.935

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	303	1	408	0	0	0	67	383	0	0	997	324
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	192	0	0	0	0	0	0	0	0	159
Total Hourly Volume [veh/h]	303	1	216	0	0	0	67	383	0	0	997	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	76	0	54	0	0	0	17	96	0	0	249	41
Total Analysis Volume [veh/h]	303	1	216	0	0	0	67	383	0	0	997	165
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	67	67		67	67	67	67
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	13	13		44	44	35	35
g / C, Green / Cycle	0.20	0.20		0.65	0.65	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.16	0.13		0.11	0.23	0.53	0.11
s, saturation flow rate [veh/h]	1852	1681		628	1643	1884	1543
c, Capacity [veh/h]	367	333		333	1072	986	808
d1, Uniform Delay [s]	25.72	24.70		14.25	5.26	15.94	8.48
k, delay calibration	0.04	0.04		0.04	0.04	0.44	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.83	0.81		0.11	0.07	29.60	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.65		0.20	0.36	1.01	0.20
d, Delay for Lane Group [s/veh]	27.55	25.51		14.36	5.34	45.54	8.53
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.54	3.07		0.24	1.68	19.91	1.06
50th-Percentile Queue Length [ft/ln]	113.38	76.65		6.05	41.99	497.81	26.55
95th-Percentile Queue Length [veh/ln]	8.03	5.52		0.44	3.02	27.47	1.91
95th-Percentile Queue Length [ft/ln]	200.70	137.97		10.89	75.59	686.83	47.80

Movement, Approach, & Intersection Results

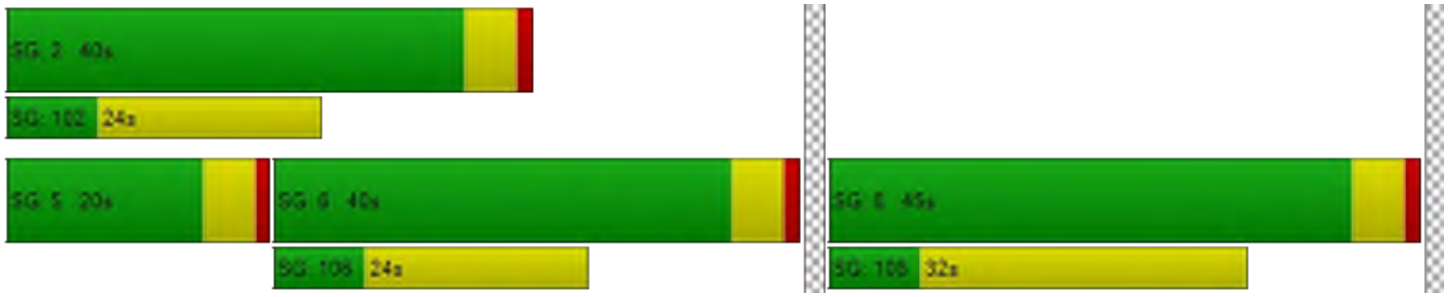
d_M, Delay for Movement [s/veh]	27.55	25.51	25.51	0.00	0.00	0.00	14.36	5.34	0.00	0.00	45.54	8.53
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	26.70			0.00			6.68			40.29		
Approach LOS	C			A			A			D		
d_I, Intersection Delay [s/veh]	29.88											
Intersection LOS	C											
Intersection V/C	0.935											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.28	23.28	23.28	23.28
l_p,int, Pedestrian LOS Score for Intersection	2.428	1.842	2.587	2.951
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1199	0	1049	1049
d_b, Bicycle Delay [s]	5.36	33.37	7.55	7.55
l_b,int, Bicycle LOS Score for Intersection	3.270	4.132	2.148	3.585
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	68.312

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	116	1	21	18	3	160	64	636	91	15	1045	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	1	21	18	3	160	64	636	91	15	1045	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	0	6	5	1	48	19	189	27	4	311	4
Total Analysis Volume [veh/h]	138	1	25	21	4	190	76	757	108	18	1244	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	68.31	0.03	0.07	0.93	0.14	0.89	0.14	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	453.31	423.64	83.39	12.47	0.00	0.00	9.68	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.89	22.89	22.89	3.17	3.17	7.12	0.47	0.00	0.00	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	572.18	572.18	572.18	79.19	79.19	178.02	11.74	0.00	0.00	1.76	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			125.85			1.01			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	641.61											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	17.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	279	35	565	112	19	735
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	279	35	565	112	19	735
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	10	159	31	5	206
Total Analysis Volume [veh/h]	313	39	635	126	21	826
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	679		21		313	
Exiting Flow Rate [veh/h]	162		1156		718	
Demand Flow Rate [veh/h]	279	35	565	112	19	735
Adjusted Demand Flow Rate [veh/h]	313	39	635	126	21	826

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	352	821	864
Capacity of Entry and Bypass Lanes [veh/h]	691	1351	1003
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	691	1254	984
X, volume / capacity	0.51	0.61	0.86

Movement, Approach, & Intersection Results

Lane LOS	B	B	D
95th-Percentile Queue Length [veh]	2.92	4.33	11.22
95th-Percentile Queue Length [ft]	73.04	108.36	280.55
Approach Delay [s/veh]	13.07	10.25	25.65
Approach LOS	B	B	D
Intersection Delay [s/veh]	17.41		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	28.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	396	213	243	3	6	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	396	213	243	3	6	230
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	57	65	1	2	61
Total Analysis Volume [veh/h]	421	227	259	3	6	245
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.00	0.00	0.00	0.03	0.31
d_M, Delay for Movement [s/veh]	9.11	0.00	0.00	0.00	28.17	12.29
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.42	0.00	0.00	0.00	1.57	1.57
95th-Percentile Queue Length [ft/ln]	35.60	0.00	0.00	0.00	39.17	39.17
d_A, Approach Delay [s/veh]	5.92		0.00		12.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.04					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	23.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2664	2049	16	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2664	2049	16	0	5
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	716	551	4	0	1
Total Analysis Volume [veh/h]	17	2865	2203	17	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.02	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	21.24	0.00	0.00	0.00	81.65	23.74
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.23	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	5.71	0.00	0.00	0.00	1.95	1.95
d_A, Approach Delay [s/veh]	0.13		0.00		23.74	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	70.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	332	498	2	213	631
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	498	2	213	631
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	57	168
Total Analysis Volume [veh/h]	4	353	530	2	227	671
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.23	0.01
d_M, Delay for Movement [s/veh]	70.88	27.44	0.00	0.00	9.62	0.00
Movement LOS	F	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	5.64	5.64	0.00	0.00	0.87	0.00
95th-Percentile Queue Length [ft/ln]	140.88	140.88	0.00	0.00	21.67	0.00
d_A, Approach Delay [s/veh]	27.92		0.00		2.43	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	6.80					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	233	408	264	77	120	141
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	233	408	264	77	120	141
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	102	66	19	30	38
Total Analysis Volume [veh/h]	248	408	264	77	120	150
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	133		255		282	
Exiting Flow Rate [veh/h]	435		562		336	
Demand Flow Rate [veh/h]	233	408	264	77	120	141
Adjusted Demand Flow Rate [veh/h]	248	408	264	77	120	150

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	684	364	287
Capacity of Entry and Bypass Lanes [veh/h]	1205	1064	1035
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1156	999	977
X, volume / capacity	0.57	0.34	0.28

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.72	1.53	1.13
95th-Percentile Queue Length [ft]	92.98	38.21	28.30
Approach Delay [s/veh]	9.96	7.17	6.47
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.47		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	142.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	392	77	112	409	33	31	301	159	123	620	206
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	392	77	112	409	33	31	301	159	123	620	206
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	111	22	32	116	9	9	86	45	35	176	59
Total Analysis Volume [veh/h]	141	445	88	127	465	38	35	342	181	140	705	234
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	511			1009			735			631		
Exiting Flow Rate [veh/h]	792			721			904			566		
Demand Flow Rate [veh/h]	124	392	77	112	409	33	31	301	159	123	620	206
Adjusted Demand Flow Rate [veh/h]	141	445	88	127	465	38	35	342	181	140	705	234

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	687	630	569	1099
Capacity of Entry and Bypass Lanes [veh/h]	820	494	653	725
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	805	494	641	713
X, volume / capacity	0.84	1.28	0.87	1.51

Movement, Approach, & Intersection Results

Lane LOS	D	F	E	F
95th-Percentile Queue Length [veh]	9.71	26.13	10.21	53.42
95th-Percentile Queue Length [ft]	242.79	653.22	255.32	1335.38
Approach Delay [s/veh]	27.11	164.54	36.23	255.76
Approach LOS	D	F	E	F
Intersection Delay [s/veh]	142.17			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	209	0	186	0	347	178	538	829	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	91	0	0	23	0	0	0
Total Hourly Volume [veh/h]	0	0	0	209	0	95	0	347	155	538	829	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	56	0	26	0	93	42	145	223	0
Total Analysis Volume [veh/h]	0	0	0	225	0	102	0	373	167	578	891	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		46	46	46	46	46	46
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		7	7	12	12	29	29
g / C, Green / Cycle		0.16	0.16	0.26	0.26	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.12	0.06	0.20	0.11	0.46	0.53
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1255	1673
c, Capacity [veh/h]		301	266	483	410	861	1042
d1, Uniform Delay [s]		18.42	17.27	15.79	14.13	6.65	7.01
k, delay calibration		0.04	0.04	0.11	0.11	0.43	0.16
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.40	0.33	2.67	0.65	3.55	3.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.75	0.38	0.77	0.41	0.67	0.86
d, Delay for Lane Group [s/veh]		19.82	17.61	18.47	14.78	10.21	10.17
Lane Group LOS		B	B	B	B	B	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		2.12	0.87	3.31	1.26	2.35	4.16
50th-Percentile Queue Length [ft/ln]		52.88	21.86	82.83	31.43	58.82	103.93
95th-Percentile Queue Length [veh/ln]		3.81	1.57	5.96	2.26	4.24	7.48
95th-Percentile Queue Length [ft/ln]		95.19	39.34	149.09	56.58	105.88	187.07

Movement, Approach, & Intersection Results

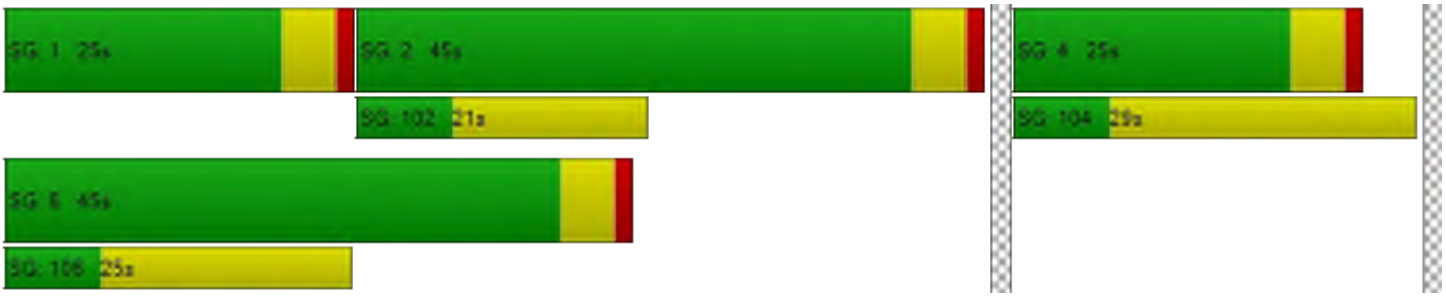
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	19.82	19.82	17.61	0.00	18.47	14.78	10.21	10.17	0.00
Movement LOS				B	B	B		B	B	B	B	
d_A, Approach Delay [s/veh]	0.00			19.13			17.33			10.18		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	13.09											
Intersection LOS	B											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	13.25	13.25	13.25	13.25
l_p,int, Pedestrian LOS Score for Intersection	2.381	2.166	2.558	2.685
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	872	1745	1745
d_b, Bicycle Delay [s]	22.93	7.29	0.37	0.37
l_b,int, Bicycle LOS Score for Intersection	4.132	2.800	2.335	3.829
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	50.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.022

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	209	1	434	0	0	0	63	493	0	0	1158	420
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	204	0	0	0	0	0	0	0	0	206
Total Hourly Volume [veh/h]	209	1	230	0	0	0	63	493	0	0	1158	214
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	0	58	0	0	0	16	123	0	0	290	54
Total Analysis Volume [veh/h]	209	1	230	0	0	0	63	493	0	0	1158	214
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	65	65		65	65	65	65
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		43	43	35	35
g / C, Green / Cycle	0.17	0.17		0.67	0.67	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.11	0.14		0.11	0.30	0.61	0.14
s, saturation flow rate [veh/h]	1852	1680		555	1643	1884	1543
c, Capacity [veh/h]	320	291		338	1105	1020	836
d1, Uniform Delay [s]	24.92	25.63		14.02	4.96	14.82	7.87
k, delay calibration	0.04	0.04		0.04	0.05	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	1.89		0.10	0.13	73.29	0.06
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.79		0.19	0.45	1.14	0.26
d, Delay for Lane Group [s/veh]	25.76	27.52		14.12	5.09	88.11	7.93
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	No	Yes		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.89	3.35		0.19	1.98	32.08	1.27
50th-Percentile Queue Length [ft/ln]	72.29	83.86		4.73	49.39	801.93	31.85
95th-Percentile Queue Length [veh/ln]	5.21	6.04		0.34	3.56	45.57	2.29
95th-Percentile Queue Length [ft/ln]	130.13	150.95		8.52	88.90	1139.26	57.33

Movement, Approach, & Intersection Results

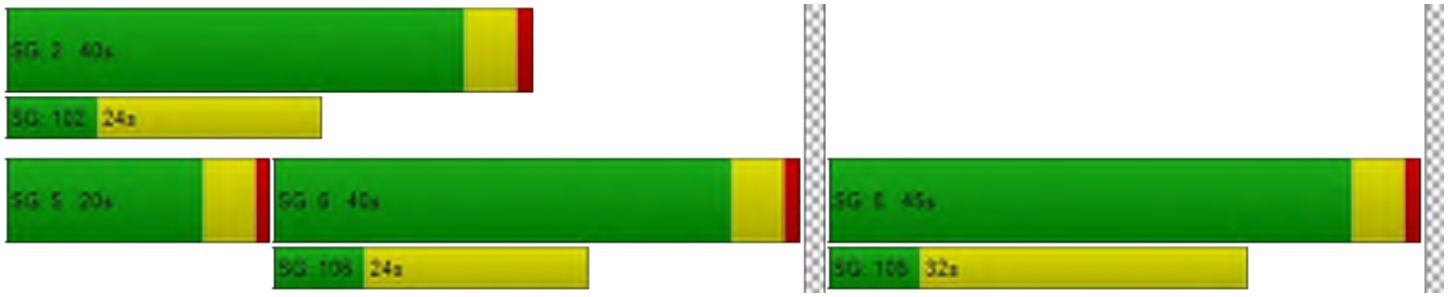
d_M, Delay for Movement [s/veh]	25.76	27.52	27.52	0.00	0.00	0.00	14.12	5.09	0.00	0.00	88.11	7.93
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	26.69			0.00			6.11			75.60		
Approach LOS	C			A			A			E		
d_I, Intersection Delay [s/veh]	50.20											
Intersection LOS	D											
Intersection V/C	1.022											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.20	22.20	22.20	22.20
l_p,int, Pedestrian LOS Score for Intersection	2.421	1.928	2.651	3.165
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1240	0	1085	1085
d_b, Bicycle Delay [s]	4.66	32.26	6.75	6.76
l_b,int, Bicycle LOS Score for Intersection	3.158	4.132	2.323	4.009
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	114	1	22	20	3	160	62	776	89	17	1304	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	1	22	20	3	160	62	776	89	17	1304	16
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	7	6	1	48	18	231	26	5	388	5
Total Analysis Volume [veh/h]	136	1	26	24	4	190	74	924	106	20	1552	19
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.09	2.63	0.32	1.36	0.17	0.01	0.00	0.03	0.02	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	1672.6	1566.1	259.49	15.24	0.00	0.00	10.44	0.00	0.00
Movement LOS	F	F	F	F	F	F	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	23.03	23.03	23.03	4.60	4.60	12.12	0.62	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.73	575.73	575.73	114.94	114.94	302.93	15.57	0.00	0.00	2.26	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			439.04			1.02			0.13		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	561.46											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	16.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	711	61	661	253	18	538
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	711	61	661	253	18	538
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	200	17	186	71	5	151
Total Analysis Volume [veh/h]	799	69	743	284	20	604
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	795		20		799	
Exiting Flow Rate [veh/h]	338		1415		864	
Demand Flow Rate [veh/h]	711	61	661	253	18	538
Adjusted Demand Flow Rate [veh/h]	799	69	743	284	20	604

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	1.00	1.00	0.92	0.98	0.98
Entry Flow Rate [veh/h]	461	408	1113	299	338
Capacity of Entry and Bypass Lanes [veh/h]	689	689	1353	687	687
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	689	689	1249	674	673
X, volume / capacity	0.67	0.59	0.82	0.44	0.49

Movement, Approach, & Intersection Results

Lane LOS	C	C	C	B	B
95th-Percentile Queue Length [veh]	5.12	3.92	10.18	2.21	2.73
95th-Percentile Queue Length [ft]	127.93	98.00	254.60	55.31	68.15
Approach Delay [s/veh]	17.05		18.69	12.27	
Approach LOS	C		C	B	
Intersection Delay [s/veh]	16.53				
Intersection LOS	C				

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	29.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	393	204	289	4	7	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	393	204	289	4	7	238
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	54	77	1	2	63
Total Analysis Volume [veh/h]	418	217	307	4	7	253
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.00	0.00	0.00	0.04	0.35
d_M, Delay for Movement [s/veh]	9.35	0.00	0.00	0.00	29.08	13.25
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.50	0.00	0.00	0.00	1.82	1.82
95th-Percentile Queue Length [ft/ln]	37.42	0.00	0.00	0.00	45.62	45.62
d_A, Approach Delay [s/veh]	6.16		0.00		13.68	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.19					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	25.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2610	2132	17	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2610	2132	17	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	702	573	5	0	1
Total Analysis Volume [veh/h]	17	2806	2292	18	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	22.73	0.00	0.00	0.00	87.64	25.03
Movement LOS	C	A	A	A	F	D
95th-Percentile Queue Length [veh/ln]	0.25	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	6.22	0.00	0.00	0.00	1.66	1.66
d_A, Approach Delay [s/veh]	0.14		0.00		25.03	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	65.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	332	499	2	183	654
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	499	2	183	654
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	133	1	49	174
Total Analysis Volume [veh/h]	4	353	531	2	195	696
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.66	0.01	0.00	0.19	0.01
d_M, Delay for Movement [s/veh]	65.93	27.09	0.00	0.00	9.44	0.00
Movement LOS	F	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	5.56	5.56	0.00	0.00	0.72	0.00
95th-Percentile Queue Length [ft/ln]	139.10	139.10	0.00	0.00	17.93	0.00
d_A, Approach Delay [s/veh]	27.53		0.00		2.07	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	6.55					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	279	492	276	52	108	189
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	5.00	7.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	279	492	276	52	108	189
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	123	69	13	27	50
Total Analysis Volume [veh/h]	297	492	276	52	108	201
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	120		306		290	
Exiting Flow Rate [veh/h]	495		636		362	
Demand Flow Rate [veh/h]	279	492	276	52	108	189
Adjusted Demand Flow Rate [veh/h]	297	492	276	52	108	201

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.95	0.95
Entry Flow Rate [veh/h]	823	346	325
Capacity of Entry and Bypass Lanes [veh/h]	1222	1011	1027
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1172	960	978
X, volume / capacity	0.67	0.34	0.32

Movement, Approach, & Intersection Results

Lane LOS	B	A	A
95th-Percentile Queue Length [veh]	5.55	1.53	1.37
95th-Percentile Queue Length [ft]	138.72	38.23	34.13
Approach Delay [s/veh]	12.54	7.40	6.96
Approach LOS	B	A	A
Intersection Delay [s/veh]	10.15		
Intersection LOS	B		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	126.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	118	399	88	106	417	26	27	293	167	145	570	202
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	118	399	88	106	417	26	27	293	167	145	570	202
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	113	25	30	118	7	8	83	47	41	162	57
Total Analysis Volume [veh/h]	134	453	100	120	474	30	31	333	190	165	648	230
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	491			969			762			628		
Exiting Flow Rate [veh/h]	836			721			830			563		
Demand Flow Rate [veh/h]	118	399	88	106	417	26	27	293	167	145	570	202
Adjusted Demand Flow Rate [veh/h]	134	453	100	120	474	30	31	333	190	165	648	230

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	700	624	565	1062
Capacity of Entry and Bypass Lanes [veh/h]	837	514	635	728
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	822	514	623	715
X, volume / capacity	0.84	1.21	0.89	1.46

Movement, Approach, & Intersection Results

Lane LOS	D	F	E	F
95th-Percentile Queue Length [veh]	9.72	23.66	10.76	49.02
95th-Percentile Queue Length [ft]	242.95	591.58	268.97	1225.61
Approach Delay [s/veh]	26.57	138.73	39.62	231.73
Approach LOS	D	F	E	F
Intersection Delay [s/veh]	126.71			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	234	0	179	0	350	170	577	808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	88	0	0	22	0	0	0
Total Hourly Volume [veh/h]	0	0	0	234	0	91	0	350	148	577	808	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	63	0	24	0	94	40	155	217	0
Total Analysis Volume [veh/h]	0	0	0	252	0	98	0	376	159	620	869	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		50	50	50	50	50	50
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		9	9	13	13	31	31
g / C, Green / Cycle		0.17	0.17	0.25	0.25	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate		0.13	0.06	0.20	0.10	0.49	0.52
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1269	1673
c, Capacity [veh/h]		323	286	477	405	855	1050
d1, Uniform Delay [s]		19.71	18.14	17.28	15.34	7.28	7.19
k, delay calibration		0.04	0.04	0.11	0.11	0.50	0.19
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.56	0.26	2.95	0.62	5.32	2.97
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.78	0.34	0.79	0.39	0.72	0.83
d, Delay for Lane Group [s/veh]		21.27	18.40	20.23	15.96	12.60	10.16
Lane Group LOS		C	B	C	B	B	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		2.63	0.91	3.76	1.34	3.26	4.54
50th-Percentile Queue Length [ft/ln]		65.63	22.75	94.07	33.38	81.61	113.47
95th-Percentile Queue Length [veh/ln]		4.73	1.64	6.77	2.40	5.88	8.03
95th-Percentile Queue Length [ft/ln]		118.13	40.96	169.33	60.09	146.91	200.82

Movement, Approach, & Intersection Results

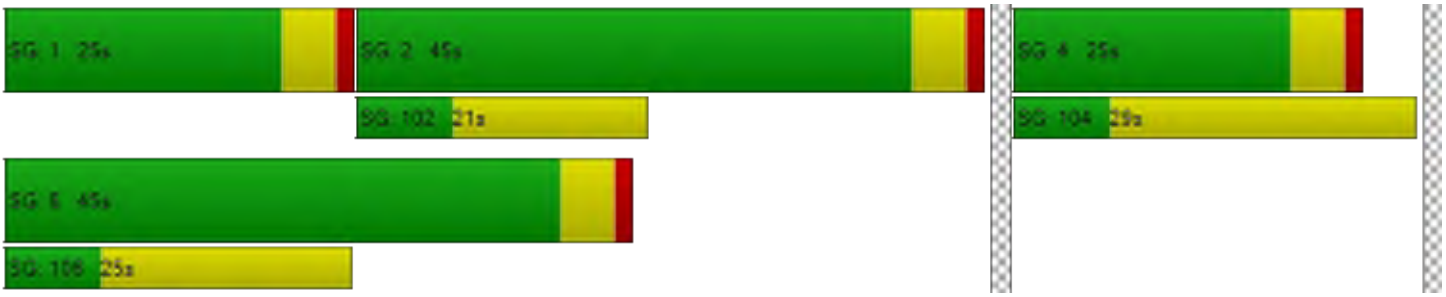
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	21.27	21.27	18.40	0.00	20.23	15.96	12.60	10.16	0.00
Movement LOS				C	C	B		C	B	B	B	
d_A, Approach Delay [s/veh]	0.00			20.46			18.96			11.17		
Approach LOS	A			C			B			B		
d_I, Intersection Delay [s/veh]	14.30											
Intersection LOS	B											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.04	15.04	15.04	15.04
l_p,int, Pedestrian LOS Score for Intersection	2.431	2.174	2.549	2.709
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	806	1612	1612
d_b, Bicycle Delay [s]	24.82	8.85	0.94	0.94
l_b,int, Bicycle LOS Score for Intersection	4.132	2.833	2.325	3.862
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	60.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.062

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	160	0	415	0	0	0	52	530	0	0	1225	430
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	195	0	0	0	0	0	0	0	0	211
Total Hourly Volume [veh/h]	160	0	220	0	0	0	52	530	0	0	1225	219
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	0	55	0	0	0	13	133	0	0	306	55
Total Analysis Volume [veh/h]	160	0	220	0	0	0	52	530	0	0	1225	219
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	64	64		64	64	64	64
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		43	43	35	35
g / C, Green / Cycle	0.17	0.17		0.68	0.68	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.09	0.13		0.10	0.32	0.65	0.14
s, saturation flow rate [veh/h]	1852	1679		525	1643	1884	1543
c, Capacity [veh/h]	308	279		332	1112	1035	848
d1, Uniform Delay [s]	24.22	25.47		13.98	4.91	14.34	7.50
k, delay calibration	0.04	0.04		0.04	0.08	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	1.88		0.08	0.23	92.49	0.06
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.79		0.16	0.48	1.18	0.26
d, Delay for Lane Group [s/veh]	24.73	27.34		14.06	5.14	106.84	7.56
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	No	Yes		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.12	3.15		0.15	2.09	37.68	1.24
50th-Percentile Queue Length [ft/ln]	52.97	78.66		3.66	52.31	941.95	31.00
95th-Percentile Queue Length [veh/ln]	3.81	5.66		0.26	3.77	54.16	2.23
95th-Percentile Queue Length [ft/ln]	95.35	141.58		6.58	94.17	1354.03	55.80

Movement, Approach, & Intersection Results

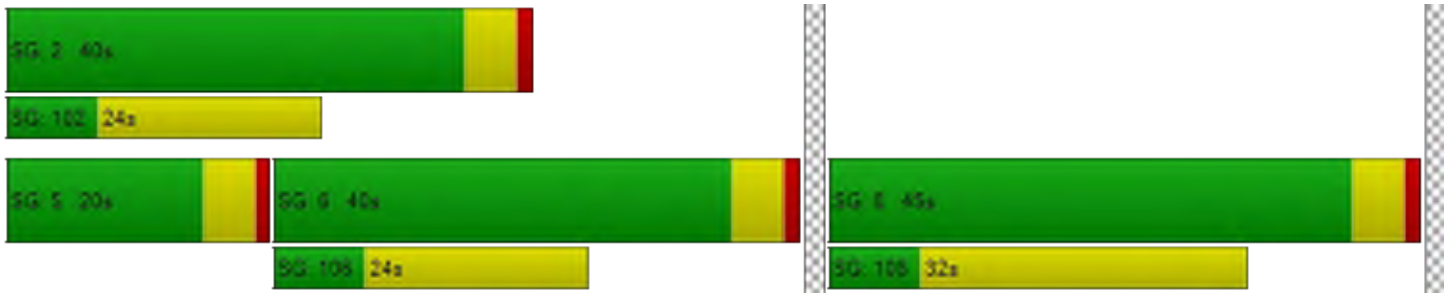
d_M, Delay for Movement [s/veh]	24.73	27.34	27.34	0.00	0.00	0.00	14.06	5.14	0.00	0.00	106.84	7.56
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	26.24			0.00			5.94			91.78		
Approach LOS	C			A			A			F		
d_I, Intersection Delay [s/veh]	60.66											
Intersection LOS	E											
Intersection V/C	1.062											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.73	21.73	21.73	21.73
l_p,int, Pedestrian LOS Score for Intersection	2.385	1.917	2.667	3.207
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1259	0	1101	1101
d_b, Bicycle Delay [s]	4.36	31.78	6.41	6.42
l_b,int, Bicycle LOS Score for Intersection	3.044	4.132	2.366	4.136
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	112	1	24	22	3	159	60	798	88	19	1384	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1	24	22	3	159	60	798	88	19	1384	18
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	0	7	7	1	47	18	238	26	6	412	5
Total Analysis Volume [veh/h]	133	1	29	26	4	189	71	950	105	23	1648	21
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.08	0.10	3.71	0.40	1.54	0.18	0.01	0.00	0.03	0.02	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	2401.4	2246.8	342.80	16.27	0.00	0.00	10.58	0.00	0.00
Movement LOS	F	F	F	F	F	F	C	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	23.03	23.03	23.03	5.06	5.06	13.52	0.66	0.00	0.00	0.11	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.73	575.73	575.73	126.51	126.51	337.98	16.42	0.00	0.00	2.67	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			621.99			1.03			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	552.38											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	26.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	820	171	715	289	43	502
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	820	171	715	289	43	502
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	230	48	201	81	12	141
Total Analysis Volume [veh/h]	921	192	803	325	48	564
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		2		2	
Circulating Flow Rate [veh/h]	859		48		921	
Exiting Flow Rate [veh/h]	412		1496		1051	
Demand Flow Rate [veh/h]	820	171	715	289	43	502
Adjusted Demand Flow Rate [veh/h]	921	192	803	325	48	564

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1350.00	1420.00
B (coefficient)	0.00091	0.00091	0.00085	0.00092	0.00085
HV Adjustment Factor	1.00	1.00	0.92	0.98	0.98
Entry Flow Rate [veh/h]	590	524	1223	293	331
Capacity of Entry and Bypass Lanes [veh/h]	650	650	1364	579	650
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	650	650	1258	569	637
X, volume / capacity	0.91	0.81	0.90	0.51	0.51

Movement, Approach, & Intersection Results

Lane LOS	E	D	D	C	B
95th-Percentile Queue Length [veh]	11.60	8.17	14.00	2.85	2.90
95th-Percentile Queue Length [ft]	289.92	204.35	350.04	71.14	72.57
Approach Delay [s/veh]	35.22		25.30	14.53	
Approach LOS	E		D	B	
Intersection Delay [s/veh]	26.86				
Intersection LOS	D				

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	29.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	384	211	322	4	8	239
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	384	211	322	4	8	239
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	102	56	86	1	2	64
Total Analysis Volume [veh/h]	409	224	343	4	9	254
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.00	0.00	0.00	0.05	0.36
d_M, Delay for Movement [s/veh]	9.51	0.00	0.00	0.00	29.80	14.15
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.52	0.00	0.00	0.00	2.05	2.05
95th-Percentile Queue Length [ft/ln]	37.89	0.00	0.00	0.00	51.15	51.15
d_A, Approach Delay [s/veh]	6.14		0.00		14.69	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.24					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2586	2172	17	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2586	2172	17	0	5
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	695	584	5	0	1
Total Analysis Volume [veh/h]	17	2781	2335	18	0	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.03	0.02	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	23.49	0.00	0.00	0.00	91.07	25.85
Movement LOS	C	A	A	A	F	D
95th-Percentile Queue Length [veh/ln]	0.26	0.00	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	6.48	0.00	0.00	0.00	2.16	2.16
d_A, Approach Delay [s/veh]	0.14		0.00		25.85	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	90.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	3	332	498	3	313	542
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	332	498	3	313	542
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	83	144
Total Analysis Volume [veh/h]	3	353	530	3	333	577
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.33	0.01
d_M, Delay for Movement [s/veh]	90.21	27.69	0.00	0.00	10.35	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.67	5.67	0.00	0.00	1.46	0.00
95th-Percentile Queue Length [ft/ln]	141.83	141.83	0.00	0.00	36.54	0.00
d_A, Approach Delay [s/veh]	28.21		0.00		3.79	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.50					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Base Volume Input [veh/h]	209	321	307	165	123	96
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	5.00	7.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	321	307	165	123	96
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	85	82	44	33	26
Total Analysis Volume [veh/h]	222	341	327	176	131	102
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	145		229		343	
Exiting Flow Rate [veh/h]	447		503		417	
Demand Flow Rate [veh/h]	209	321	307	165	123	96
Adjusted Demand Flow Rate [veh/h]	222	341	327	176	131	102

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.95	0.94
Entry Flow Rate [veh/h]	587	532	249
Capacity of Entry and Bypass Lanes [veh/h]	1190	1093	973
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1142	1035	910
X, volume / capacity	0.49	0.49	0.26

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.81	2.73	1.02
95th-Percentile Queue Length [ft]	70.23	68.23	25.51
Approach Delay [s/veh]	8.65	9.17	6.59
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.48		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	128.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	376	85	93	328	25	26	288	147	136	639	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	376	85	93	328	25	26	288	147	136	639	203
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	107	24	26	93	7	7	82	42	39	182	58
Total Analysis Volume [veh/h]	141	427	97	106	373	28	30	327	167	155	726	231
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	470			1045			637			608		
Exiting Flow Rate [veh/h]	701			695			915			539		
Demand Flow Rate [veh/h]	124	376	85	93	328	25	26	288	147	136	639	203
Adjusted Demand Flow Rate [veh/h]	141	427	97	106	373	28	30	327	167	155	726	231

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	678	507	534	1132
Capacity of Entry and Bypass Lanes [veh/h]	855	476	721	743
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	839	476	708	730
X, volume / capacity	0.79	1.07	0.74	1.52

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.30	15.92	6.65	55.37
95th-Percentile Queue Length [ft]	207.60	398.02	166.24	1384.35
Approach Delay [s/veh]	22.50	89.82	21.88	259.68
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	128.47			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	149	0	201	0	315	189	421	834	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	98	0	0	25	0	0	0
Total Hourly Volume [veh/h]	0	0	0	149	0	103	0	315	164	421	834	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	40	0	28	0	85	44	113	224	0
Total Analysis Volume [veh/h]	0	0	0	160	0	111	0	339	176	453	897	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		38	38	38	38	38	38
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		5	5	10	10	23	23
g / C, Green / Cycle		0.13	0.13	0.26	0.26	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.09	0.07	0.18	0.11	0.37	0.54
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1234	1673
c, Capacity [veh/h]		247	218	492	418	890	1013
d1, Uniform Delay [s]		15.67	15.36	12.59	11.59	5.12	6.37
k, delay calibration		0.04	0.04	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.07	0.68	1.73	0.67	0.58	2.81
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.65	0.51	0.69	0.42	0.51	0.89
d, Delay for Lane Group [s/veh]		16.74	16.04	14.32	12.26	5.70	9.17
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.17	0.79	2.16	1.00	0.79	2.80
50th-Percentile Queue Length [ft/ln]		29.22	19.65	53.94	24.91	19.73	70.04
95th-Percentile Queue Length [veh/ln]		2.10	1.42	3.88	1.79	1.42	5.04
95th-Percentile Queue Length [ft/ln]		52.60	35.38	97.10	44.85	35.52	126.08

Movement, Approach, & Intersection Results

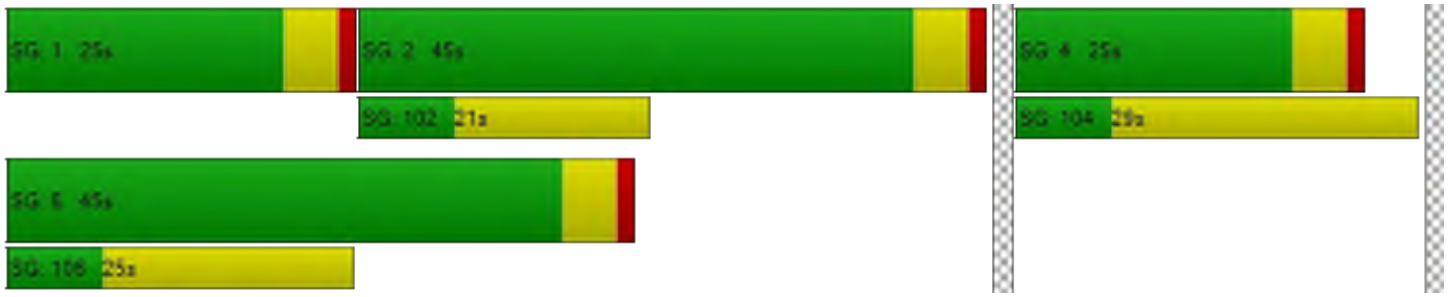
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	16.74	16.74	16.04	0.00	14.32	12.26	5.70	9.17	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			16.45			13.62			8.01		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	10.43											
Intersection LOS	B											
Intersection V/C	0.621											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	9.54	9.54	9.54	9.54
l_p,int, Pedestrian LOS Score for Intersection	2.213	2.147	2.548	2.589
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1056	2112	2112
d_b, Bicycle Delay [s]	18.94	4.22	0.06	0.06
l_b,int, Bicycle LOS Score for Intersection	4.132	2.719	2.297	3.633
Bicycle LOS	D	B	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.908

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	359	1	393	0	0	0	89	376	0	0	896	317
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	185	0	0	0	0	0	0	0	0	155
Total Hourly Volume [veh/h]	359	1	208	0	0	0	89	376	0	0	896	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	0	52	0	0	0	22	94	0	0	224	41
Total Analysis Volume [veh/h]	359	1	208	0	0	0	89	376	0	0	896	162
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	68	68		68	68	68	68
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	15	15		43	43	34	34
g / C, Green / Cycle	0.23	0.23		0.63	0.63	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.19	0.12		0.13	0.23	0.48	0.10
s, saturation flow rate [veh/h]	1852	1681		682	1643	1884	1543
c, Capacity [veh/h]	418	379		356	1032	933	764
d1, Uniform Delay [s]	25.43	23.41		13.59	6.13	16.62	9.71
k, delay calibration	0.04	0.04		0.04	0.04	0.37	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.04	0.47		0.14	0.08	17.44	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.55		0.25	0.36	0.96	0.21
d, Delay for Lane Group [s/veh]	27.47	23.88		13.73	6.21	34.06	9.76
Lane Group LOS	C	C		B	A	C	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.49	2.87		0.38	1.94	15.57	1.18
50th-Percentile Queue Length [ft/ln]	137.29	71.64		9.61	48.61	389.15	29.45
95th-Percentile Queue Length [veh/ln]	9.33	5.16		0.69	3.50	22.04	2.12
95th-Percentile Queue Length [ft/ln]	233.37	128.96		17.29	87.50	550.91	53.01

Movement, Approach, & Intersection Results

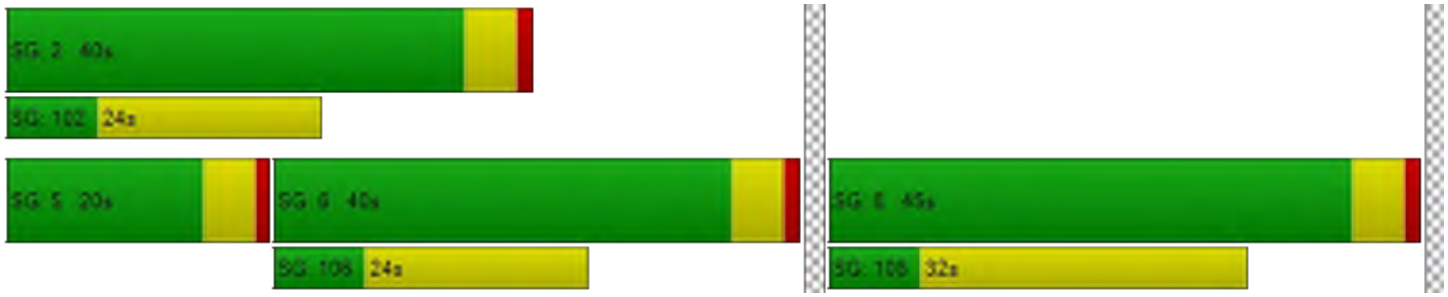
d_M, Delay for Movement [s/veh]	27.47	23.88	23.88	0.00	0.00	0.00	13.73	6.21	0.00	0.00	34.06	9.76
Movement LOS	C	C	C				B	A			C	A
d_A, Approach Delay [s/veh]	26.15			0.00			7.65			30.34		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	24.16											
Intersection LOS	C											
Intersection V/C	0.908											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.01	24.01	24.01	24.01
l_p,int, Pedestrian LOS Score for Intersection	2.433	1.871	2.577	2.897
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1172	0	1026	1026
d_b, Bicycle Delay [s]	5.85	34.13	8.10	8.10
l_b,int, Bicycle LOS Score for Intersection	3.338	4.132	2.173	3.407
Bicycle LOS	C	D	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	21.866

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	115	2	21	19	3	160	64	613	92	14	939	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	2	21	19	3	160	64	613	92	14	939	14
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	1	6	6	1	48	19	182	27	4	279	4
Total Analysis Volume [veh/h]	137	2	25	23	4	190	76	730	110	17	1118	17
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	21.87	0.04	0.07	0.78	0.11	0.75	0.12	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	9934.7	324.12	302.05	52.61	11.58	0.00	0.00	9.58	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.32	22.32	22.32	2.99	2.99	5.39	0.41	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	558.06	558.06	558.06	74.72	74.72	134.87	10.36	0.00	0.00	1.62	0.00	0.00
d_A, Approach Delay [s/veh]	9990.05			85.99			0.96			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	677.04											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	195	64	540	114	51	719
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	195	64	540	114	51	719
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	18	152	32	14	202
Total Analysis Volume [veh/h]	219	72	607	128	57	808
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	649		57		219	
Exiting Flow Rate [veh/h]	200		1043		721	
Demand Flow Rate [veh/h]	195	64	540	114	51	719
Adjusted Demand Flow Rate [veh/h]	219	72	607	128	57	808

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	291	793	882
Capacity of Entry and Bypass Lanes [veh/h]	712	1303	1104
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	712	1208	1084
X, volume / capacity	0.41	0.61	0.80

Movement, Approach, & Intersection Results

Lane LOS	B	B	C
95th-Percentile Queue Length [veh]	2.00	4.35	8.95
95th-Percentile Queue Length [ft]	50.00	108.69	223.63
Approach Delay [s/veh]	10.56	10.55	18.97
Approach LOS	B	B	C
Intersection Delay [s/veh]	14.40		
Intersection LOS	B		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	27.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	397	207	230	3	6	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	397	207	230	3	6	228
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	106	55	61	1	2	61
Total Analysis Volume [veh/h]	422	220	245	3	6	243
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.00	0.00	0.00	0.03	0.31
d_M, Delay for Movement [s/veh]	9.04	0.00	0.00	0.00	27.76	12.06
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.40	0.00	0.00	0.00	1.51	1.51
95th-Percentile Queue Length [ft/ln]	35.12	0.00	0.00	0.00	37.77	37.77
d_A, Approach Delay [s/veh]	5.94		0.00		12.44	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.07					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	0	0	0	6	0	8	0	2	4	40	34	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	7.00	0.00	2.00	0.00	8.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	6	0	8	0	2	4	40	34	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	2	0	2	0	1	1	11	9	0
Total Analysis Volume [veh/h]	0	0	0	6	0	9	0	2	4	43	37	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane				No								
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.41	9.98	8.52	0.00	0.00	0.00	7.26	0.00	0.00
Movement LOS				A	A	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.07	0.07	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.21	1.21	1.21	0.00	0.00	0.00	1.83	1.83	0.00
d_A, Approach Delay [s/veh]	0.00			8.88			0.00			3.90		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.41											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	15	0	12	0	0	0	0	8	0	0	59	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	0	12	0	0	0	0	8	0	0	59	19
Peak Hour Factor	0.9300	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	3	0	0	0	0	2	0	0	16	5
Total Analysis Volume [veh/h]	16	0	13	0	0	0	0	9	0	0	63	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
d_M, Delay for Movement [s/veh]	9.09	9.62	8.47	0.00	0.00	0.00	7.38	0.00	0.00	0.00	0.00	0.00	
Movement LOS	A	A	A				A	A			A	A	
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
95th-Percentile Queue Length [ft/ln]	2.30	2.30	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
d_A, Approach Delay [s/veh]	8.81			0.00			0.00			0.00			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	2.11												
Intersection LOS	A												

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	88.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.073

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	333	497	3	299	554
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	333	497	3	299	554
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	89	132	1	80	147
Total Analysis Volume [veh/h]	4	354	529	3	318	589
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.66	0.01	0.00	0.32	0.01
d_M, Delay for Movement [s/veh]	88.16	29.05	0.00	0.00	10.23	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.96	5.96	0.00	0.00	1.37	0.00
95th-Percentile Queue Length [ft/ln]	149.08	149.08	0.00	0.00	34.14	0.00
d_A, Approach Delay [s/veh]	29.71		0.00		3.59	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.73					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Base Volume Input [veh/h]	218	335	286	154	126	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	5.00	7.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	335	286	154	126	97
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	89	76	41	34	26
Total Analysis Volume [veh/h]	232	356	304	164	134	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	149		239		319	
Exiting Flow Rate [veh/h]	424		523		414	
Demand Flow Rate [veh/h]	218	335	286	154	126	97
Adjusted Demand Flow Rate [veh/h]	232	356	304	164	134	103

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.95	0.94
Entry Flow Rate [veh/h]	613	495	254
Capacity of Entry and Bypass Lanes [veh/h]	1186	1082	997
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1138	1024	933
X, volume / capacity	0.52	0.46	0.25

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.07	2.44	1.01
95th-Percentile Queue Length [ft]	76.76	61.06	25.27
Approach Delay [s/veh]	9.08	8.74	6.44
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.47		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	165.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	131	378	60	111	361	44	39	308	145	94	712	215
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	378	60	111	361	44	39	308	145	94	712	215
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	107	17	32	103	13	11	88	41	27	202	61
Total Analysis Volume [veh/h]	149	430	68	126	410	50	44	350	165	107	809	244
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	527			1089			645			633		
Exiting Flow Rate [veh/h]	687			725			1030			553		
Demand Flow Rate [veh/h]	131	378	60	111	361	44	39	308	145	94	712	215
Adjusted Demand Flow Rate [veh/h]	149	430	68	126	410	50	44	350	165	107	809	244

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	660	586	570	1181
Capacity of Entry and Bypass Lanes [veh/h]	807	455	715	724
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	792	455	702	711
X, volume / capacity	0.82	1.29	0.80	1.63

Movement, Approach, & Intersection Results

Lane LOS	D	F	D	F
95th-Percentile Queue Length [veh]	8.98	25.19	8.08	63.07
95th-Percentile Queue Length [ft]	224.54	629.66	202.12	1576.63
Approach Delay [s/veh]	25.56	172.24	26.06	307.12
Approach LOS	D	F	D	F
Intersection Delay [s/veh]	165.41			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	188	0	170	0	396	118	345	922	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	83	0	0	15	0	0	0
Total Hourly Volume [veh/h]	0	0	0	188	0	87	0	396	103	345	922	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	51	0	23	0	106	28	93	248	0
Total Analysis Volume [veh/h]	0	0	0	202	0	94	0	426	111	371	991	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		46	46	46	46	46	46
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		7	7	18	18	30	30
g / C, Green / Cycle		0.15	0.15	0.38	0.38	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate		0.11	0.06	0.23	0.07	0.34	0.59
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1106	1673
c, Capacity [veh/h]		276	244	707	601	785	1068
d1, Uniform Delay [s]		18.99	17.97	11.65	9.67	5.32	7.46
k, delay calibration		0.04	0.04	0.11	0.11	0.20	0.22
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.41	0.37	0.83	0.15	0.84	7.64
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.73	0.38	0.60	0.18	0.47	0.93
d, Delay for Lane Group [s/veh]		20.40	18.33	12.48	9.82	6.16	15.10
Lane Group LOS		C	B	B	A	A	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.95	0.83	2.88	0.61	0.93	6.05
50th-Percentile Queue Length [ft/ln]		48.68	20.87	71.88	15.28	23.13	151.33
95th-Percentile Queue Length [veh/ln]		3.51	1.50	5.18	1.10	1.67	10.09
95th-Percentile Queue Length [ft/ln]		87.63	37.56	129.38	27.50	41.64	252.20

Movement, Approach, & Intersection Results

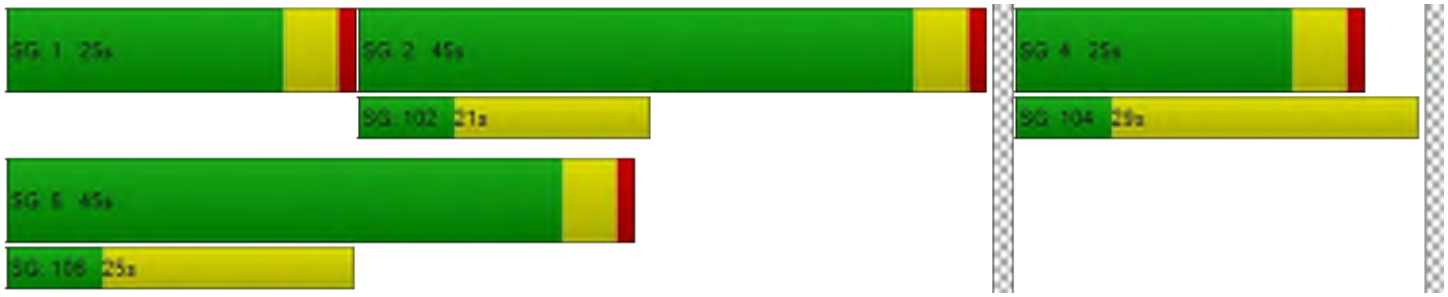
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	20.40	20.40	18.33	0.00	12.48	9.82	6.16	15.10	0.00
Movement LOS				C	C	B		B	A	A	B	
d_A, Approach Delay [s/veh]	0.00			19.74			11.93			12.67		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	13.44											
Intersection LOS	B											
Intersection V/C	0.700											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	13.53	13.53	13.53	13.53
l_p,int, Pedestrian LOS Score for Intersection	2.092	2.143	2.575	2.657
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	861	1722	1722
d_b, Bicycle Delay [s]	23.23	7.53	0.45	0.45
l_b,int, Bicycle LOS Score for Intersection	4.132	2.736	2.316	3.653
Bicycle LOS	D	B	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.926

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	262	1	441	0	0	0	96	488	0	0	1005	458
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	207	0	0	0	0	0	0	0	0	224
Total Hourly Volume [veh/h]	262	1	234	0	0	0	96	488	0	0	1005	234
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	0	59	0	0	0	24	122	0	0	251	59
Total Analysis Volume [veh/h]	262	1	234	0	0	0	96	488	0	0	1005	234
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	66	66		66	66	66	66
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	12	12		44	44	35	35
g / C, Green / Cycle	0.18	0.18		0.67	0.67	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14		0.16	0.30	0.53	0.15
s, saturation flow rate [veh/h]	1852	1680		615	1643	1884	1543
c, Capacity [veh/h]	328	297		352	1103	1001	820
d1, Uniform Delay [s]	25.99	25.94		14.04	5.06	15.43	8.49
k, delay calibration	0.04	0.04		0.04	0.05	0.43	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.72	1.80		0.15	0.14	27.37	0.07
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.79		0.27	0.44	1.00	0.29
d, Delay for Lane Group [s/veh]	27.71	27.73		14.20	5.20	42.81	8.56
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.87	3.47		0.31	2.04	19.21	1.51
50th-Percentile Queue Length [ft/ln]	96.72	86.79		7.72	51.03	480.16	37.69
95th-Percentile Queue Length [veh/ln]	6.96	6.25		0.56	3.67	26.48	2.71
95th-Percentile Queue Length [ft/ln]	174.10	156.23		13.89	91.86	661.94	67.84

Movement, Approach, & Intersection Results

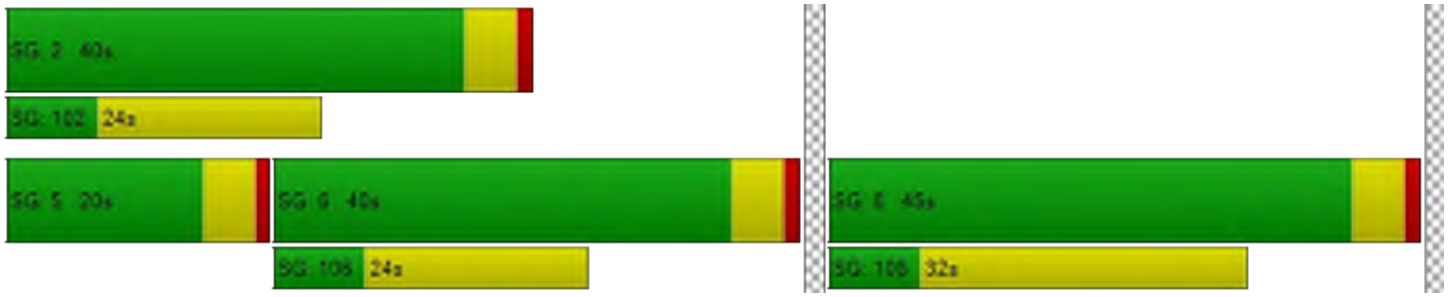
d_M, Delay for Movement [s/veh]	27.71	27.73	27.73	0.00	0.00	0.00	14.20	5.20	0.00	0.00	42.81	8.56
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	27.72			0.00			6.68			36.34		
Approach LOS	C			A			A			D		
d_I, Intersection Delay [s/veh]	27.03											
Intersection LOS	C											
Intersection V/C	0.926											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.79	22.79	22.79	22.79
l_p,int, Pedestrian LOS Score for Intersection	2.446	2.024	2.625	3.148
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1217	0	1065	1065
d_b, Bicycle Delay [s]	5.04	32.87	7.19	7.19
l_b,int, Bicycle LOS Score for Intersection	3.257	4.132	2.369	3.820
Bicycle LOS	C	D	B	D

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.087

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	113	1	22	20	3	159	64	774	91	16	1190	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	1	22	20	3	159	64	774	91	16	1190	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	7	6	1	47	19	230	27	5	354	4
Total Analysis Volume [veh/h]	135	1	26	24	4	189	76	921	108	19	1417	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.09	2.02	0.25	1.12	0.16	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	1210.1	1134.6	161.14	13.92	0.00	0.00	10.42	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	22.90	22.90	22.90	4.36	4.36	9.80	0.56	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	572.56	572.56	572.56	109.11	109.11	244.93	13.97	0.00	0.00	2.14	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			295.11			0.96			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	573.62											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	26.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	470	75	570	263	51	678
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	470	75	570	263	51	678
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	132	21	160	74	14	190
Total Analysis Volume [veh/h]	528	84	640	296	57	762
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	685		57		528	
Exiting Flow Rate [veh/h]	389		1305		769	
Demand Flow Rate [veh/h]	470	75	570	263	51	678
Adjusted Demand Flow Rate [veh/h]	528	84	640	296	57	762

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	1.00	0.92	1.00	0.98
Entry Flow Rate [veh/h]	612	1016	57	778
Capacity of Entry and Bypass Lanes [veh/h]	687	1303	879	879
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	687	1200	879	862
X, volume / capacity	0.89	0.78	0.06	0.88

Movement, Approach, & Intersection Results

Lane LOS	E	C	A	D
95th-Percentile Queue Length [veh]	11.20	8.47	0.21	11.81
95th-Percentile Queue Length [ft]	280.01	211.77	5.19	295.31
Approach Delay [s/veh]	37.29	16.60	29.21	
Approach LOS	E	C	D	
Intersection Delay [s/veh]	26.31			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	26.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	389	187	205	2	5	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	389	187	205	2	5	243
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	50	55	1	1	65
Total Analysis Volume [veh/h]	414	199	218	2	5	259
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.00	0.00	0.00	0.03	0.32
d_M, Delay for Movement [s/veh]	8.87	0.00	0.00	0.00	26.35	11.79
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.32	0.00	0.00	0.00	1.52	1.52
95th-Percentile Queue Length [ft/ln]	33.03	0.00	0.00	0.00	38.05	38.05
d_A, Approach Delay [s/veh]	5.99		0.00		12.06	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.25					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	0	0	0	9	0	10	0	3	6	136	113	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	7.00	0.00	2.00	0.00	8.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	9	0	10	0	3	6	136	113	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	2	0	3	0	1	2	37	30	0
Total Analysis Volume [veh/h]	0	0	0	10	0	11	0	3	6	146	122	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane				No								
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.46	12.92	9.03	0.00	0.00	0.00	7.39	0.00	0.00
Movement LOS				B	B	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00	0.00	0.26	0.26	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.48	2.48	2.48	0.00	0.00	0.00	6.61	6.61	0.00
d_A, Approach Delay [s/veh]	0.00			10.67			0.00			4.03		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	4.37											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	39	0	37	0	0	0	0	12	0	0	210	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	0	37	0	0	0	0	12	0	0	210	29
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	0	9	0	0	0	0	3	0	0	53	7
Total Analysis Volume [veh/h]	39	0	37	0	0	0	0	12	0	0	210	29
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.43	10.93	8.78	0.00	0.00	0.00	7.71	0.00	0.00	0.00	0.00	0.00
Movement LOS	B	B	A				A	A			A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.30	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.62			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.24											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	85.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.070

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	334	496	3	286	565
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	334	496	3	286	565
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	89	132	1	76	150
Total Analysis Volume [veh/h]	4	355	528	3	304	601
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.66	0.01	0.00	0.30	0.01
d_M, Delay for Movement [s/veh]	84.96	28.79	0.00	0.00	10.12	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.93	5.93	0.00	0.00	1.28	0.00
95th-Percentile Queue Length [ft/ln]	148.17	148.17	0.00	0.00	31.98	0.00
d_A, Approach Delay [s/veh]	29.41		0.00		3.40	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.60					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way		SE Airport Way		SE Veterans Way	
Base Volume Input [veh/h]	227	354	281	133	131	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	5.00	7.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	354	281	133	131	111
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	94	75	35	35	30
Total Analysis Volume [veh/h]	241	377	299	141	139	118
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	154		248		314	
Exiting Flow Rate [veh/h]	434		550		399	
Demand Flow Rate [veh/h]	227	354	281	133	131	111
Adjusted Demand Flow Rate [veh/h]	241	377	299	141	139	118

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.95	0.94
Entry Flow Rate [veh/h]	645	465	275
Capacity of Entry and Bypass Lanes [veh/h]	1180	1072	1002
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1132	1015	940
X, volume / capacity	0.55	0.43	0.27

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.43	2.23	1.12
95th-Percentile Queue Length [ft]	85.70	55.74	27.89
Approach Delay [s/veh]	9.67	8.41	6.64
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.66		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	182.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	134	381	52	120	379	56	47	321	147	79	730	219
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	134	381	52	120	379	56	47	321	147	79	730	219
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	108	15	34	108	16	13	91	42	22	207	62
Total Analysis Volume [veh/h]	152	433	59	136	431	64	53	365	167	90	830	249
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	561			1096			659			648		
Exiting Flow Rate [veh/h]	693			742			1069			569		
Demand Flow Rate [veh/h]	134	381	52	120	379	56	47	321	147	79	730	219
Adjusted Demand Flow Rate [veh/h]	152	433	59	136	431	64	53	365	167	90	830	249

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	657	631	596	1190
Capacity of Entry and Bypass Lanes [veh/h]	779	451	705	713
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	765	451	693	700
X, volume / capacity	0.84	1.40	0.85	1.67

Movement, Approach, & Intersection Results

Lane LOS	D	F	D	F
95th-Percentile Queue Length [veh]	9.75	30.31	9.56	65.36
95th-Percentile Queue Length [ft]	243.78	757.73	238.90	1633.99
Approach Delay [s/veh]	28.67	217.22	31.08	324.20
Approach LOS	D	F	D	F
Intersection Delay [s/veh]	182.47			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	210	0	160	0	425	96	321	947	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	78	0	0	12	0	0	0
Total Hourly Volume [veh/h]	0	0	0	210	0	82	0	425	84	321	947	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	56	0	22	0	114	23	86	255	0
Total Analysis Volume [veh/h]	0	0	0	226	0	88	0	457	90	345	1018	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		51	51	51	51	51	51
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		8	8	21	21	33	33
g / C, Green / Cycle		0.16	0.16	0.41	0.41	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate		0.12	0.05	0.24	0.06	0.32	0.61
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1069	1673
c, Capacity [veh/h]		295	261	771	655	746	1083
d1, Uniform Delay [s]		20.60	19.13	11.64	9.32	5.58	8.10
k, delay calibration		0.04	0.04	0.11	0.11	0.24	0.28
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.58	0.28	0.73	0.09	0.99	10.55
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.77	0.34	0.59	0.14	0.46	0.94
d, Delay for Lane Group [s/veh]		22.18	19.41	12.38	9.42	6.57	18.65
Lane Group LOS		C	B	B	A	A	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		2.45	0.86	3.30	0.51	1.02	8.05
50th-Percentile Queue Length [ft/ln]		61.23	21.48	82.47	12.82	25.50	201.32
95th-Percentile Queue Length [veh/ln]		4.41	1.55	5.94	0.92	1.84	12.71
95th-Percentile Queue Length [ft/ln]		110.22	38.67	148.45	23.07	45.90	317.66

Movement, Approach, & Intersection Results

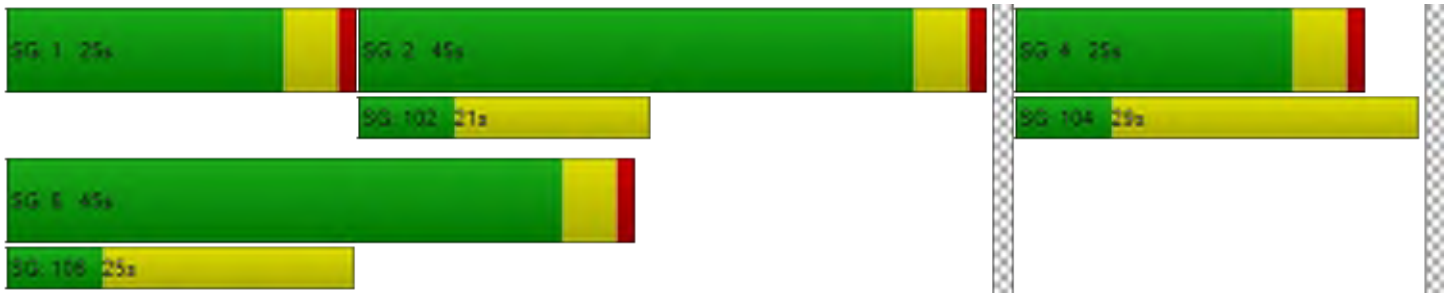
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	22.18	22.18	19.41	0.00	12.38	9.42	6.57	18.65	0.00
Movement LOS				C	C	B		B	A	A	B	
d_A, Approach Delay [s/veh]	0.00			21.41			11.89			15.59		
Approach LOS	A			C			B			B		
d_I, Intersection Delay [s/veh]	15.50											
Intersection LOS	B											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.62	15.62	15.62	15.62
l_p,int, Pedestrian LOS Score for Intersection	2.048	2.146	2.586	2.683
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	787	1573	1573
d_b, Bicycle Delay [s]	25.43	9.36	1.16	1.16
l_b,int, Bicycle LOS Score for Intersection	4.132	2.757	2.328	3.655
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.949

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	217	1	423	0	0	0	94	541	0	0	1050	488
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	199	0	0	0	0	0	0	0	0	239
Total Hourly Volume [veh/h]	217	1	224	0	0	0	94	541	0	0	1050	249
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	0	56	0	0	0	24	135	0	0	263	62
Total Analysis Volume [veh/h]	217	1	224	0	0	0	94	541	0	0	1050	249
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	65	65		65	65	65	65
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		44	44	35	35
g / C, Green / Cycle	0.17	0.17		0.68	0.68	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.12	0.13		0.16	0.33	0.56	0.16
s, saturation flow rate [veh/h]	1852	1681		594	1643	1884	1543
c, Capacity [veh/h]	313	284		353	1113	1011	829
d1, Uniform Delay [s]	25.49	25.98		13.97	5.06	15.10	8.31
k, delay calibration	0.04	0.04		0.04	0.10	0.46	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.03	1.89		0.15	0.30	37.59	0.07
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.79		0.27	0.49	1.04	0.30
d, Delay for Lane Group [s/veh]	26.51	27.87		14.12	5.36	52.69	8.38
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	No	Yes		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.08	3.31		0.28	2.28	22.01	1.57
50th-Percentile Queue Length [ft/ln]	76.91	82.64		7.11	56.94	550.13	39.19
95th-Percentile Queue Length [veh/ln]	5.54	5.95		0.51	4.10	30.59	2.82
95th-Percentile Queue Length [ft/ln]	138.43	148.76		12.80	102.49	764.81	70.54

Movement, Approach, & Intersection Results

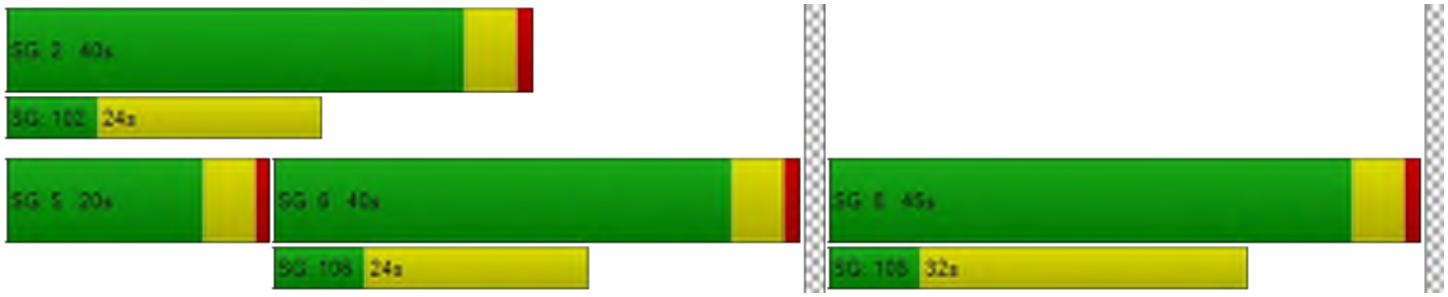
d_M, Delay for Movement [s/veh]	26.51	27.87	27.87	0.00	0.00	0.00	14.12	5.36	0.00	0.00	52.69	8.38
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	27.20			0.00			6.66			44.20		
Approach LOS	C			A			A			D		
d_I, Intersection Delay [s/veh]	31.00											
Intersection LOS	C											
Intersection V/C	0.949											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.47	22.47	22.47	22.47
l_p,int, Pedestrian LOS Score for Intersection	2.414	2.050	2.643	3.211
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1229	0	1076	1076
d_b, Bicycle Delay [s]	4.83	32.54	6.95	6.95
l_b,int, Bicycle LOS Score for Intersection	3.153	4.132	2.453	3.943
Bicycle LOS	C	D	B	D

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	112	1	23	21	3	157	63	810	91	16	1269	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1	23	21	3	157	63	810	91	16	1269	16
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	0	7	6	1	47	19	241	27	5	378	5
Total Analysis Volume [veh/h]	133	1	27	25	4	187	75	964	108	19	1511	19
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.10	2.75	0.32	1.26	0.17	0.01	0.00	0.03	0.02	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	1728.4	1618.9	219.59	14.83	0.00	0.00	10.63	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	22.78	22.78	22.78	4.74	4.74	11.14	0.61	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	569.40	569.40	569.40	118.47	118.47	278.58	15.17	0.00	0.00	2.23	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			420.13			0.97			0.13		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	553.88											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	21.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	588	87	597	306	48	626
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	588	87	597	306	48	626
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	165	24	168	86	13	176
Total Analysis Volume [veh/h]	661	98	671	344	54	703
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	718		54		661	
Exiting Flow Rate [veh/h]	439		1378		816	
Demand Flow Rate [veh/h]	588	87	597	306	48	626
Adjusted Demand Flow Rate [veh/h]	661	98	671	344	54	703

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	1.00	1.00	0.92	0.98	0.98
Entry Flow Rate [veh/h]	661	98	1103	363	410
Capacity of Entry and Bypass Lanes [veh/h]	739	739	1307	779	779
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	739	739	1203	764	763
X, volume / capacity	0.89	0.13	0.84	0.47	0.53

Movement, Approach, & Intersection Results

Lane LOS	E	A	C	B	B
95th-Percentile Queue Length [veh]	11.61	0.46	11.05	2.49	3.11
95th-Percentile Queue Length [ft]	290.36	11.40	276.27	62.33	77.84
Approach Delay [s/veh]	32.06		20.82	11.81	
Approach LOS	D		C	B	
Intersection Delay [s/veh]	21.49				
Intersection LOS	C				

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	26.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	390	181	211	2	5	249
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	390	181	211	2	5	249
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	48	56	1	1	66
Total Analysis Volume [veh/h]	415	193	224	2	5	265
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.00	0.00	0.00	0.03	0.33
d_M, Delay for Movement [s/veh]	8.90	0.00	0.00	0.00	26.48	11.94
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.34	0.00	0.00	0.00	1.59	1.59
95th-Percentile Queue Length [ft/ln]	33.39	0.00	0.00	0.00	39.68	39.68
d_A, Approach Delay [s/veh]	6.08		0.00		12.21	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.33					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				US 97 SB Ramps			SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	0	0	0	10	0	11	0	5	8	174	154	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	7.00	0.00	2.00	0.00	8.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	10	0	11	0	5	8	174	154	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	3	0	3	0	1	2	47	41	0
Total Analysis Volume [veh/h]	0	0	0	11	0	12	0	5	9	187	166	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane				No								
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.12	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	14.47	14.80	9.36	0.00	0.00	0.00	7.46	0.00	0.00
Movement LOS				B	B	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.00	0.00	0.35	0.35	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.25	3.25	3.25	0.00	0.00	0.00	8.68	8.68	0.00
d_A, Approach Delay [s/veh]	0.00			11.80			0.00			3.95		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	4.27											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.079

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	51	0	52	0	0	0	0	15	0	0	277	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	0	52	0	0	0	0	15	0	0	277	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	0	13	0	0	0	0	4	0	0	69	8
Total Analysis Volume [veh/h]	51	0	52	0	0	0	0	15	0	0	277	30
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.23	11.70	9.04	0.00	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00
Movement LOS	B	B	A				A	A			A	A
95th-Percentile Queue Length [veh/ln]	0.44	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.94	10.94	10.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.12			0.00			0.00			0.00		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	2.45											
Intersection LOS	B											

Section 3 - Year 2030 Scenarios

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	62.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.074

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	6	320	455	5	260	471
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	320	455	5	260	471
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	85	121	1	69	125
Total Analysis Volume [veh/h]	6	340	484	5	277	501
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.60	0.00	0.00	0.27	0.01
d_M, Delay for Movement [s/veh]	62.64	24.32	0.00	0.00	9.69	0.00
Movement LOS	F	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.94	4.94	0.00	0.00	1.07	0.00
95th-Percentile Queue Length [ft/ln]	123.57	123.57	0.00	0.00	26.79	0.00
d_A, Approach Delay [s/veh]	24.98		0.00		3.45	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	7.02					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	7.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	164	267	232	156	125	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	5.00	7.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	164	267	232	156	125	77
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	71	62	41	33	20
Total Analysis Volume [veh/h]	174	284	247	166	133	82
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	148		179		259	
Exiting Flow Rate [veh/h]	343		446		357	
Demand Flow Rate [veh/h]	164	267	232	156	125	77
Adjusted Demand Flow Rate [veh/h]	174	284	247	166	133	82

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.95	0.93
Entry Flow Rate [veh/h]	478	437	231
Capacity of Entry and Bypass Lanes [veh/h]	1188	1150	1060
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1139	1087	987
X, volume / capacity	0.40	0.38	0.22

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	1.97	1.80	0.83
95th-Percentile Queue Length [ft]	49.30	45.03	20.73
Approach Delay [s/veh]	7.28	7.23	5.75
Approach LOS	A	A	A
Intersection Delay [s/veh]	6.96		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	51.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	105	307	96	78	262	17	17	237	116	139	528	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	307	96	78	262	17	17	237	116	139	528	162
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	87	27	22	74	5	5	67	33	39	150	46
Total Analysis Volume [veh/h]	119	349	109	89	298	19	19	269	132	158	600	184
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	382			897			548			495		
Exiting Flow Rate [veh/h]	594			557			755			476		
Demand Flow Rate [veh/h]	105	307	96	78	262	17	17	237	116	139	528	162
Adjusted Demand Flow Rate [veh/h]	119	349	109	89	298	19	19	269	132	158	600	184

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	589	406	429	959
Capacity of Entry and Bypass Lanes [veh/h]	935	553	789	833
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	917	553	775	818
X, volume / capacity	0.63	0.73	0.54	1.15

Movement, Approach, & Intersection Results

Lane LOS	B	D	B	F
95th-Percentile Queue Length [veh]	4.60	6.20	3.31	28.08
95th-Percentile Queue Length [ft]	115.10	155.04	82.75	702.09
Approach Delay [s/veh]	13.52	26.08	12.74	102.22
Approach LOS	B	D	B	F
Intersection Delay [s/veh]	51.18			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	8.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.518

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	125	0	188	0	243	195	415	695	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	92	0	0	25	0	0	0
Total Hourly Volume [veh/h]	0	0	0	125	0	96	0	243	170	415	695	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	34	0	26	0	65	46	112	187	0
Total Analysis Volume [veh/h]	0	0	0	134	0	103	0	261	183	446	747	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		37	37	37	37	37	37
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		5	5	10	10	23	23
g / C, Green / Cycle		0.12	0.12	0.27	0.27	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.07	0.06	0.14	0.12	0.35	0.45
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1260	1673
c, Capacity [veh/h]		233	206	498	423	944	1018
d1, Uniform Delay [s]		15.43	15.28	11.68	11.36	4.43	5.17
k, delay calibration		0.04	0.04	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.83	0.69	0.86	0.70	0.37	1.04
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.58	0.50	0.52	0.43	0.47	0.73
d, Delay for Lane Group [s/veh]		16.27	15.97	12.54	12.06	4.80	6.22
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		0.95	0.72	1.48	1.01	0.67	1.57
50th-Percentile Queue Length [ft/ln]		23.64	17.96	36.92	25.20	16.80	39.24
95th-Percentile Queue Length [veh/ln]		1.70	1.29	2.66	1.81	1.21	2.83
95th-Percentile Queue Length [ft/ln]		42.56	32.33	66.45	45.36	30.24	70.64

Movement, Approach, & Intersection Results

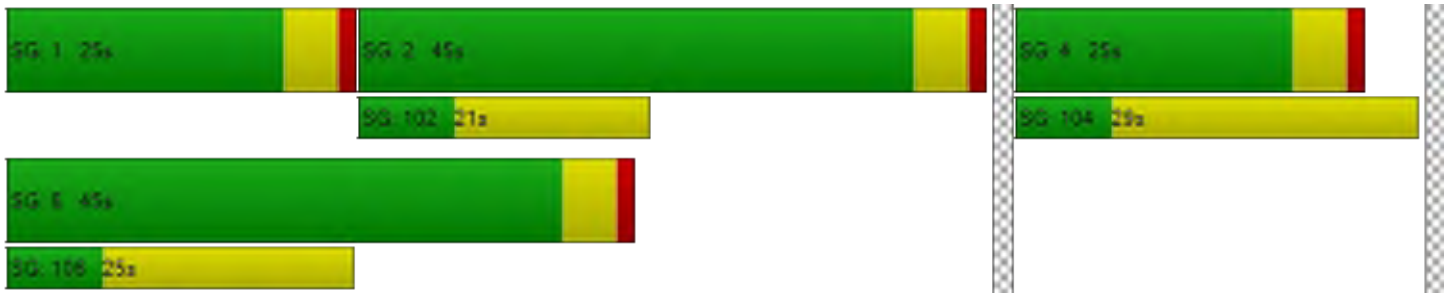
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	16.27	16.27	15.97	0.00	12.54	12.06	4.80	6.22	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			16.14			12.34			5.69		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	8.59											
Intersection LOS	A											
Intersection V/C	0.518											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	9.24	9.24	9.24	9.24
I_p,int, Pedestrian LOS Score for Intersection	2.211	2.124	2.457	2.489
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1074	2148	2148
d_b, Bicycle Delay [s]	18.62	3.99	0.10	0.10
I_b,int, Bicycle LOS Score for Intersection	4.132	2.653	2.179	3.374
Bicycle LOS	D	B	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.872

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	357	1	303	0	0	0	85	282	0	0	753	260
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	142	0	0	0	0	0	0	0	0	127
Total Hourly Volume [veh/h]	357	1	161	0	0	0	85	282	0	0	753	133
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	0	40	0	0	0	21	71	0	0	188	33
Total Analysis Volume [veh/h]	357	1	161	0	0	0	85	282	0	0	753	133
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	55	55		55	55	55	55
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	13	13		33	33	24	24
g / C, Green / Cycle	0.23	0.23		0.59	0.59	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.19	0.10		0.11	0.17	0.40	0.09
s, saturation flow rate [veh/h]	1852	1681		796	1643	1884	1543
c, Capacity [veh/h]	428	388		439	967	814	667
d1, Uniform Delay [s]	20.31	18.14		9.59	5.66	14.89	9.76
k, delay calibration	0.04	0.04		0.04	0.04	0.12	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.66	0.27		0.08	0.06	5.46	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.42		0.19	0.29	0.92	0.20
d, Delay for Lane Group [s/veh]	21.97	18.41		9.67	5.73	20.34	9.81
Lane Group LOS	C	B		A	A	C	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.15	1.63		0.30	1.11	8.28	0.83
50th-Percentile Queue Length [ft/ln]	103.76	40.78		7.45	27.77	207.11	20.66
95th-Percentile Queue Length [veh/ln]	7.47	2.94		0.54	2.00	13.00	1.49
95th-Percentile Queue Length [ft/ln]	186.77	73.41		13.40	49.99	325.12	37.19

Movement, Approach, & Intersection Results

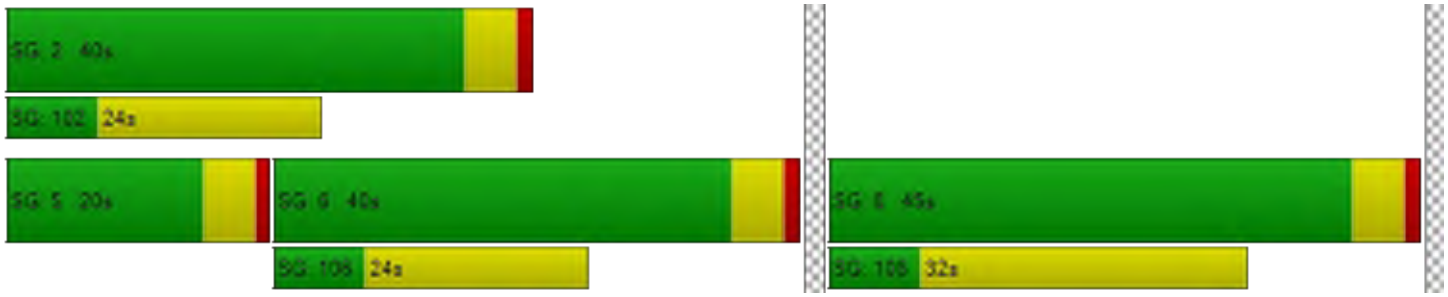
d_M, Delay for Movement [s/veh]	21.97	18.41	18.41	0.00	0.00	0.00	9.67	5.73	0.00	0.00	20.34	9.81
Movement LOS	C	B	B				A	A			C	A
d_A, Approach Delay [s/veh]	20.86			0.00			6.64			18.76		
Approach LOS	C			A			A			B		
d_I, Intersection Delay [s/veh]	16.86											
Intersection LOS	B											
Intersection V/C	0.872											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	17.76	17.76	17.76	17.76
l_p,int, Pedestrian LOS Score for Intersection	2.330	1.790	2.473	2.699
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1446	0	1265	1265
d_b, Bicycle Delay [s]	2.13	27.67	3.74	3.74
l_b,int, Bicycle LOS Score for Intersection	3.186	4.132	2.011	3.077
Bicycle LOS	C	D	B	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	1,566.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.825

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	88	1	17	17	4	137	46	459	79	15	788	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	1	17	17	4	137	46	459	79	15	788	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	0	5	5	1	41	14	137	24	4	235	4
Total Analysis Volume [veh/h]	105	1	20	20	5	163	55	546	94	18	938	14
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	3.82	0.01	0.04	0.31	0.07	0.51	0.08	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	1566.0	1477.0	1442.1	91.04	85.97	27.21	10.33	0.00	0.00	8.85	0.00	0.00
Movement LOS	F	F	F	F	F	D	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	14.87	14.87	14.87	1.44	1.44	2.72	0.24	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	371.65	371.65	371.65	35.89	35.89	67.94	6.09	0.00	0.00	1.44	0.00	0.00
d_A, Approach Delay [s/veh]	1545.63			35.56			0.82			0.16		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	102.15											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	162	25	439	61	13	613
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	25	439	61	13	613
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	7	123	17	4	172
Total Analysis Volume [veh/h]	182	28	493	69	15	689
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	528		15		182	
Exiting Flow Rate [veh/h]	92		885		556	
Demand Flow Rate [veh/h]	162	25	439	61	13	613
Adjusted Demand Flow Rate [veh/h]	182	28	493	69	15	689

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	210	605	718
Capacity of Entry and Bypass Lanes [veh/h]	806	1360	1147
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	806	1264	1125
X, volume / capacity	0.26	0.44	0.63

Movement, Approach, & Intersection Results

Lane LOS	A	A	B
95th-Percentile Queue Length [veh]	1.04	2.34	4.62
95th-Percentile Queue Length [ft]	26.07	58.55	115.50
Approach Delay [s/veh]	7.34	7.34	11.54
Approach LOS	A	A	B
Intersection Delay [s/veh]	9.34		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	21.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	322	179	200	3	6	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	322	179	200	3	6	159
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	48	53	1	2	42
Total Analysis Volume [veh/h]	343	190	213	3	6	169
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.02	0.20
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	21.38	10.76
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	1.02	0.00	0.00	0.00	0.88	0.88
95th-Percentile Queue Length [ft/ln]	25.39	0.00	0.00	0.00	22.10	22.10
d_A, Approach Delay [s/veh]	5.52		0.00		11.13	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.29					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	59.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	14	2389	1773	15	1	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	2389	1773	15	1	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	642	477	4	0	3
Total Analysis Volume [veh/h]	15	2569	1906	16	1	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.00	0.02	0.04
d_M, Delay for Movement [s/veh]	17.14	0.00	0.00	0.00	59.65	20.11
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.15	0.00	0.00	0.00	0.14	0.14
95th-Percentile Queue Length [ft/ln]	3.78	0.00	0.00	0.00	3.50	3.50
d_A, Approach Delay [s/veh]	0.10		0.00		23.40	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	56.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	6	320	454	4	220	506
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	320	454	4	220	506
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	85	121	1	59	135
Total Analysis Volume [veh/h]	6	340	483	4	234	538
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.59	0.00	0.00	0.22	0.01
d_M, Delay for Movement [s/veh]	56.54	23.61	0.00	0.00	9.43	0.00
Movement LOS	F	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.79	4.79	0.00	0.00	0.86	0.00
95th-Percentile Queue Length [ft/ln]	119.73	119.73	0.00	0.00	21.44	0.00
d_A, Approach Delay [s/veh]	24.18		0.00		2.86	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	6.59					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	7.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	175	304	224	120	121	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	304	224	120	121	97
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	81	60	32	32	26
Total Analysis Volume [veh/h]	186	323	238	128	129	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	143		192		255	
Exiting Flow Rate [veh/h]	360		482		326	
Demand Flow Rate [veh/h]	175	304	224	120	121	97
Adjusted Demand Flow Rate [veh/h]	186	323	238	128	129	103

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	531	390	248
Capacity of Entry and Bypass Lanes [veh/h]	1193	1136	1065
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1144	1068	997
X, volume / capacity	0.45	0.34	0.23

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.34	1.54	0.90
95th-Percentile Queue Length [ft]	58.42	38.44	22.55
Approach Delay [s/veh]	7.87	6.83	5.87
Approach LOS	A	A	A
Intersection Delay [s/veh]	7.11		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	54.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	105	309	94	87	290	20	19	246	118	135	535	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	309	94	87	290	20	19	246	118	135	535	165
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	88	27	25	82	6	5	70	34	38	152	47
Total Analysis Volume [veh/h]	119	351	107	99	330	23	22	280	134	153	608	188
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	407			900			585			500		
Exiting Flow Rate [veh/h]	623			566			767			495		
Demand Flow Rate [veh/h]	105	309	94	87	290	20	19	246	118	135	535	165
Adjusted Demand Flow Rate [veh/h]	119	351	107	99	330	23	22	280	134	153	608	188

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	589	452	445	967
Capacity of Entry and Bypass Lanes [veh/h]	912	552	760	829
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	894	552	746	814
X, volume / capacity	0.65	0.82	0.58	1.17

Movement, Approach, & Intersection Results

Lane LOS	B	D	B	F
95th-Percentile Queue Length [veh]	4.87	8.22	3.84	29.12
95th-Percentile Queue Length [ft]	121.63	205.62	96.06	728.02
Approach Delay [s/veh]	14.28	33.80	14.32	107.78
Approach LOS	B	D	B	F
Intersection Delay [s/veh]	54.70			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.540

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	142	0	179	0	269	183	423	714	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	88	0	0	24	0	0	0
Total Hourly Volume [veh/h]	0	0	0	142	0	91	0	269	159	423	714	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	24	0	72	43	114	192	0
Total Analysis Volume [veh/h]	0	0	0	153	0	98	0	289	171	455	768	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		38	38	38	38	38	38
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		5	5	10	10	23	23
g / C, Green / Cycle		0.13	0.13	0.26	0.26	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.08	0.06	0.15	0.11	0.36	0.46
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1257	1673
c, Capacity [veh/h]		237	210	493	419	926	1018
d1, Uniform Delay [s]		15.66	15.28	12.07	11.43	4.68	5.34
k, delay calibration		0.04	0.04	0.11	0.11	0.13	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.09	0.60	1.11	0.64	0.47	1.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.64	0.47	0.59	0.41	0.49	0.75
d, Delay for Lane Group [s/veh]		16.75	15.88	13.18	12.07	5.15	6.50
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.11	0.68	1.71	0.95	0.73	1.72
50th-Percentile Queue Length [ft/ln]		27.79	17.12	42.81	23.72	18.29	42.88
95th-Percentile Queue Length [veh/ln]		2.00	1.23	3.08	1.71	1.32	3.09
95th-Percentile Queue Length [ft/ln]		50.02	30.81	77.06	42.70	32.93	77.18

Movement, Approach, & Intersection Results

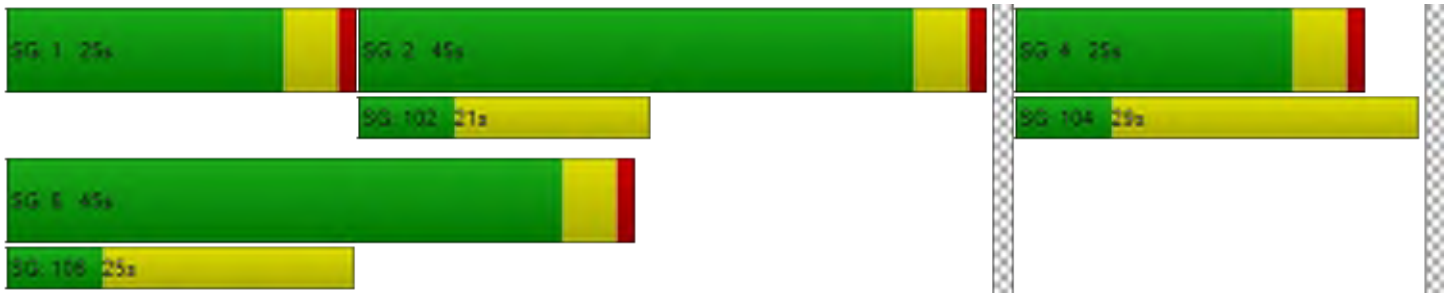
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	16.75	16.75	15.88	0.00	13.18	12.07	5.15	6.50	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			16.41			12.76			6.00		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	8.96											
Intersection LOS	A											
Intersection V/C	0.540											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	9.39	9.39	9.39	9.39
l_p,int, Pedestrian LOS Score for Intersection	2.210	2.123	2.467	2.519
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1065	2130	2130
d_b, Bicycle Delay [s]	18.78	4.11	0.08	0.08
l_b,int, Bicycle LOS Score for Intersection	4.132	2.670	2.204	3.424
Bicycle LOS	D	B	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.877

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	319	1	313	0	0	0	84	327	0	0	819	299
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	147	0	0	0	0	0	0	0	0	147
Total Hourly Volume [veh/h]	319	1	166	0	0	0	84	327	0	0	819	152
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	42	0	0	0	21	82	0	0	205	38
Total Analysis Volume [veh/h]	319	1	166	0	0	0	84	327	0	0	819	152
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	57	57		57	57	57	57
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	12	12		35	35	27	27
g / C, Green / Cycle	0.21	0.21		0.62	0.62	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.17	0.10		0.11	0.20	0.43	0.10
s, saturation flow rate [veh/h]	1852	1681		744	1643	1884	1543
c, Capacity [veh/h]	388	352		421	1013	876	717
d1, Uniform Delay [s]	21.68	19.93		10.22	5.27	14.55	9.10
k, delay calibration	0.04	0.04		0.04	0.04	0.18	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.69	0.37		0.09	0.07	8.48	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.47		0.20	0.32	0.94	0.21
d, Delay for Lane Group [s/veh]	23.37	20.30		10.31	5.34	23.03	9.15
Lane Group LOS	C	C		B	A	C	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.92	1.84		0.28	1.24	9.91	0.92
50th-Percentile Queue Length [ft/ln]	98.09	45.91		6.89	31.09	247.77	23.04
95th-Percentile Queue Length [veh/ln]	7.06	3.31		0.50	2.24	15.07	1.66
95th-Percentile Queue Length [ft/ln]	176.56	82.64		12.40	55.96	376.85	41.48

Movement, Approach, & Intersection Results

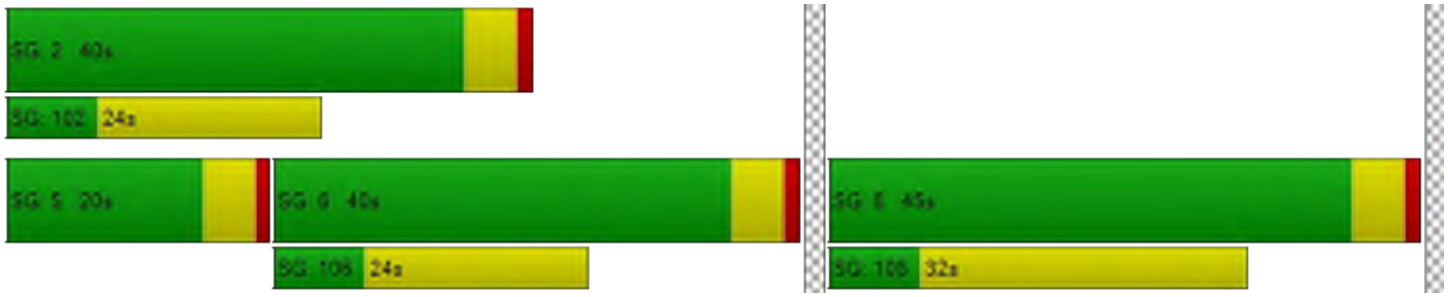
d_M, Delay for Movement [s/veh]	23.37	20.30	20.30	0.00	0.00	0.00	10.31	5.34	0.00	0.00	23.03	9.15
Movement LOS	C	C	C				B	A			C	A
d_A, Approach Delay [s/veh]	22.32			0.00			6.36			20.86		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	18.05											
Intersection LOS	B											
Intersection V/C	0.877											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	18.72	18.72	18.72	18.72
l_p,int, Pedestrian LOS Score for Intersection	2.330	1.832	2.502	2.791
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1395	0	1221	1221
d_b, Bicycle Delay [s]	2.62	28.67	4.35	4.35
l_b,int, Bicycle LOS Score for Intersection	3.140	4.132	2.084	3.250
Bicycle LOS	C	D	B	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	2,946.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	6.516

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	87	1	17	18	3	137	45	517	79	16	894	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	1	17	18	3	137	45	517	79	16	894	13
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	0	5	5	1	41	13	154	24	5	266	4
Total Analysis Volume [veh/h]	104	1	20	21	4	163	54	615	94	19	1064	15
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	6.52	0.02	0.04	0.45	0.08	0.60	0.08	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	2946.2	2777.0	2728.6	148.76	139.30	36.37	11.00	0.00	0.00	9.09	0.00	0.00
Movement LOS	F	F	F	F	F	E	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	16.15	16.15	16.15	1.98	1.98	3.57	0.27	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	403.78	403.78	403.78	49.43	49.43	89.23	6.73	0.00	0.00	1.62	0.00	0.00
d_A, Approach Delay [s/veh]	2910.03			51.11			0.78			0.16		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	172.09											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	15.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	340	36	566	120	13	619
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	340	36	566	120	13	619
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	96	10	159	34	4	174
Total Analysis Volume [veh/h]	382	40	636	135	15	696
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	681		15		382	
Exiting Flow Rate [veh/h]	166		1092		721	
Demand Flow Rate [veh/h]	340	36	566	120	13	619
Adjusted Demand Flow Rate [veh/h]	382	40	636	135	15	696

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	422	832	725
Capacity of Entry and Bypass Lanes [veh/h]	690	1360	935
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	690	1261	917
X, volume / capacity	0.61	0.61	0.78

Movement, Approach, & Intersection Results

Lane LOS	C	B	C
95th-Percentile Queue Length [veh]	4.21	4.41	7.93
95th-Percentile Queue Length [ft]	105.16	110.25	198.14
Approach Delay [s/veh]	16.17	10.31	19.92
Approach LOS	C	B	C
Intersection Delay [s/veh]	15.20		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	21.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	321	175	218	3	6	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	175	218	3	6	163
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	47	58	1	2	43
Total Analysis Volume [veh/h]	341	186	232	3	6	173
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.00	0.00	0.00	0.02	0.21
d_M, Delay for Movement [s/veh]	8.65	0.00	0.00	0.00	21.50	10.98
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	1.03	0.00	0.00	0.00	0.93	0.93
95th-Percentile Queue Length [ft/ln]	25.74	0.00	0.00	0.00	23.34	23.34
d_A, Approach Delay [s/veh]	5.60		0.00		11.33	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.29					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	61.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	14	2367	1807	15	1	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	2367	1807	15	1	9
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	636	486	4	0	2
Total Analysis Volume [veh/h]	15	2545	1943	16	1	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.00	0.02	0.04
d_M, Delay for Movement [s/veh]	17.57	0.00	0.00	0.00	61.20	20.51
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.00	0.13	0.13
95th-Percentile Queue Length [ft/ln]	3.91	0.00	0.00	0.00	3.28	3.28
d_A, Approach Delay [s/veh]	0.10		0.00		24.21	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	55.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.063

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	6	320	455	4	208	515
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	320	455	4	208	515
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	85	121	1	55	137
Total Analysis Volume [veh/h]	6	340	484	4	221	548
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.60	0.00	0.00	0.21	0.01
d_M, Delay for Movement [s/veh]	54.98	23.51	0.00	0.00	9.37	0.00
Movement LOS	F	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.76	4.76	0.00	0.00	0.80	0.00
95th-Percentile Queue Length [ft/ln]	119.12	119.12	0.00	0.00	19.97	0.00
d_A, Approach Delay [s/veh]	24.06		0.00		2.69	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	6.48					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	7.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	194	339	228	109	116	117
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	339	228	109	116	117
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	90	61	29	31	31
Total Analysis Volume [veh/h]	206	361	243	116	123	124
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	137		212		260	
Exiting Flow Rate [veh/h]	386		516		334	
Demand Flow Rate [veh/h]	194	339	228	109	116	117
Adjusted Demand Flow Rate [veh/h]	206	361	243	116	123	124

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	592	382	263
Capacity of Entry and Bypass Lanes [veh/h]	1201	1112	1059
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1152	1046	996
X, volume / capacity	0.49	0.34	0.25

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.80	1.54	0.98
95th-Percentile Queue Length [ft]	70.07	38.55	24.48
Approach Delay [s/veh]	8.58	6.95	6.04
Approach LOS	A	A	A
Intersection Delay [s/veh]	7.55		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	51.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	103	313	98	84	293	17	17	242	122	145	514	164
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	313	98	84	293	17	17	242	122	145	514	164
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	89	28	24	83	5	5	69	35	41	146	47
Total Analysis Volume [veh/h]	117	356	111	95	333	19	19	275	139	165	584	186
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	395			886			596			500		
Exiting Flow Rate [veh/h]	643			566			736			490		
Demand Flow Rate [veh/h]	103	313	98	84	293	17	17	242	122	145	514	164
Adjusted Demand Flow Rate [veh/h]	117	356	111	95	333	19	19	275	139	165	584	186

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	596	447	442	952
Capacity of Entry and Bypass Lanes [veh/h]	923	560	752	829
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	906	560	738	814
X, volume / capacity	0.65	0.80	0.59	1.15

Movement, Approach, & Intersection Results

Lane LOS	B	D	B	F
95th-Percentile Queue Length [veh]	4.87	7.71	3.88	27.77
95th-Percentile Queue Length [ft]	121.68	192.81	96.91	694.27
Approach Delay [s/veh]	14.14	31.28	14.53	101.31
Approach LOS	B	D	B	F
Intersection Delay [s/veh]	51.38			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.540

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	152	0	176	0	270	180	439	706	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	86	0	0	23	0	0	0
Total Hourly Volume [veh/h]	0	0	0	152	0	90	0	270	157	439	706	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	41	0	24	0	73	42	118	190	0
Total Analysis Volume [veh/h]	0	0	0	163	0	97	0	290	169	472	759	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		38	38	38	38	38	38
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		5	5	10	10	23	23
g / C, Green / Cycle		0.13	0.13	0.26	0.26	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.09	0.06	0.16	0.11	0.37	0.45
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1265	1673
c, Capacity [veh/h]		247	219	484	412	924	1018
d1, Uniform Delay [s]		15.87	15.39	12.48	11.80	4.88	5.39
k, delay calibration		0.04	0.04	0.11	0.11	0.15	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.12	0.52	1.19	0.66	0.62	1.11
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.66	0.44	0.60	0.41	0.51	0.75
d, Delay for Lane Group [s/veh]		16.99	15.91	13.67	12.45	5.50	6.50
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.21	0.69	1.80	0.98	0.86	1.78
50th-Percentile Queue Length [ft/ln]		30.32	17.18	44.91	24.41	21.38	44.57
95th-Percentile Queue Length [veh/ln]		2.18	1.24	3.23	1.76	1.54	3.21
95th-Percentile Queue Length [ft/ln]		54.57	30.92	80.84	43.95	38.49	80.23

Movement, Approach, & Intersection Results

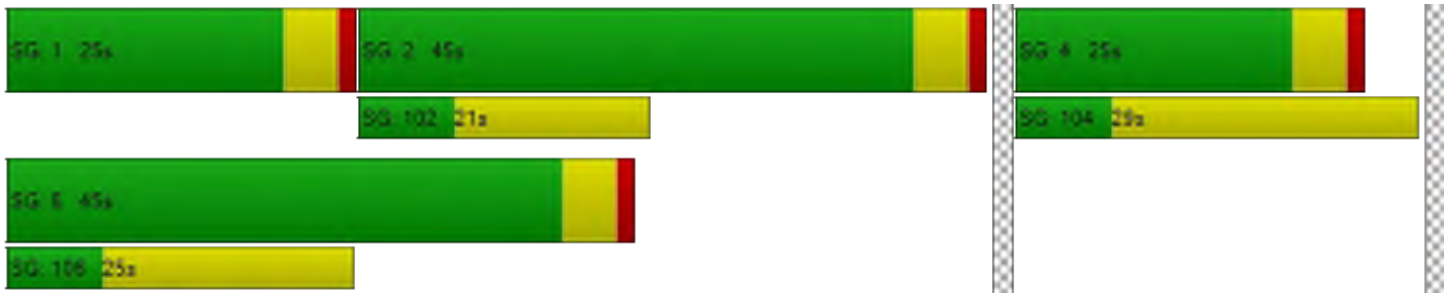
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	16.99	16.99	15.91	0.00	13.67	12.45	5.50	6.50	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			16.58			13.22			6.12		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	9.19											
Intersection LOS	A											
Intersection V/C	0.540											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	9.73	9.73	9.73	9.73
l_p,int, Pedestrian LOS Score for Intersection	2.229	2.124	2.461	2.527
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1044	2089	2089
d_b, Bicycle Delay [s]	19.15	4.37	0.04	0.04
l_b,int, Bicycle LOS Score for Intersection	4.132	2.681	2.201	3.437
Bicycle LOS	D	B	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.878

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	298	1	306	0	0	0	79	343	0	0	847	304
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	144	0	0	0	0	0	0	0	0	149
Total Hourly Volume [veh/h]	298	1	162	0	0	0	79	343	0	0	847	155
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	0	41	0	0	0	20	86	0	0	212	39
Total Analysis Volume [veh/h]	298	1	162	0	0	0	79	343	0	0	847	155
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	58	58		58	58	58	58
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		36	36	28	28
g / C, Green / Cycle	0.20	0.20		0.63	0.63	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10		0.11	0.21	0.45	0.10
s, saturation flow rate [veh/h]	1852	1681		723	1643	1884	1543
c, Capacity [veh/h]	367	333		416	1033	903	740
d1, Uniform Delay [s]	22.11	20.55		10.34	5.03	14.21	8.68
k, delay calibration	0.04	0.04		0.04	0.04	0.21	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.66	0.41		0.08	0.07	9.40	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.49		0.19	0.33	0.94	0.21
d, Delay for Lane Group [s/veh]	23.77	20.96		10.42	5.10	23.61	8.73
Lane Group LOS	C	C		B	A	C	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.70	1.83		0.24	1.25	10.40	0.91
50th-Percentile Queue Length [ft/ln]	92.53	45.83		6.11	31.20	259.88	22.71
95th-Percentile Queue Length [veh/ln]	6.66	3.30		0.44	2.25	15.68	1.64
95th-Percentile Queue Length [ft/ln]	166.55	82.50		11.01	56.17	392.07	40.88

Movement, Approach, & Intersection Results

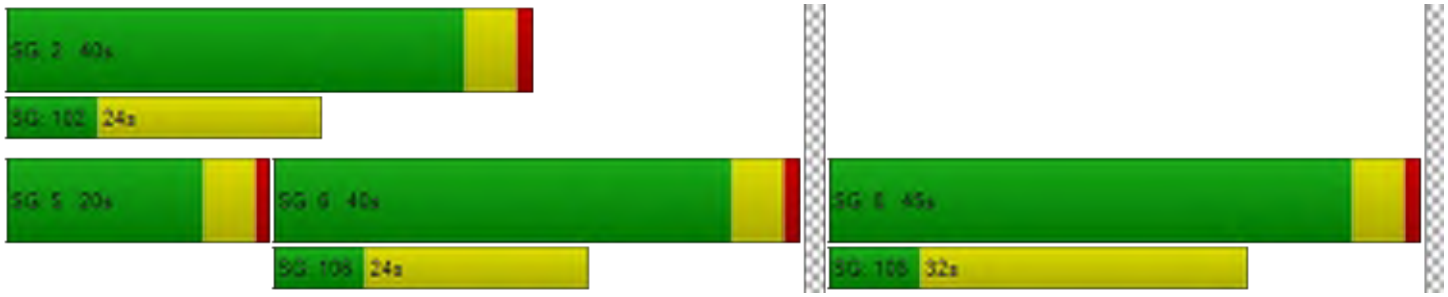
d_M, Delay for Movement [s/veh]	23.77	20.96	20.96	0.00	0.00	0.00	10.42	5.10	0.00	0.00	23.61	8.73
Movement LOS	C	C	C				B	A			C	A
d_A, Approach Delay [s/veh]	22.78			0.00			6.10			21.31		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	18.26											
Intersection LOS	B											
Intersection V/C	0.878											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	18.84	18.84	18.84	18.84
l_p,int, Pedestrian LOS Score for Intersection	2.317	1.831	2.509	2.810
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1389	0	1216	1216
d_b, Bicycle Delay [s]	2.68	28.79	4.43	4.43
l_b,int, Bicycle LOS Score for Intersection	3.093	4.132	2.102	3.305
Bicycle LOS	C	D	B	C

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	3,604.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	7.786

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	86	1	18	19	4	136	45	526	78	17	928	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	1	18	19	4	136	45	526	78	17	928	13
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	0	5	6	1	40	13	157	23	5	276	4
Total Analysis Volume [veh/h]	102	1	21	23	5	162	54	626	93	20	1105	15
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	7.79	0.02	0.05	0.55	0.10	0.63	0.09	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	3604.5	3390.9	3337.8	187.91	176.51	40.21	11.24	0.00	0.00	9.13	0.00	0.00
Movement LOS	F	F	F	F	F	E	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	16.37	16.37	16.37	2.44	2.44	3.86	0.28	0.00	0.00	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	409.17	409.17	409.17	60.97	60.97	96.55	6.99	0.00	0.00	1.72	0.00	0.00
d_A, Approach Delay [s/veh]	3557.67			61.68			0.79			0.16		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	203.71											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	19.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	385	81	587	134	23	603
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	385	81	587	134	23	603
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	108	23	165	38	6	169
Total Analysis Volume [veh/h]	433	91	660	151	26	678
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	706		26		433	
Exiting Flow Rate [veh/h]	195		1125		797	
Demand Flow Rate [veh/h]	385	81	587	134	23	603
Adjusted Demand Flow Rate [veh/h]	433	91	660	151	26	678

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	524	876	718
Capacity of Entry and Bypass Lanes [veh/h]	672	1344	888
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	672	1246	871
X, volume / capacity	0.78	0.65	0.81

Movement, Approach, & Intersection Results

Lane LOS	D	B	C
95th-Percentile Queue Length [veh]	7.56	5.12	8.89
95th-Percentile Queue Length [ft]	188.97	127.92	222.19
Approach Delay [s/veh]	25.61	11.37	23.08
Approach LOS	D	B	C
Intersection Delay [s/veh]	19.07		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	318	178	232	3	6	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	318	178	232	3	6	163
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	47	62	1	2	43
Total Analysis Volume [veh/h]	338	189	247	3	6	173
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.00	0.00	0.00	0.03	0.22
d_M, Delay for Movement [s/veh]	8.70	0.00	0.00	0.00	21.61	11.13
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	1.03	0.00	0.00	0.00	0.95	0.95
95th-Percentile Queue Length [ft/ln]	25.87	0.00	0.00	0.00	23.87	23.87
d_A, Approach Delay [s/veh]	5.58		0.00		11.48	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.23					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	62.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	14	2357	1823	15	1	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	2357	1823	15	1	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	634	490	4	0	3
Total Analysis Volume [veh/h]	15	2534	1960	16	1	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.00	0.02	0.05
d_M, Delay for Movement [s/veh]	17.77	0.00	0.00	0.00	62.04	20.79
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	3.97	0.00	0.00	0.00	3.66	3.66
d_A, Approach Delay [s/veh]	0.10		0.00		24.22	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	F					

Section 4 - Phasing Analysis Scenarios

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	85.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.070

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	332	498	3	285	567
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	498	3	285	567
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	76	151
Total Analysis Volume [veh/h]	4	353	530	3	303	603
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.66	0.01	0.00	0.30	0.01
d_M, Delay for Movement [s/veh]	85.02	28.72	0.00	0.00	10.12	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.89	5.89	0.00	0.00	1.28	0.00
95th-Percentile Queue Length [ft/ln]	147.20	147.20	0.00	0.00	31.91	0.00
d_A, Approach Delay [s/veh]	29.36		0.00		3.38	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.54					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	7.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	211	341	279	143	127	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	211	341	279	143	127	104
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	85	70	36	32	28
Total Analysis Volume [veh/h]	224	341	279	143	127	111
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	141		231		299	
Exiting Flow Rate [veh/h]	412		499		381	
Demand Flow Rate [veh/h]	211	341	279	143	127	104
Adjusted Demand Flow Rate [veh/h]	224	341	279	143	127	111

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	589	449	255
Capacity of Entry and Bypass Lanes [veh/h]	1196	1091	1018
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1147	1026	954
X, volume / capacity	0.49	0.41	0.25

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.81	2.04	0.99
95th-Percentile Queue Length [ft]	70.14	51.03	24.68
Approach Delay [s/veh]	8.61	8.00	6.28
Approach LOS	A	A	A
Intersection Delay [s/veh]	7.95		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	121.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	387	81	96	359	27	28	285	154	130	608	200
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	387	81	96	359	27	28	285	154	130	608	200
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	110	23	27	102	8	8	81	44	37	173	57
Total Analysis Volume [veh/h]	141	440	92	109	408	31	32	324	175	148	691	227
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	471			1002			668			623		
Exiting Flow Rate [veh/h]	737			706			882			534		
Demand Flow Rate [veh/h]	124	387	81	96	359	27	28	285	154	130	608	200
Adjusted Demand Flow Rate [veh/h]	141	440	92	109	408	31	32	324	175	148	691	227

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	686	548	541	1086
Capacity of Entry and Bypass Lanes [veh/h]	854	497	699	731
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	838	497	686	719
X, volume / capacity	0.80	1.10	0.77	1.48

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.65	17.92	7.45	51.28
95th-Percentile Queue Length [ft]	216.15	447.97	186.17	1281.99
Approach Delay [s/veh]	23.36	100.06	24.78	242.41
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	121.41			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.611

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	177	0	203	0	299	200	523	794	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	99	0	0	26	0	0	0
Total Hourly Volume [veh/h]	0	0	0	177	0	104	0	299	174	523	794	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	48	0	28	0	80	47	141	213	0
Total Analysis Volume [veh/h]	0	0	0	190	0	112	0	322	187	562	854	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		42	42	42	42	42	42
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		6	6	10	10	26	26
g / C, Green / Cycle		0.14	0.14	0.24	0.24	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.10	0.07	0.17	0.12	0.44	0.51
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1282	1673
c, Capacity [veh/h]		273	242	448	381	910	1031
d1, Uniform Delay [s]		17.01	16.39	14.61	13.71	5.85	6.30
k, delay calibration		0.04	0.04	0.11	0.11	0.31	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.20	0.51	2.19	0.98	1.98	1.78
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.70	0.46	0.72	0.49	0.62	0.83
d, Delay for Lane Group [s/veh]		18.21	16.90	16.80	14.69	7.83	8.09
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.58	0.88	2.49	1.31	1.64	2.85
50th-Percentile Queue Length [ft/ln]		39.40	21.96	62.22	32.79	40.91	71.27
95th-Percentile Queue Length [veh/ln]		2.84	1.58	4.48	2.36	2.95	5.13
95th-Percentile Queue Length [ft/ln]		70.93	39.52	112.00	59.03	73.64	128.28

Movement, Approach, & Intersection Results

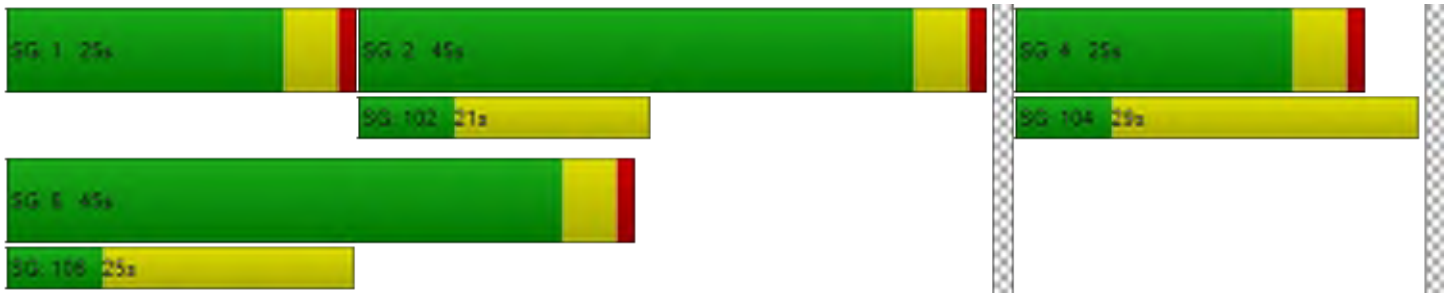
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	18.21	18.21	16.90	0.00	16.80	14.69	7.83	8.09	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			17.72			16.02			7.98		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	11.14											
Intersection LOS	B											
Intersection V/C	0.611											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	11.31	11.31	11.31	11.31
l_p,int, Pedestrian LOS Score for Intersection	2.364	2.166	2.538	2.626
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	959	1918	1918
d_b, Bicycle Delay [s]	20.86	5.65	0.04	0.04
l_b,int, Bicycle LOS Score for Intersection	4.132	2.772	2.288	3.742
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.951

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	280	1	415	0	0	0	66	410	0	0	1037	348
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	195	0	0	0	0	0	0	0	0	171
Total Hourly Volume [veh/h]	280	1	220	0	0	0	66	410	0	0	1037	177
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	0	55	0	0	0	17	103	0	0	259	44
Total Analysis Volume [veh/h]	280	1	220	0	0	0	66	410	0	0	1037	177
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	66	66		66	66	66	66
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	12	12		44	44	35	35
g / C, Green / Cycle	0.19	0.19		0.66	0.66	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.15	0.13		0.11	0.25	0.55	0.11
s, saturation flow rate [veh/h]	1852	1681		608	1643	1884	1543
c, Capacity [veh/h]	345	313		336	1088	1001	820
d1, Uniform Delay [s]	25.68	25.10		14.12	5.02	15.43	8.14
k, delay calibration	0.04	0.04		0.04	0.04	0.46	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.76	1.10		0.10	0.08	36.89	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.71		0.20	0.38	1.04	0.22
d, Delay for Lane Group [s/veh]	27.45	26.20		14.23	5.10	52.32	8.19
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.12	3.15		0.22	1.69	21.85	1.09
50th-Percentile Queue Length [ft/ln]	103.10	78.66		5.49	42.26	546.23	27.31
95th-Percentile Queue Length [veh/ln]	7.42	5.66		0.40	3.04	30.34	1.97
95th-Percentile Queue Length [ft/ln]	185.57	141.58		9.88	76.07	758.57	49.16

Movement, Approach, & Intersection Results

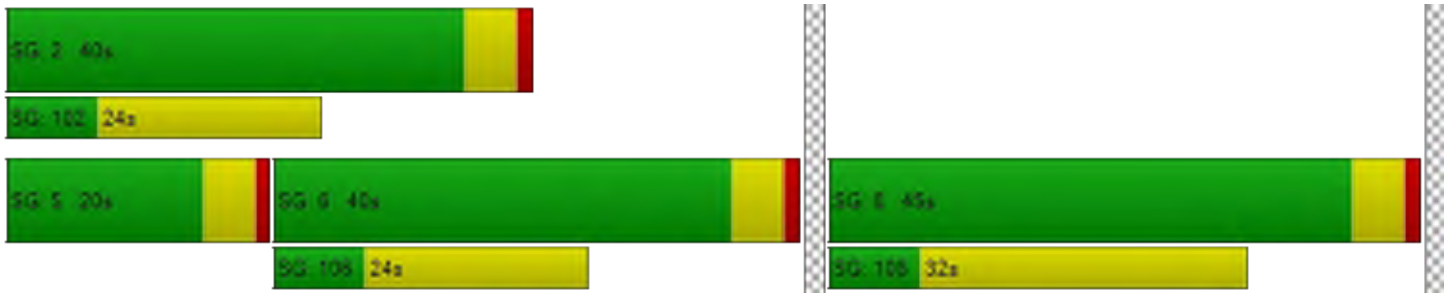
d_M, Delay for Movement [s/veh]	27.45	26.20	26.20	0.00	0.00	0.00	14.23	5.10	0.00	0.00	52.32	8.19
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	26.90			0.00			6.36			45.88		
Approach LOS	C			A			A			D		
d_I, Intersection Delay [s/veh]	32.96											
Intersection LOS	C											
Intersection V/C	0.951											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.78	22.78	22.78	22.78
l_p,int, Pedestrian LOS Score for Intersection	2.426	1.864	2.603	3.004
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1217	0	1065	1065
d_b, Bicycle Delay [s]	5.03	32.86	7.18	7.18
l_b,int, Bicycle LOS Score for Intersection	3.244	4.132	2.191	3.691
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	903.552

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	115	1	21	19	3	160	63	671	91	16	1110	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	1	21	19	3	160	63	671	91	16	1110	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	6	6	1	48	19	200	27	5	330	4
Total Analysis Volume [veh/h]	137	1	25	23	4	190	75	799	108	19	1321	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	903.55	0.03	0.07	1.27	0.17	0.99	0.14	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	668.81	628.05	112.84	13.06	0.00	0.00	9.87	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	23.01	23.01	23.01	3.74	3.74	8.32	0.50	0.00	0.00	0.08	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.23	575.23	575.23	93.49	93.49	207.94	12.49	0.00	0.00	1.92	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			181.26			1.00			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	614.15											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	387	41	589	147	18	686
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	387	41	589	147	18	686
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	109	12	165	41	5	193
Total Analysis Volume [veh/h]	435	46	662	165	20	771
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	708		20		435	
Exiting Flow Rate [veh/h]	205		1221		754	
Demand Flow Rate [veh/h]	387	41	589	147	18	686
Adjusted Demand Flow Rate [veh/h]	435	46	662	165	20	771

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	481	893	807
Capacity of Entry and Bypass Lanes [veh/h]	671	1353	886
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	671	1253	869
X, volume / capacity	0.72	0.66	0.91

Movement, Approach, & Intersection Results

Lane LOS	C	B	D
95th-Percentile Queue Length [veh]	6.07	5.30	13.04
95th-Percentile Queue Length [ft]	151.82	132.58	326.10
Approach Delay [s/veh]	21.41	11.57	34.46
Approach LOS	C	B	D
Intersection Delay [s/veh]	22.45		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	28.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	395	211	255	3	6	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	395	211	255	3	6	232
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	56	68	1	2	62
Total Analysis Volume [veh/h]	420	224	271	3	6	247
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.00	0.00	0.00	0.03	0.32
d_M, Delay for Movement [s/veh]	9.16	0.00	0.00	0.00	28.32	12.48
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.44	0.00	0.00	0.00	1.62	1.62
95th-Percentile Queue Length [ft/ln]	36.00	0.00	0.00	0.00	40.42	40.42
d_A, Approach Delay [s/veh]	5.98		0.00		12.86	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.07					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2650	2070	16	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2650	2070	16	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	712	556	4	0	1
Total Analysis Volume [veh/h]	17	2849	2226	17	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	21.61	0.00	0.00	0.00	83.03	23.99
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.23	0.00	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	5.83	0.00	0.00	0.00	1.58	1.58
d_A, Approach Delay [s/veh]	0.13		0.00		23.99	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	79.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	332	498	2	261	588
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	498	2	261	588
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	69	156
Total Analysis Volume [veh/h]	4	353	530	2	278	626
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.28	0.01
d_M, Delay for Movement [s/veh]	79.91	28.22	0.00	0.00	9.94	0.00
Movement LOS	F	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	5.79	5.79	0.00	0.00	1.13	0.00
95th-Percentile Queue Length [ft/ln]	144.79	144.79	0.00	0.00	28.30	0.00
d_A, Approach Delay [s/veh]	28.80		0.00		3.06	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.28					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	219	363	274	121	124	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	219	363	274	121	124	116
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	91	69	30	31	31
Total Analysis Volume [veh/h]	233	363	274	121	124	123
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	138		240		293	
Exiting Flow Rate [veh/h]	419		519		367	
Demand Flow Rate [veh/h]	219	363	274	121	124	116
Adjusted Demand Flow Rate [veh/h]	233	363	274	121	124	123

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	622	421	263
Capacity of Entry and Bypass Lanes [veh/h]	1200	1081	1024
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1151	1016	962
X, volume / capacity	0.52	0.39	0.26

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.09	1.86	1.03
95th-Percentile Queue Length [ft]	77.18	46.62	25.64
Approach Delay [s/veh]	9.03	7.73	6.32
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.07		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	127.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	389	80	102	375	29	29	290	156	128	612	202
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	389	80	102	375	29	29	290	156	128	612	202
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	111	23	29	107	8	8	82	44	36	174	57
Total Analysis Volume [veh/h]	141	442	91	116	426	33	33	330	177	145	695	230
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	486			1003			690			626		
Exiting Flow Rate [veh/h]	754			712			889			546		
Demand Flow Rate [veh/h]	124	389	80	102	375	29	29	290	156	128	612	202
Adjusted Demand Flow Rate [veh/h]	141	442	91	116	426	33	33	330	177	145	695	230

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	687	575	551	1090
Capacity of Entry and Bypass Lanes [veh/h]	841	496	683	729
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	826	496	671	716
X, volume / capacity	0.82	1.16	0.81	1.49

Movement, Approach, & Intersection Results

Lane LOS	C	F	D	F
95th-Percentile Queue Length [veh]	9.04	20.44	8.26	51.98
95th-Percentile Queue Length [ft]	225.95	510.99	206.39	1299.47
Approach Delay [s/veh]	24.67	119.41	27.81	246.86
Approach LOS	C	F	D	F
Intersection Delay [s/veh]	127.47			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	188	0	197	0	315	193	528	806	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	97	0	0	25	0	0	0
Total Hourly Volume [veh/h]	0	0	0	188	0	100	0	315	168	528	806	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	51	0	27	0	85	45	142	217	0
Total Analysis Volume [veh/h]	0	0	0	202	0	108	0	339	181	568	867	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		43	43	43	43	43	43
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		6	6	10	10	26	26
g / C, Green / Cycle		0.15	0.15	0.24	0.24	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.11	0.06	0.18	0.11	0.45	0.52
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1274	1673
c, Capacity [veh/h]		282	250	457	389	894	1033
d1, Uniform Delay [s]		17.42	16.62	15.00	13.86	6.10	6.53
k, delay calibration		0.04	0.04	0.11	0.11	0.35	0.12
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.27	0.44	2.39	0.87	2.40	2.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.72	0.43	0.74	0.47	0.64	0.84
d, Delay for Lane Group [s/veh]		18.68	17.06	17.39	14.73	8.51	8.70
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.74	0.87	2.75	1.30	1.85	3.24
50th-Percentile Queue Length [ft/ln]		43.52	21.70	68.68	32.48	46.18	80.90
95th-Percentile Queue Length [veh/ln]		3.13	1.56	4.95	2.34	3.33	5.82
95th-Percentile Queue Length [ft/ln]		78.34	39.06	123.63	58.47	83.13	145.62

Movement, Approach, & Intersection Results

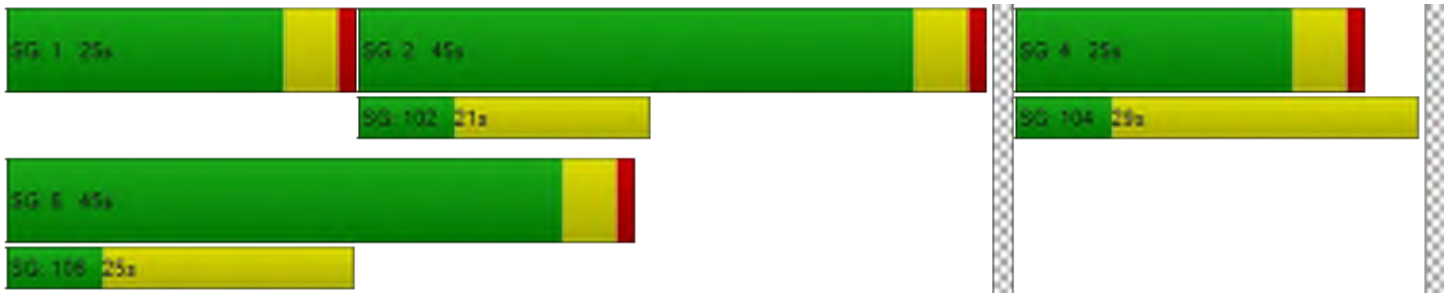
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	18.68	18.68	17.06	0.00	17.39	14.73	8.51	8.70	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			18.12			16.47			8.62		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	11.72											
Intersection LOS	B											
Intersection V/C	0.625											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	11.87	11.87	11.87	11.87
l_p,int, Pedestrian LOS Score for Intersection	2.370	2.167	2.545	2.646
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	932	1864	1864
d_b, Bicycle Delay [s]	21.46	6.12	0.10	0.10
l_b,int, Bicycle LOS Score for Intersection	4.132	2.782	2.305	3.773
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	256	1	421	0	0	0	65	438	0	0	1078	372
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	198	0	0	0	0	0	0	0	0	182
Total Hourly Volume [veh/h]	256	1	223	0	0	0	65	438	0	0	1078	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	0	56	0	0	0	16	110	0	0	270	48
Total Analysis Volume [veh/h]	256	1	223	0	0	0	65	438	0	0	1078	190
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	65	65		65	65	65	65
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		43	43	35	35
g / C, Green / Cycle	0.17	0.17		0.67	0.67	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.14	0.13		0.11	0.27	0.57	0.12
s, saturation flow rate [veh/h]	1852	1681		589	1643	1884	1543
c, Capacity [veh/h]	323	293		340	1104	1017	833
d1, Uniform Delay [s]	25.65	25.50		14.01	4.77	14.91	7.80
k, delay calibration	0.04	0.04		0.04	0.04	0.48	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.69	1.59		0.10	0.09	44.87	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.77		0.19	0.40	1.06	0.23
d, Delay for Lane Group [s/veh]	27.34	27.09		14.11	4.85	59.78	7.85
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.71	3.22		0.20	1.68	24.04	1.12
50th-Percentile Queue Length [ft/ln]	92.71	80.59		4.94	42.12	600.88	28.03
95th-Percentile Queue Length [veh/ln]	6.68	5.80		0.36	3.03	33.57	2.02
95th-Percentile Queue Length [ft/ln]	166.88	145.06		8.89	75.82	839.23	50.46

Movement, Approach, & Intersection Results

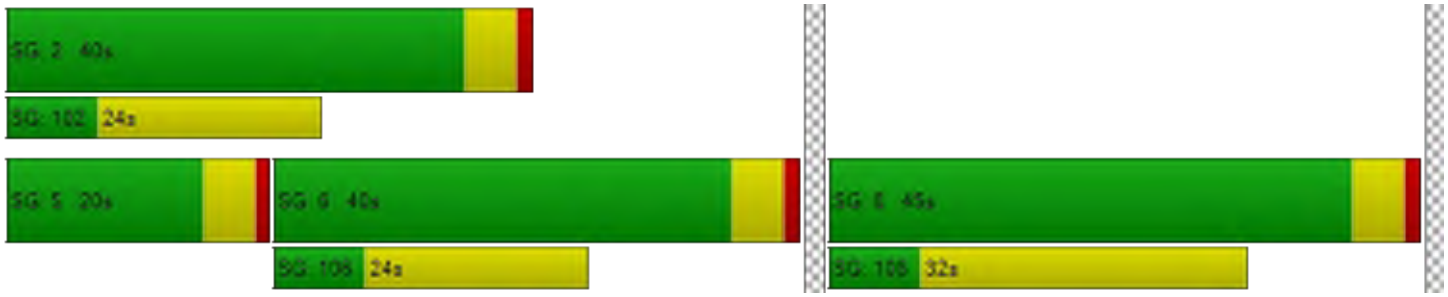
d_M, Delay for Movement [s/veh]	27.34	27.09	27.09	0.00	0.00	0.00	14.11	4.85	0.00	0.00	59.78	7.85
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	27.22			0.00			6.05			52.00		
Approach LOS	C			A			A			D		
d_I, Intersection Delay [s/veh]	36.45											
Intersection LOS	D											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.28	22.28	22.28	22.28
l_p,int, Pedestrian LOS Score for Intersection	2.424	1.885	2.618	3.056
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1237	0	1082	1082
d_b, Bicycle Delay [s]	4.71	32.34	6.81	6.82
l_b,int, Bicycle LOS Score for Intersection	3.214	4.132	2.236	3.798
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.075

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	115	1	21	19	3	160	63	706	90	16	1174	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	1	21	19	3	160	63	706	90	16	1174	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	6	6	1	48	19	210	27	5	349	4
Total Analysis Volume [veh/h]	137	1	25	23	4	190	75	840	107	19	1398	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.08	1.58	0.21	1.10	0.15	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	904.44	848.68	151.92	13.72	0.00	0.00	10.04	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	23.03	23.03	23.03	4.01	4.01	9.58	0.54	0.00	0.00	0.08	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.73	575.73	575.73	100.36	100.36	239.40	13.50	0.00	0.00	1.99	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			244.52			1.01			0.13		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	593.68											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	33.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	495	48	613	182	18	636
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	495	48	613	182	18	636
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	13	172	51	5	179
Total Analysis Volume [veh/h]	556	54	689	204	20	715
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	737		20		556	
Exiting Flow Rate [veh/h]	248		1285		791	
Demand Flow Rate [veh/h]	495	48	613	182	18	636
Adjusted Demand Flow Rate [veh/h]	556	54	689	204	20	715

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	610	966	750
Capacity of Entry and Bypass Lanes [veh/h]	651	1353	783
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	651	1251	768
X, volume / capacity	0.94	0.71	0.96

Movement, Approach, & Intersection Results

Lane LOS	E	B	E
95th-Percentile Queue Length [veh]	12.80	6.53	14.68
95th-Percentile Queue Length [ft]	319.99	163.34	367.02
Approach Delay [s/veh]	46.50	13.27	45.84
Approach LOS	E	B	E
Intersection Delay [s/veh]	33.02		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	28.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	394	209	266	3	7	234
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	394	209	266	3	7	234
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	56	71	1	2	62
Total Analysis Volume [veh/h]	419	222	283	3	7	249
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.00	0.00	0.00	0.04	0.33
d_M, Delay for Movement [s/veh]	9.22	0.00	0.00	0.00	28.61	12.80
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.46	0.00	0.00	0.00	1.71	1.71
95th-Percentile Queue Length [ft/ln]	36.41	0.00	0.00	0.00	42.72	42.72
d_A, Approach Delay [s/veh]	6.03		0.00		13.23	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.13					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2637	2090	17	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2637	2090	17	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	709	562	5	0	1
Total Analysis Volume [veh/h]	17	2835	2247	18	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	21.97	0.00	0.00	0.00	84.45	24.32
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.24	0.00	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	5.96	0.00	0.00	0.00	1.61	1.61
d_A, Approach Delay [s/veh]	0.13		0.00		24.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	75.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	332	498	2	237	610
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	498	2	237	610
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	63	162
Total Analysis Volume [veh/h]	4	353	530	2	252	649
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.25	0.01
d_M, Delay for Movement [s/veh]	75.10	27.80	0.00	0.00	9.77	0.00
Movement LOS	F	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	5.71	5.71	0.00	0.00	0.99	0.00
95th-Percentile Queue Length [ft/ln]	142.70	142.70	0.00	0.00	24.81	0.00
d_A, Approach Delay [s/veh]	28.33		0.00		2.73	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.03					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	226	386	269	99	122	129
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	386	269	99	122	129
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	97	67	25	31	34
Total Analysis Volume [veh/h]	240	386	269	99	122	137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	135		247		288	
Exiting Flow Rate [veh/h]	428		541		351	
Demand Flow Rate [veh/h]	226	386	269	99	122	129
Adjusted Demand Flow Rate [veh/h]	240	386	269	99	122	137

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	653	392	276
Capacity of Entry and Bypass Lanes [veh/h]	1202	1073	1029
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1153	1008	969
X, volume / capacity	0.54	0.37	0.27

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.39	1.69	1.08
95th-Percentile Queue Length [ft]	84.74	42.27	27.03
Approach Delay [s/veh]	9.48	7.44	6.40
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.25		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	134.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	124	390	79	107	392	31	30	296	157	126	616	204
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	390	79	107	392	31	30	296	157	126	616	204
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	111	22	30	111	9	9	84	45	36	175	58
Total Analysis Volume [veh/h]	141	443	90	122	445	35	34	336	178	143	700	232
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	499			1007			713			628		
Exiting Flow Rate [veh/h]	772			716			896			557		
Demand Flow Rate [veh/h]	124	390	79	107	392	31	30	296	157	126	616	204
Adjusted Demand Flow Rate [veh/h]	141	443	90	122	445	35	34	336	178	143	700	232

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	687	602	559	1095
Capacity of Entry and Bypass Lanes [veh/h]	830	495	667	728
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	815	495	655	715
X, volume / capacity	0.83	1.22	0.84	1.50

Movement, Approach, & Intersection Results

Lane LOS	D	F	D	F
95th-Percentile Queue Length [veh]	9.38	23.19	9.14	52.71
95th-Percentile Queue Length [ft]	234.54	579.81	228.55	1317.85
Approach Delay [s/veh]	25.89	141.24	31.46	251.26
Approach LOS	D	F	D	F
Intersection Delay [s/veh]	134.47			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	198	0	192	0	331	185	533	817	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	94	0	0	24	0	0	0
Total Hourly Volume [veh/h]	0	0	0	198	0	98	0	331	161	533	817	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	53	0	26	0	89	43	143	220	0
Total Analysis Volume [veh/h]	0	0	0	213	0	105	0	356	173	573	878	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		44	44	44	44	44	44
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		7	7	11	11	28	28
g / C, Green / Cycle		0.15	0.15	0.25	0.25	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.11	0.06	0.19	0.11	0.45	0.52
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1265	1673
c, Capacity [veh/h]		292	258	470	400	878	1038
d1, Uniform Delay [s]		17.91	16.95	15.39	13.98	6.37	6.75
k, delay calibration		0.04	0.04	0.11	0.11	0.39	0.14
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.32	0.38	2.52	0.74	2.92	2.60
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.73	0.41	0.76	0.43	0.65	0.85
d, Delay for Lane Group [s/veh]		19.24	17.33	17.91	14.72	9.29	9.35
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.92	0.87	3.02	1.27	2.08	3.66
50th-Percentile Queue Length [ft/ln]		47.91	21.79	75.47	31.74	52.09	91.38
95th-Percentile Queue Length [veh/ln]		3.45	1.57	5.43	2.29	3.75	6.58
95th-Percentile Queue Length [ft/ln]		86.24	39.22	135.85	57.13	93.76	164.49

Movement, Approach, & Intersection Results

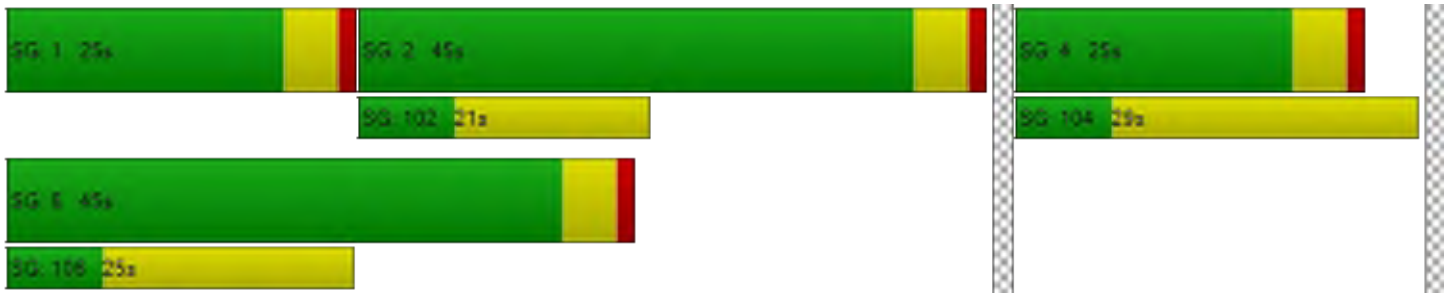
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	19.24	19.24	17.33	0.00	17.91	14.72	9.29	9.35	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			18.61			16.87			9.33		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	12.35											
Intersection LOS	B											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	12.54	12.54	12.54	12.54
l_p,int, Pedestrian LOS Score for Intersection	2.374	2.167	2.551	2.665
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	902	1803	1803
d_b, Bicycle Delay [s]	22.18	6.69	0.21	0.21
l_b,int, Bicycle LOS Score for Intersection	4.132	2.790	2.318	3.800
Bicycle LOS	D	C	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.992

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	233	1	427	0	0	0	64	466	0	0	1118	396
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	201	0	0	0	0	0	0	0	0	194
Total Hourly Volume [veh/h]	233	1	226	0	0	0	64	466	0	0	1118	202
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	0	57	0	0	0	16	117	0	0	280	51
Total Analysis Volume [veh/h]	233	1	226	0	0	0	64	466	0	0	1118	202
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	64	64		64	64	64	64
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	11	11		43	43	35	35
g / C, Green / Cycle	0.17	0.17		0.67	0.67	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.13	0.14		0.11	0.28	0.59	0.13
s, saturation flow rate [veh/h]	1852	1681		571	1643	1884	1543
c, Capacity [veh/h]	317	287		340	1108	1022	837
d1, Uniform Delay [s]	25.36	25.64		13.99	4.79	14.76	7.75
k, delay calibration	0.04	0.04		0.04	0.04	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.26	1.85		0.10	0.09	57.49	0.05
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.79		0.19	0.42	1.09	0.24
d, Delay for Lane Group [s/veh]	26.62	27.49		14.09	4.88	72.25	7.80
Lane Group LOS	C	C		B	A	F	A
Critical Lane Group	No	Yes		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.30	3.29		0.19	1.79	27.60	1.18
50th-Percentile Queue Length [ft/ln]	82.48	82.20		4.74	44.76	690.11	29.60
95th-Percentile Queue Length [veh/ln]	5.94	5.92		0.34	3.22	38.84	2.13
95th-Percentile Queue Length [ft/ln]	148.46	147.95		8.53	80.57	971.01	53.29

Movement, Approach, & Intersection Results

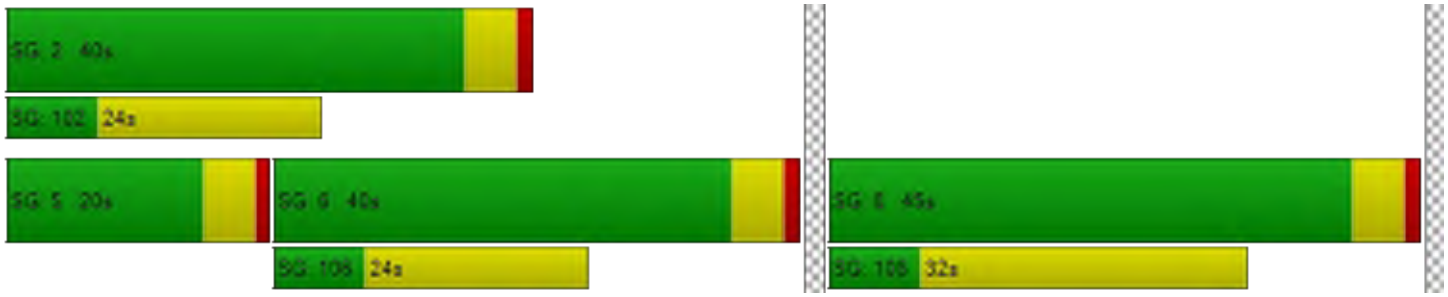
d_M, Delay for Movement [s/veh]	26.62	27.49	27.49	0.00	0.00	0.00	14.09	4.88	0.00	0.00	72.25	7.80
Movement LOS	C	C	C				B	A			F	A
d_A, Approach Delay [s/veh]	27.05			0.00			5.99			62.39		
Approach LOS	C			A			A			E		
d_I, Intersection Delay [s/veh]	42.41											
Intersection LOS	D											
Intersection V/C	0.992											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.14	22.14	22.14	22.14
l_p,int, Pedestrian LOS Score for Intersection	2.422	1.907	2.635	3.110
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1242	0	1087	1087
d_b, Bicycle Delay [s]	4.62	32.20	6.71	6.71
l_b,int, Bicycle LOS Score for Intersection	3.186	4.132	2.280	3.904
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.083

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	114	1	22	20	3	160	62	741	90	16	1239	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	1	22	20	3	160	62	741	90	16	1239	16
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	7	6	1	48	18	221	27	5	369	5
Total Analysis Volume [veh/h]	136	1	26	24	4	190	74	882	107	19	1475	19
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.08	2.07	0.26	1.22	0.16	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	1249.1	1172.0	200.86	14.44	0.00	0.00	10.23	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	23.03	23.03	23.03	4.39	4.39	10.85	0.58	0.00	0.00	0.08	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.73	575.73	575.73	109.73	109.73	271.36	14.39	0.00	0.00	2.07	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			334.09			1.01			0.13		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	576.29											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	59.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	603	54	637	218	18	587
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	603	54	637	218	18	587
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	169	15	179	61	5	165
Total Analysis Volume [veh/h]	678	61	716	245	20	660
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	766		20		678	
Exiting Flow Rate [veh/h]	294		1351		827	
Demand Flow Rate [veh/h]	603	54	637	218	18	587
Adjusted Demand Flow Rate [veh/h]	678	61	716	245	20	660

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.92	0.98
Entry Flow Rate [veh/h]	739	1041	694
Capacity of Entry and Bypass Lanes [veh/h]	632	1353	692
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	632	1250	678
X, volume / capacity	1.17	0.77	1.00

Movement, Approach, & Intersection Results

Lane LOS	F	C	F
95th-Percentile Queue Length [veh]	24.65	8.15	16.10
95th-Percentile Queue Length [ft]	616.36	203.87	402.44
Approach Delay [s/veh]	115.71	15.58	59.95
Approach LOS	F	C	F
Intersection Delay [s/veh]	59.35		
Intersection LOS	F		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	28.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	394	206	277	3	7	236
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	394	206	277	3	7	236
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	55	74	1	2	63
Total Analysis Volume [veh/h]	419	219	295	3	7	251
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.00	0.00	0.00	0.04	0.34
d_M, Delay for Movement [s/veh]	9.29	0.00	0.00	0.00	28.86	13.02
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.48	0.00	0.00	0.00	1.77	1.77
95th-Percentile Queue Length [ft/ln]	36.95	0.00	0.00	0.00	44.13	44.13
d_A, Approach Delay [s/veh]	6.10		0.00		13.45	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.16					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: US 97/SW Quarry Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	US 97		US97		Sw Quarry Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	10.00	10.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00		65.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 97		US97		Sw Quarry Ave	
Base Volume Input [veh/h]	16	2624	2111	17	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	7.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2624	2111	17	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	705	567	5	0	1
Total Analysis Volume [veh/h]	17	2822	2270	18	0	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	22.35	0.00	0.00	0.00	86.08	24.68
Movement LOS	C	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.24	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	6.09	0.00	0.00	0.00	1.64	1.64
d_A, Approach Delay [s/veh]	0.13		0.00		24.68	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	89.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.057

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	3	332	498	3	309	545
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	332	498	3	309	545
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	88	132	1	82	145
Total Analysis Volume [veh/h]	3	353	530	3	329	580
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.33	0.01
d_M, Delay for Movement [s/veh]	89.23	27.62	0.00	0.00	10.32	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.66	5.66	0.00	0.00	1.44	0.00
95th-Percentile Queue Length [ft/ln]	141.50	141.50	0.00	0.00	35.90	0.00
d_A, Approach Delay [s/veh]	28.14		0.00		3.73	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.46					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	211	324	302	162	124	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	211	324	302	162	124	97
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	81	76	41	31	26
Total Analysis Volume [veh/h]	224	324	302	162	124	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	138		231		323	
Exiting Flow Rate [veh/h]	428		478		401	
Demand Flow Rate [veh/h]	211	324	302	162	124	97
Adjusted Demand Flow Rate [veh/h]	224	324	302	162	124	103

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	572	494	243
Capacity of Entry and Bypass Lanes [veh/h]	1200	1091	993
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1151	1027	929
X, volume / capacity	0.48	0.45	0.24

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.63	2.39	0.96
95th-Percentile Queue Length [ft]	65.87	59.87	24.00
Approach Delay [s/veh]	8.32	8.63	6.35
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.08		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	136.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	126	376	79	97	336	30	29	293	147	125	657	206
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	376	79	97	336	30	29	293	147	125	657	206
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	107	22	28	95	9	8	83	42	36	187	59
Total Analysis Volume [veh/h]	143	427	90	110	382	34	33	333	167	142	747	234
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	483			1056			637			613		
Exiting Flow Rate [veh/h]	697			701			945			542		
Demand Flow Rate [veh/h]	126	376	79	97	336	30	29	293	147	125	657	206
Adjusted Demand Flow Rate [veh/h]	143	427	90	110	382	34	33	333	167	142	747	234

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	673	526	543	1144
Capacity of Entry and Bypass Lanes [veh/h]	844	471	721	739
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	828	471	708	726
X, volume / capacity	0.80	1.12	0.75	1.55

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.42	17.96	6.95	57.07
95th-Percentile Queue Length [ft]	210.57	448.90	173.75	1426.70
Approach Delay [s/veh]	23.07	106.91	22.68	269.83
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	136.02			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	159	0	194	0	336	171	402	856	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	95	0	0	22	0	0	0
Total Hourly Volume [veh/h]	0	0	0	159	0	99	0	336	149	402	856	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	43	0	27	0	90	40	108	230	0
Total Analysis Volume [veh/h]	0	0	0	171	0	106	0	361	160	432	920	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		39	39	39	39	39	39
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		5	5	11	11	24	24
g / C, Green / Cycle		0.14	0.14	0.29	0.29	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate		0.09	0.06	0.19	0.10	0.36	0.55
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1205	1673
c, Capacity [veh/h]		255	226	535	455	864	1020
d1, Uniform Delay [s]		16.14	15.67	12.39	11.12	5.20	6.63
k, delay calibration		0.04	0.04	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.15	0.57	1.49	0.46	0.60	3.29
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.67	0.47	0.67	0.35	0.50	0.90
d, Delay for Lane Group [s/veh]		17.29	16.23	13.88	11.58	5.79	9.93
Lane Group LOS		B	B	B	B	A	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.31	0.77	2.31	0.89	0.80	3.26
50th-Percentile Queue Length [ft/ln]		32.70	19.34	57.65	22.18	20.12	81.38
95th-Percentile Queue Length [veh/ln]		2.35	1.39	4.15	1.60	1.45	5.86
95th-Percentile Queue Length [ft/ln]		58.86	34.82	103.78	39.93	36.21	146.49

Movement, Approach, & Intersection Results

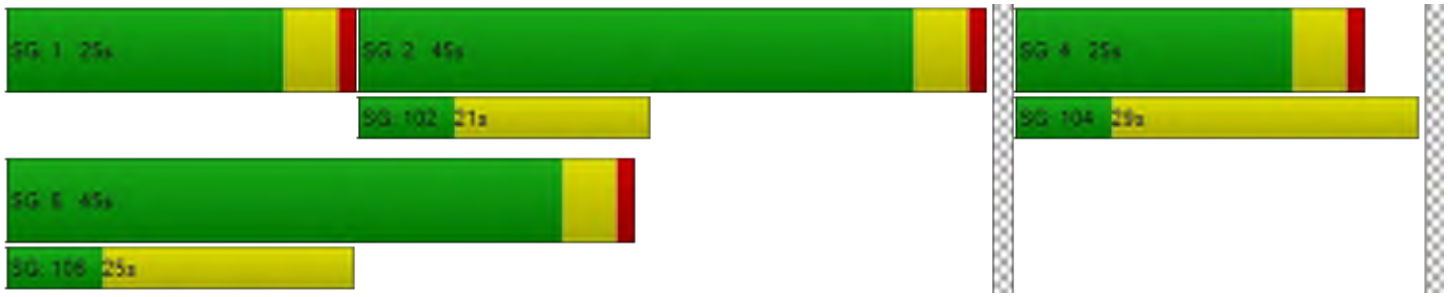
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	17.29	17.29	16.23	0.00	13.88	11.58	5.79	9.93	0.00
Movement LOS				B	B	B		B	B	A	A	
d_A, Approach Delay [s/veh]	0.00			16.88			13.18			8.61		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	10.78											
Intersection LOS	B											
Intersection V/C	0.641											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	10.12	10.12	10.12	10.12
l_p,int, Pedestrian LOS Score for Intersection	2.179	2.146	2.553	2.605
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1022	2043	2043
d_b, Bicycle Delay [s]	19.58	4.69	0.01	0.01
l_b,int, Bicycle LOS Score for Intersection	4.132	2.724	2.302	3.636
Bicycle LOS	D	B	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.910

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	335	1	405	0	0	0	91	404	0	0	923	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	190	0	0	0	0	0	0	0	0	172
Total Hourly Volume [veh/h]	335	1	215	0	0	0	91	404	0	0	923	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	0	54	0	0	0	23	101	0	0	231	45
Total Analysis Volume [veh/h]	335	1	215	0	0	0	91	404	0	0	923	180
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	68	68		68	68	68	68
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	15	15		44	44	35	35
g / C, Green / Cycle	0.21	0.21		0.64	0.64	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.18	0.13		0.14	0.25	0.49	0.12
s, saturation flow rate [veh/h]	1852	1681		662	1643	1884	1543
c, Capacity [veh/h]	395	358		353	1053	956	783
d1, Uniform Delay [s]	25.88	24.32		13.90	5.85	16.29	9.38
k, delay calibration	0.04	0.04		0.04	0.04	0.39	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	0.61		0.14	0.09	18.78	0.06
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.60		0.26	0.38	0.97	0.23
d, Delay for Lane Group [s/veh]	27.87	24.93		14.04	5.94	35.07	9.43
Lane Group LOS	C	C		B	A	D	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.15	3.05		0.37	2.01	16.28	1.28
50th-Percentile Queue Length [ft/ln]	128.71	76.21		9.27	50.25	407.02	32.00
95th-Percentile Queue Length [veh/ln]	8.87	5.49		0.67	3.62	22.90	2.30
95th-Percentile Queue Length [ft/ln]	221.74	137.18		16.69	90.46	572.45	57.61

Movement, Approach, & Intersection Results

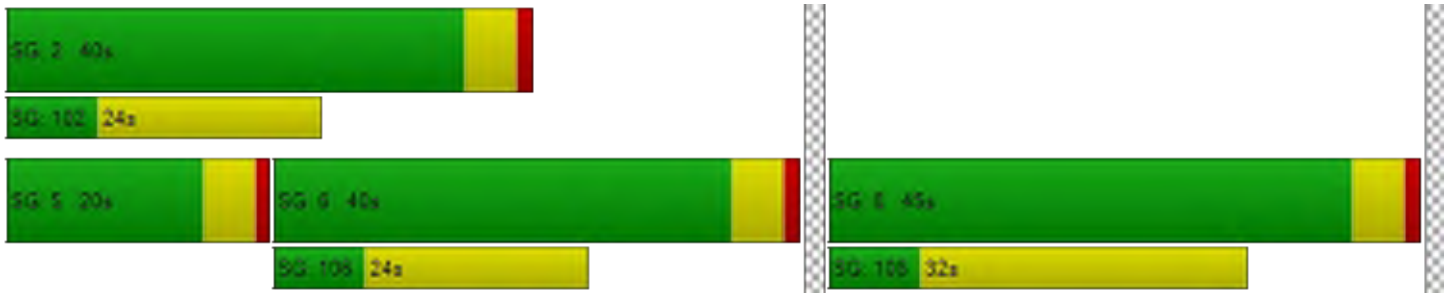
d_M, Delay for Movement [s/veh]	27.87	24.93	24.93	0.00	0.00	0.00	14.04	5.94	0.00	0.00	35.07	9.43
Movement LOS	C	C	C				B	A			D	A
d_A, Approach Delay [s/veh]	26.72			0.00			7.43			30.89		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	24.42											
Intersection LOS	C											
Intersection V/C	0.910											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.04	24.04	24.04	24.04
l_p,int, Pedestrian LOS Score for Intersection	2.436	1.911	2.590	2.960
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1171	0	1025	1025
d_b, Bicycle Delay [s]	5.87	34.16	8.12	8.13
l_b,int, Bicycle LOS Score for Intersection	3.318	4.132	2.222	3.509
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	40.029

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	115	1	21	19	3	159	64	653	92	15	1002	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	1	21	19	3	159	64	653	92	15	1002	14
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	6	6	1	47	19	194	27	4	298	4
Total Analysis Volume [veh/h]	137	1	25	23	4	189	76	777	110	18	1193	17
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	40.03	0.03	0.07	0.96	0.14	0.83	0.13	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	447.16	419.63	67.94	12.09	0.00	0.00	9.78	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.57	22.57	22.57	3.34	3.34	6.32	0.45	0.00	0.00	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	564.37	564.37	564.37	83.39	83.39	157.88	11.15	0.00	0.00	1.79	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			114.84			0.95			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	644.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	17.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	263	67	547	151	51	709
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	263	67	547	151	51	709
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	19	154	42	14	199
Total Analysis Volume [veh/h]	296	75	615	170	57	797
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	658		57		296	
Exiting Flow Rate [veh/h]	247		1109		733	
Demand Flow Rate [veh/h]	263	67	547	151	51	709
Adjusted Demand Flow Rate [veh/h]	296	75	615	170	57	797

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.93	0.98
Entry Flow Rate [veh/h]	371	849	870
Capacity of Entry and Bypass Lanes [veh/h]	706	1303	1021
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	706	1206	1002
X, volume / capacity	0.53	0.65	0.85

Movement, Approach, & Intersection Results

Lane LOS	B	B	C
95th-Percentile Queue Length [veh]	3.10	5.11	10.90
95th-Percentile Queue Length [ft]	77.49	127.71	272.62
Approach Delay [s/veh]	13.26	11.64	24.47
Approach LOS	B	B	C
Intersection Delay [s/veh]	17.39		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	27.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	395	202	223	2	6	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	395	202	223	2	6	232
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	54	59	1	2	62
Total Analysis Volume [veh/h]	420	215	237	2	6	247
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.00	0.00	0.00	0.03	0.31
d_M, Delay for Movement [s/veh]	8.99	0.00	0.00	0.00	27.39	11.99
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.38	0.00	0.00	0.00	1.52	1.52
95th-Percentile Queue Length [ft/ln]	34.50	0.00	0.00	0.00	37.96	37.96
d_A, Approach Delay [s/veh]	5.94		0.00		12.36	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.12					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	10.00	12.00	10.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	16	2650	0	7	0	9	0	2	5	64	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	2.00	2.00	7.00	0.00	0.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2650	0	7	0	9	0	2	5	64	53	0
Peak Hour Factor	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	712	0	2	0	2	0	1	1	17	14	0
Total Analysis Volume [veh/h]	17	2849	0	8	0	10	0	2	5	69	57	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance		No		
Number of Storage Spaces in Median	0	0	1	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	10.05	10.58	8.64	0.00	0.00	0.00	7.31	0.00	0.00
Movement LOS				B	B	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.06	0.06	0.06	0.00	0.00	0.00	0.12	0.12	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.60	1.60	1.60	0.00	0.00	0.00	2.99	2.99	0.00
d_A, Approach Delay [s/veh]	0.00			9.26			0.00			4.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.45											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	21	0	18	0	0	0	0	9	0	0	96	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	18	0	0	0	0	9	0	0	96	21
Peak Hour Factor	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	5	0	0	0	0	2	0	0	24	6
Total Analysis Volume [veh/h]	21	0	19	0	0	0	0	10	0	0	96	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.36	9.89	8.53	0.00	0.00	0.00	7.45	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A				A	A			A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.30	3.30	3.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.96			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.12											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	88.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	3	333	498	3	306	548
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	333	498	3	306	548
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	89	132	1	81	146
Total Analysis Volume [veh/h]	3	354	530	3	326	583
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.66	0.01	0.00	0.32	0.01
d_M, Delay for Movement [s/veh]	88.70	27.70	0.00	0.00	10.29	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.69	5.69	0.00	0.00	1.42	0.00
95th-Percentile Queue Length [ft/ln]	142.16	142.16	0.00	0.00	35.42	0.00
d_A, Approach Delay [s/veh]	28.21		0.00		3.69	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.46					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	214	328	297	160	124	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	328	297	160	124	97
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	82	74	40	31	26
Total Analysis Volume [veh/h]	228	328	297	160	124	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	138		235		318	
Exiting Flow Rate [veh/h]	423		482		403	
Demand Flow Rate [veh/h]	214	328	297	160	124	97
Adjusted Demand Flow Rate [veh/h]	228	328	297	160	124	103

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	580	486	243
Capacity of Entry and Bypass Lanes [veh/h]	1200	1087	998
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1151	1022	934
X, volume / capacity	0.48	0.45	0.24

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.71	2.35	0.95
95th-Percentile Queue Length [ft]	67.64	58.73	23.83
Approach Delay [s/veh]	8.43	8.58	6.30
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.10		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	145.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	128	377	73	102	344	35	32	298	146	115	675	209
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	377	73	102	344	35	32	298	146	115	675	209
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	107	21	29	98	10	9	85	41	33	192	59
Total Analysis Volume [veh/h]	145	428	83	116	391	40	36	339	166	131	767	238
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	498			1067			641			619		
Exiting Flow Rate [veh/h]	694			709			973			547		
Demand Flow Rate [veh/h]	128	377	73	102	344	35	32	298	146	115	675	209
Adjusted Demand Flow Rate [veh/h]	145	428	83	116	391	40	36	339	166	131	767	238

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	669	547	552	1157
Capacity of Entry and Bypass Lanes [veh/h]	831	465	718	734
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	816	465	705	722
X, volume / capacity	0.80	1.18	0.77	1.58

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.63	20.35	7.30	59.08
95th-Percentile Queue Length [ft]	215.70	508.70	182.57	1477.11
Approach Delay [s/veh]	23.93	127.87	23.72	282.02
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	145.43			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	11.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	168	0	186	0	356	154	383	878	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	91	0	0	20	0	0	0
Total Hourly Volume [veh/h]	0	0	0	168	0	95	0	356	134	383	878	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	45	0	26	0	96	36	103	236	0
Total Analysis Volume [veh/h]	0	0	0	181	0	102	0	383	144	412	944	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		41	41	41	41	41	41
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		6	6	13	13	26	26
g / C, Green / Cycle		0.14	0.14	0.32	0.32	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate		0.10	0.06	0.20	0.09	0.35	0.56
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1170	1673
c, Capacity [veh/h]		262	232	595	505	836	1037
d1, Uniform Delay [s]		17.00	16.37	12.12	10.60	5.23	6.88
k, delay calibration		0.04	0.04	0.11	0.11	0.16	0.14
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.22	0.49	1.17	0.31	0.68	4.51
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.69	0.44	0.64	0.28	0.49	0.91
d, Delay for Lane Group [s/veh]		18.23	16.86	13.30	10.90	5.92	11.39
Lane Group LOS		B	B	B	B	A	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.49	0.79	2.47	0.79	0.85	4.03
50th-Percentile Queue Length [ft/ln]		37.33	19.83	61.81	19.80	21.23	100.85
95th-Percentile Queue Length [veh/ln]		2.69	1.43	4.45	1.43	1.53	7.26
95th-Percentile Queue Length [ft/ln]		67.19	35.69	111.26	35.64	38.21	181.54

Movement, Approach, & Intersection Results

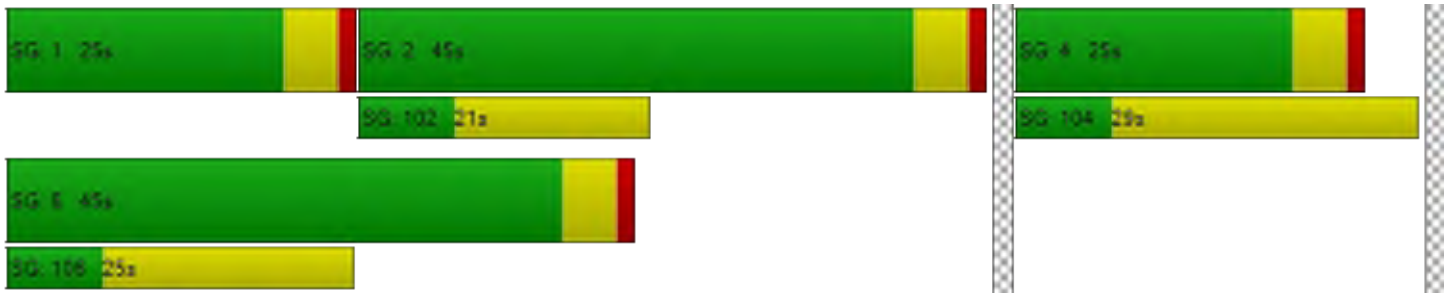
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	18.23	18.23	16.86	0.00	13.30	10.90	5.92	11.39	0.00
Movement LOS				B	B	B		B	B	A	B	
d_A, Approach Delay [s/veh]	0.00			17.73			12.64			9.73		
Approach LOS	A			B			B			A		
d_I, Intersection Delay [s/veh]	11.48											
Intersection LOS	B											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	11.14	11.14	11.14	11.14
l_p,int, Pedestrian LOS Score for Intersection	2.153	2.145	2.561	2.622
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	967	1934	1934
d_b, Bicycle Delay [s]	20.68	5.52	0.02	0.02
l_b,int, Bicycle LOS Score for Intersection	4.132	2.728	2.308	3.643
Bicycle LOS	D	B	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.913

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	311	1	417	0	0	0	92	432	0	0	950	387
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	196	0	0	0	0	0	0	0	0	190
Total Hourly Volume [veh/h]	311	1	221	0	0	0	92	432	0	0	950	197
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	0	55	0	0	0	23	108	0	0	238	49
Total Analysis Volume [veh/h]	311	1	221	0	0	0	92	432	0	0	950	197
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	68	68		68	68	68	68
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	14	14		44	44	35	35
g / C, Green / Cycle	0.20	0.20		0.65	0.65	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.17	0.13		0.14	0.26	0.50	0.13
s, saturation flow rate [veh/h]	1852	1681		646	1643	1884	1543
c, Capacity [veh/h]	374	339		347	1070	971	796
d1, Uniform Delay [s]	25.99	24.92		14.17	5.61	16.07	9.10
k, delay calibration	0.04	0.04		0.04	0.04	0.41	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.87	0.80		0.15	0.09	21.39	0.06
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.65		0.26	0.40	0.98	0.25
d, Delay for Lane Group [s/veh]	27.86	25.72		14.32	5.70	37.46	9.16
Lane Group LOS	C	C		B	A	D	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.74	3.19		0.35	2.05	17.25	1.36
50th-Percentile Queue Length [ft/ln]	118.46	79.64		8.76	51.18	431.26	34.04
95th-Percentile Queue Length [veh/ln]	8.31	5.73		0.63	3.68	24.06	2.45
95th-Percentile Queue Length [ft/ln]	207.71	143.36		15.77	92.12	601.54	61.28

Movement, Approach, & Intersection Results

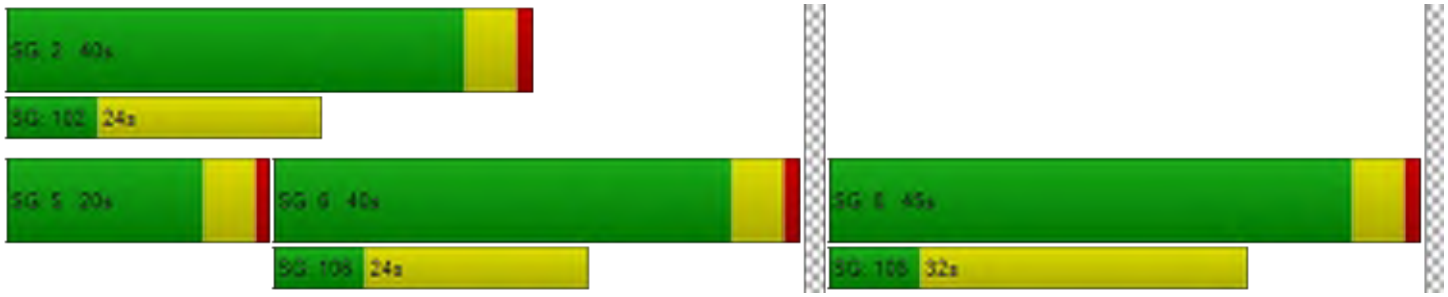
d_M, Delay for Movement [s/veh]	27.86	25.72	25.72	0.00	0.00	0.00	14.32	5.70	0.00	0.00	37.46	9.16
Movement LOS	C	C	C				B	A			D	A
d_A, Approach Delay [s/veh]	26.97			0.00			7.21			32.60		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	25.21											
Intersection LOS	C											
Intersection V/C	0.913											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.77	23.77	23.77	23.77
l_p,int, Pedestrian LOS Score for Intersection	2.440	1.947	2.601	3.024
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1181	0	1033	1033
d_b, Bicycle Delay [s]	5.69	33.88	7.92	7.92
l_b,int, Bicycle LOS Score for Intersection	3.298	4.132	2.270	3.612
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	103.019

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	114	1	22	19	3	159	64	694	92	15	1064	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	1	22	19	3	159	64	694	92	15	1064	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	7	6	1	47	19	207	27	4	317	4
Total Analysis Volume [veh/h]	136	1	26	23	4	189	76	826	110	18	1267	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	103.02	0.03	0.08	1.21	0.17	0.92	0.14	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	627.50	588.35	90.15	12.65	0.00	0.00	9.99	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.85	22.85	22.85	3.68	3.68	7.39	0.48	0.00	0.00	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	571.31	571.31	571.31	91.95	91.95	184.82	12.01	0.00	0.00	1.87	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			156.59			0.95			0.14		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	618.03											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	332	70	555	188	51	699
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	332	70	555	188	51	699
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	93	20	156	53	14	196
Total Analysis Volume [veh/h]	373	79	624	211	57	785
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	668		57		373	
Exiting Flow Rate [veh/h]	293		1174		747	
Demand Flow Rate [veh/h]	332	70	555	188	51	699
Adjusted Demand Flow Rate [veh/h]	373	79	624	211	57	785

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.92	0.98
Entry Flow Rate [veh/h]	452	904	858
Capacity of Entry and Bypass Lanes [veh/h]	699	1303	944
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	699	1204	927
X, volume / capacity	0.65	0.69	0.91

Movement, Approach, & Intersection Results

Lane LOS	C	B	D
95th-Percentile Queue Length [veh]	4.77	6.02	13.28
95th-Percentile Queue Length [ft]	119.14	150.44	331.90
Approach Delay [s/veh]	17.34	12.94	32.82
Approach LOS	C	B	D
Intersection Delay [s/veh]	21.74		
Intersection LOS	C		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	27.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	393	197	217	2	6	236
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	393	197	217	2	6	236
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	52	58	1	2	63
Total Analysis Volume [veh/h]	418	210	231	2	6	251
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.00	0.00	0.00	0.03	0.31
d_M, Delay for Movement [s/veh]	8.95	0.00	0.00	0.00	27.08	11.96
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.36	0.00	0.00	0.00	1.53	1.53
95th-Percentile Queue Length [ft/ln]	34.02	0.00	0.00	0.00	38.31	38.31
d_A, Approach Delay [s/veh]	5.96		0.00		12.31	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.18					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	10.00	12.00	10.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	16	2650	0	7	0	9	0	2	5	88	73	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	2.00	2.00	7.00	0.00	0.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2650	0	7	0	9	0	2	5	88	73	0
Peak Hour Factor	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	712	0	2	0	2	0	1	1	24	20	0
Total Analysis Volume [veh/h]	17	2849	0	8	0	10	0	2	5	95	78	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane				No								
Storage Area [veh]	0			0			2			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			1			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	10.75	11.25	8.75	0.00	0.00	0.00	7.34	0.00	0.00
Movement LOS				B	B	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.07	0.07	0.07	0.00	0.00	0.00	0.17	0.17	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.74	1.74	1.74	0.00	0.00	0.00	4.18	4.18	0.00
d_A, Approach Delay [s/veh]	0.00			9.64			0.00			4.03		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.40											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	27	0	25	0	0	0	0	9	0	0	134	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	0	25	0	0	0	0	9	0	0	134	24
Peak Hour Factor	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	0	7	0	0	0	0	2	0	0	34	6
Total Analysis Volume [veh/h]	27	0	27	0	0	0	0	10	0	0	134	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.69	10.22	8.60	0.00	0.00	0.00	7.54	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	B	A				A	A			A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.66	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.15			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.21											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 1: SE Veterans Way/OR 126

Control Type:	Two-way stop	Delay (sec / veh):	88.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.074

Intersection Setup

Name	SE Veterans Way		OR126		OR126	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	13.00	13.00	15.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	150.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Veterans Way		OR126		OR126	
Base Volume Input [veh/h]	4	333	497	3	302	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	29.00	7.00	5.00	0.00	8.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	333	497	3	302	551
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	89	132	1	80	147
Total Analysis Volume [veh/h]	4	354	529	3	321	586
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.66	0.01	0.00	0.32	0.01
d_M, Delay for Movement [s/veh]	88.80	29.11	0.00	0.00	10.25	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	5.97	5.97	0.00	0.00	1.38	0.00
95th-Percentile Queue Length [ft/ln]	149.37	149.37	0.00	0.00	34.60	0.00
d_A, Approach Delay [s/veh]	29.78		0.00		3.63	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.76					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: SE Airport Way/SE Veterans Way

Control Type:	Roundabout	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	SE Airport Way				SE Veterans Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		30.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SE Airport Way				SE Veterans Way	
Base Volume Input [veh/h]	216	331	291	157	125	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	7.00	5.00	11.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	216	331	291	157	125	97
Peak Hour Factor	0.9400	1.0000	1.0000	1.0000	1.0000	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	83	73	39	31	26
Total Analysis Volume [veh/h]	230	331	291	157	125	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	139		237		311	
Exiting Flow Rate [veh/h]	416		486		402	
Demand Flow Rate [veh/h]	216	331	291	157	125	97
Adjusted Demand Flow Rate [veh/h]	230	331	291	157	125	103

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.94	0.94
Entry Flow Rate [veh/h]	585	477	244
Capacity of Entry and Bypass Lanes [veh/h]	1198	1084	1005
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1150	1020	940
X, volume / capacity	0.49	0.44	0.24

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	2.76	2.28	0.95
95th-Percentile Queue Length [ft]	68.90	56.96	23.77
Approach Delay [s/veh]	8.52	8.46	6.27
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.08		
Intersection LOS	A		

Intersection Level Of Service Report
Intersection 3: SW Canal Blvd/SW 27th St/SW Yew Ave

Control Type:	Roundabout	Delay (sec / veh):	154.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW Canal Blvd			SW Canal Blvd			SW 27th St			SW Yew Ave		
Base Volume Input [veh/h]	130	377	67	106	352	39	36	303	146	104	693	212
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	377	67	106	352	39	36	303	146	104	693	212
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	107	19	30	100	11	10	86	41	30	197	60
Total Analysis Volume [veh/h]	148	428	76	120	400	44	41	344	166	118	788	241
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	512			1078			640			627		
Exiting Flow Rate [veh/h]	690			717			1002			549		
Demand Flow Rate [veh/h]	130	377	67	106	352	39	36	303	146	104	693	212
Adjusted Demand Flow Rate [veh/h]	148	428	76	120	400	44	41	344	166	118	788	241

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	0.98	0.98
Entry Flow Rate [veh/h]	665	564	562	1168
Capacity of Entry and Bypass Lanes [veh/h]	819	460	719	728
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	804	460	706	716
X, volume / capacity	0.81	1.23	0.78	1.60

Movement, Approach, & Intersection Results

Lane LOS	C	F	C	F
95th-Percentile Queue Length [veh]	8.81	22.47	7.67	61.04
95th-Percentile Queue Length [ft]	220.31	561.74	191.78	1525.97
Approach Delay [s/veh]	24.73	147.30	24.75	294.63
Approach LOS	C	F	C	F
Intersection Delay [s/veh]	154.69			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 4: US 97 SB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	12.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

Intersection Setup

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	16.00	16.00	14.00	12.00	12.00	11.00	14.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	80.00	230.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			-3.00			-5.00			5.00		
Curb Present				Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 SB Ramps			US 97 SB Ramps			SW Yew Ave			SW Yew Ave		
Base Volume Input [veh/h]	0	0	0	178	0	178	0	376	136	364	900	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	5.00	0.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	87	0	0	18	0	0	0
Total Hourly Volume [veh/h]	0	0	0	178	0	91	0	376	118	364	900	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	48	0	24	0	101	32	98	242	0
Total Analysis Volume [veh/h]	0	0	0	191	0	98	0	404	127	391	968	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	0	0	0	4	4	4	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	5	5	5	0	10	0	5	10	0
Maximum Green [s]	0	0	0	20	20	20	0	40	0	20	40	0
Amber [s]	0.0	0.0	0.0	4.0	4.0	4.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	0.0	1.5	1.5	1.5	0.0	3.0	0.0	2.0	3.0	0.0
Walk [s]	0	0	0	7	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	22	22	22	0	14	0	0	18	0
Delayed Vehicle Green [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
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall					No			Yes		No	Yes	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
C, Cycle Length [s]		44	44	44	44	44	44
L, Total Lost Time per Cycle [s]		5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		3.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]		6	6	15	15	28	28
g / C, Green / Cycle		0.14	0.14	0.35	0.35	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate		0.10	0.06	0.22	0.08	0.34	0.58
s, saturation flow rate [veh/h]		1881	1666	1869	1589	1137	1673
c, Capacity [veh/h]		268	238	653	555	810	1053
d1, Uniform Delay [s]		17.96	17.14	11.85	10.10	5.26	7.15
k, delay calibration		0.04	0.04	0.11	0.11	0.18	0.18
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.31	0.42	0.96	0.21	0.76	5.96
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.71	0.41	0.62	0.23	0.48	0.92
d, Delay for Lane Group [s/veh]		19.27	17.57	12.81	10.30	6.02	13.11
Lane Group LOS		B	B	B	B	A	B
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]		1.70	0.81	2.65	0.70	0.89	4.96
50th-Percentile Queue Length [ft/ln]		42.55	20.35	66.32	17.40	22.13	123.98
95th-Percentile Queue Length [veh/ln]		3.06	1.47	4.77	1.25	1.59	8.61
95th-Percentile Queue Length [ft/ln]		76.60	36.63	119.37	31.31	39.84	215.28

Movement, Approach, & Intersection Results

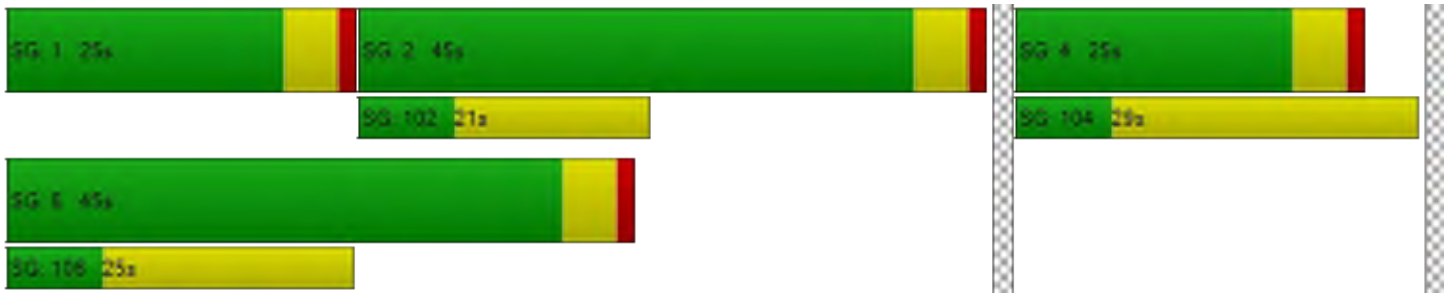
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	19.27	19.27	17.57	0.00	12.81	10.30	6.02	13.11	0.00
Movement LOS				B	B	B		B	B	A	B	
d_A, Approach Delay [s/veh]	0.00			18.69			12.21			11.07		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	12.36											
Intersection LOS	B											
Intersection V/C	0.680											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	12.28	12.28	12.28	12.28
l_p,int, Pedestrian LOS Score for Intersection	2.123	2.144	2.569	2.639
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	913	1827	1827
d_b, Bicycle Delay [s]	21.90	6.46	0.16	0.16
l_b,int, Bicycle LOS Score for Intersection	4.132	2.731	2.311	3.648
Bicycle LOS	D	B	B	D

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: US 97 NB Ramps/SW Yew Ave

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.919

Intersection Setup

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	14.00	14.00	14.00	12.00	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	100.00	100.00	100.00	230.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	-2.00			0.00			5.00			-5.00		
Curb Present	Yes						Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps			US 97 NB Ramps			SW Yew Ave			SW Airport Way		
Base Volume Input [veh/h]	286	1	429	0	0	0	94	460	0	0	977	422
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	7.00	2.00	2.00	2.00	3.00	4.00	2.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	202	0	0	0	0	0	0	0	0	207
Total Hourly Volume [veh/h]	286	1	227	0	0	0	94	460	0	0	977	215
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	0	57	0	0	0	24	115	0	0	244	54
Total Analysis Volume [veh/h]	286	1	227	0	0	0	94	460	0	0	977	215
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	40	0	0	0	0	15	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	25	0	0	0	0	0	17	0	0	17	0
Delayed Vehicle Green [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
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No					No	Yes			Yes	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C		L	C	C	R
C, Cycle Length [s]	67	67		67	67	67	67
L, Total Lost Time per Cycle [s]	5.00	5.00		5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00		0.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	13	13		44	44	35	35
g / C, Green / Cycle	0.19	0.19		0.66	0.66	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.15	0.14		0.15	0.28	0.52	0.14
s, saturation flow rate [veh/h]	1852	1680		630	1643	1884	1543
c, Capacity [veh/h]	350	318		348	1087	986	808
d1, Uniform Delay [s]	25.99	25.43		14.14	5.32	15.75	8.78
k, delay calibration	0.04	0.04		0.04	0.04	0.42	0.04
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.80	1.14		0.15	0.10	24.06	0.06
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.72		0.27	0.42	0.99	0.27
d, Delay for Lane Group [s/veh]	27.79	26.57		14.29	5.42	39.82	8.85
Lane Group LOS	C	C		B	A	D	A
Critical Lane Group	Yes	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.29	3.31		0.33	2.04	18.16	1.43
50th-Percentile Queue Length [ft/ln]	107.20	82.73		8.23	51.09	453.97	35.83
95th-Percentile Queue Length [veh/ln]	7.68	5.96		0.59	3.68	25.15	2.58
95th-Percentile Queue Length [ft/ln]	192.10	148.91		14.81	91.96	628.68	64.49

Movement, Approach, & Intersection Results

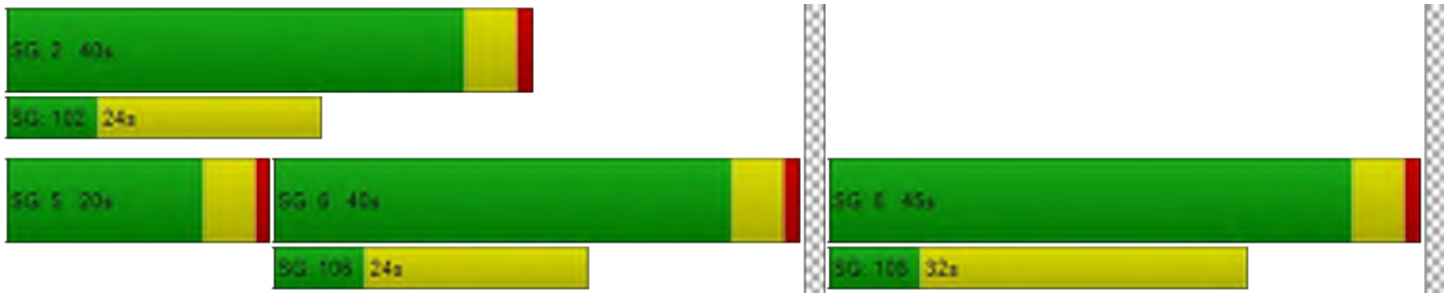
d_M, Delay for Movement [s/veh]	27.79	26.57	26.57	0.00	0.00	0.00	14.29	5.42	0.00	0.00	39.82	8.85
Movement LOS	C	C	C				B	A			D	A
d_A, Approach Delay [s/veh]	27.25			0.00			6.93			34.23		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	25.95											
Intersection LOS	C											
Intersection V/C	0.919											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.26	23.26	23.26	23.26
l_p,int, Pedestrian LOS Score for Intersection	2.444	1.985	2.613	3.086
Crosswalk LOS	B	A	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1199	0	1049	1049
d_b, Bicycle Delay [s]	5.35	33.36	7.54	7.54
l_b,int, Bicycle LOS Score for Intersection	3.277	4.132	2.320	3.714
Bicycle LOS	C	D	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: SW 21st St/SW Airport Way

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.082

Intersection Setup

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00	50.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			4.00			-3.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SW 21st St			SW 21st St			SW Airport Way			SW Airport Way		
Base Volume Input [veh/h]	114	1	22	20	3	159	64	734	91	15	1127	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	25.00	1.00	0.00	8.00	3.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	1	22	20	3	159	64	734	91	15	1127	15
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	0	7	6	1	47	19	218	27	4	335	4
Total Analysis Volume [veh/h]	136	1	26	24	4	189	76	874	108	18	1342	18
Pedestrian Volume [ped/h]	0			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.08	1.59	0.20	1.01	0.15	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	10000.	10000.	10000.	888.39	833.98	121.02	13.25	0.00	0.00	10.19	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	23.03	23.03	23.03	4.11	4.11	8.57	0.52	0.00	0.00	0.08	0.00	0.00
95th-Percentile Queue Length [ft/ln]	575.73	575.73	575.73	102.64	102.64	214.26	12.95	0.00	0.00	1.95	0.00	0.00
d_A, Approach Delay [s/veh]	10000.00			219.03			0.95			0.13		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	596.14											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: SW 19th Ave/SW Airport Way

Control Type:	Roundabout	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	SW 19th St		SW Airport Way		SW Airport Way	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	13.00	13.00	13.00	13.00	13.00	13.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW 19th St		SW Airport Way		SW Airport Way	
Base Volume Input [veh/h]	401	72	563	226	51	688
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	7.00	12.00	0.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	401	72	563	226	51	688
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	113	20	158	63	14	193
Total Analysis Volume [veh/h]	451	81	633	254	57	773
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	677		57		451	
Exiting Flow Rate [veh/h]	341		1239		758	
Demand Flow Rate [veh/h]	401	72	563	226	51	688
Adjusted Demand Flow Rate [veh/h]	451	81	633	254	57	773

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	1.00	0.92	0.98
Entry Flow Rate [veh/h]	532	962	846
Capacity of Entry and Bypass Lanes [veh/h]	692	1303	872
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	692	1202	856
X, volume / capacity	0.77	0.74	0.97

Movement, Approach, & Intersection Results

Lane LOS	C	B	E
95th-Percentile Queue Length [veh]	7.32	7.16	16.13
95th-Percentile Queue Length [ft]	182.93	179.02	403.36
Approach Delay [s/veh]	24.20	14.61	45.80
Approach LOS	C	B	E
Intersection Delay [s/veh]	28.39		
Intersection LOS	D		

Intersection Level Of Service Report
Intersection 8: SW Canal Blvd/SW Helmholtz Way

Control Type:	Two-way stop	Delay (sec / veh):	26.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	SW Canal Blvd		SW Canal Blvd		SW Helmholtz Way	
Base Volume Input [veh/h]	391	192	211	2	5	240
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	2.00	0.00	20.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	391	192	211	2	5	240
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	51	56	1	1	64
Total Analysis Volume [veh/h]	416	204	224	2	5	255
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.00	0.00	0.00	0.03	0.31
d_M, Delay for Movement [s/veh]	8.91	0.00	0.00	0.00	26.65	11.82
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	1.34	0.00	0.00	0.00	1.51	1.51
95th-Percentile Queue Length [ft/ln]	33.50	0.00	0.00	0.00	37.71	37.71
d_A, Approach Delay [s/veh]	5.98		0.00		12.11	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.20					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: SW Quarry Ave/US 97 SB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00	10.00	12.00	10.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	65.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US97 SB Ramps			US97 SB Ramps			Sw Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	16	2650	0	8	0	10	0	3	6	112	93	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	2.00	2.00	7.00	0.00	0.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2650	0	8	0	10	0	3	6	112	93	0
Peak Hour Factor	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	712	0	2	0	3	0	1	2	30	25	0
Total Analysis Volume [veh/h]	17	2849	0	9	0	11	0	3	6	120	100	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane				No								
Storage Area [veh]	0			0			2			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			1			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.07	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	11.56	12.03	8.89	0.00	0.00	0.00	7.38	0.00	0.00
Movement LOS				B	B	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.08	0.08	0.08	0.00	0.00	0.00	0.21	0.21	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.12	2.12	2.12	0.00	0.00	0.00	5.35	5.35	0.00
d_A, Approach Delay [s/veh]	0.00			10.09			0.00			4.02		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	4.37											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: SW Quarry Ave/US 97 NB Ramps

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

Intersection Setup

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 97 NB Ramps						SW Quarry Ave			SW Quarry Ave		
Base Volume Input [veh/h]	33	0	31	0	0	0	0	11	0	0	172	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	0	31	0	0	0	0	11	0	0	172	26
Peak Hour Factor	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	8	0	0	0	0	3	0	0	43	7
Total Analysis Volume [veh/h]	33	0	33	0	0	0	0	12	0	0	172	28
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.06	10.58	8.69	0.00	0.00	0.00	7.62	0.00	0.00	0.00	0.00	0.00
Movement LOS	B	B	A				A	A			A	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.00	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.37			0.00			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.23											
Intersection LOS	B											

KITTELSON & ASSOCIATES
1001 SW Emkay Drive, Suite 140
Bend, OR 97702
P 541.312.8300

MEMORANDUM

May 23, 2024 Project# 27371

To: Jessica MacClanahan, John Roberts, Kyle Roberts, Morgan Snyder & Lindsey Cromsigt, City of Redmond
Tyler Deke, Bend MPO
Bob Townsend & David Amiton, ODOT
Chris Doty, Cody Smith, & Tarik Rawlings, Deschutes County

From: Matt Kittelson & Julia Kuhn

RE: Redmond Large Lot Industrial (LLI) Lands Future Planning Considerations

As a follow-up to our ongoing discussions and our March 13, 2024 memorandum ("March memo") regarding the transportation needs associated with increased employment density in the Large Lot Industrial (LLI) lands, this memorandum summarizes technical and policy considerations that can be considered as the City continues to plan for economic development opportunities. This memorandum also incorporates agency discussions regarding the March memo as well as feedback from our March 21st agency meeting. The following topics are summarized herein:

- Projects within the adopted Redmond Transportation System Plan (TSP) and the anticipated funding/implementation timelines
- A comparison of the identified transportation needs in the TSP versus those needs associated with increased employment densities on the LLI lands
- Statewide Policy and Planning Goal considerations
- Potential procedural next steps

Details regarding each are discussed below.

IDENTIFIED NEEDS AND PROJECTS IN THE ADOPTED TSP

As discussed in the March memo, the TSP adopted in 2020 identifies the following changes to the transportation system within the vicinity of the LLI lands. The status of the TSP projects that are included on the City's 5-year Capital Improvements Project (CIP)[1] list are also highlighted below.

- SW Canal Boulevard/SW 27th Street/SW Yew Avenue – this existing roundabout is a documented capacity deficiency and is funded on the City's CIP for design and construction in 2028. As proposed, the intersection will be widened to a two-lane roundabout.
- New roundabouts along SW Canal Boulevard – per the TSP and the CIP, new single lane roundabouts are planned at the SW Badger Avenue and SW Elkhorn Avenue intersections to address noted capacity and safety needs near Ridgeview High School. The SW Badger Avenue

[1] Redmond 5 Year CIP (arcgis.com)

roundabout is funded for construction in 2025 and the SW Elkhorn Avenue roundabout is funded for construction in 2027.

- SW 19th Street/SW Airport Way – to address documented capacity needs as well as to enhance the access safety to the Deschutes County Fairgrounds, this intersection is funded for construction on the CIP as a single lane roundabout by 2027.
- Extension of SE 9th Street and new roundabouts – to address documented capacity and connectivity needs, SE 9th Street is funded to be extended from SE Veteran's Way to OR 126 by 2027. This project will also include construction of a roundabout at the SE Veteran's Way/SE 9th Street intersection and a roundabout at the OR 126/SE 9th Street intersection. This project is currently initiated with a Progressive Design-Build delivery.
- SW 21st Street/SW Airport Way – due to previously identified capacity constraints, this intersection is identified within the TSP to be converted to a right-in-right-out (RIRO) and/or be grade separated, both of which have impacts to the surrounding properties and local streets as well as right-of-way constraints. If converted to a RIRO, the capacity deficiencies at this intersection can be addressed but additional planning is needed to understand where U-turn movements can be made to the west of the intersection and the associated capacity needs. With the construction of the SW 19th Street/SW Airport Way roundabout, U-turns can be accommodated to the east of the SW 21st Avenue intersection if restricted to RIRO but further evaluation would be needed to assess whether the single lane roundabout at SW 19th Street is sufficient to meet the additional capacity needs and/or if widening to a multi-lane roundabout would be needed.
- SW 21st Street extension – the TSP identifies this extension south of SW Airport Way to a future extension of SW Elkhorn Avenue across US 97. No timeline for funding or construction has been identified and this project would need to be considered as part of the potential access restrictions at the SW 21st Street/SW Airport Way intersection as well as the possible extension of SW Elkhorn Avenue.
- SW Yew Avenue/US 97 NB Ramp Terminals – ODOT adopted an alternative mobility target (v/c of 1.0) at this intersection, but this target will be exceeded upon development of the LLI lands unless other broader transportation system changes are made. As part of future planning efforts related to the LLI lands, potential geometric and/or policy considerations will need to be further explored to identify if there are changes that can be made to this intersection and/or along the SW Yew Avenue/SE Yew Avenue/SW Airport Way corridor to address mobility targets.
- US 97 South Redmond Corridor Facility Plan recommendations – The TSP includes, by reference, the adopted Facility Plan recommendations although no funding for construction is available at this time. The total cost of the recommended changes in the Facility Plan is approximately $60 million.
- Extension of SW Elkhorn Avenue from SW 39th Street to SW 19th Street as a grade-separated crossing of US 97. No timeframe for funding or construction has been identified to-date. The TSP estimated the cost of the extension and overcrossing to be approximately $26 million.
- SW Helmholtz Way/SW Canal Boulevard – the TSP identifies a future capacity need to construct a traffic signal or roundabout at this location. No timeframe for funding or construction has been identified. The TSP identifies the cost to be $3.2 million.

NOTED AREAS OF NEED ASSOCIATED WITH INCREASED LLI DENSITIES

As noted in the March memo, the City is planning for up to 9,820 employees within the LLI lands whereas the potential for only 1,000 employees on these lands is considered within the adopted TSP. The corridors and intersections that are anticipated to experience material changes in traffic volumes as a result of increased employment densities include:

- SW Yew Avenue/US 97 Northbound Ramp Terminal - Depending on the level of employment densities realized (i.e., 10 or 15 employees per acre), the SW Airport Way corridor at and to the east of the US 97 northbound ramp terminal could increase between 400 and 500 vehicles per hour compared to the adopted TSP volume projections. This level of increase would result in the adopted alternative mobility target at the US 97 northbound ramps/SW Yew Avenue intersection to be exceeded under either of the increased employment density scenarios. Under the adopted TSP, the mobility target is forecast to be met (i.e., volume-to-capacity ratio of 0.94). As part of future planning efforts for the LLI lands, the following considerations should be explored further:
  - The level of non-single occupancy vehicle travel by future employees on the LLI lands that would be need to achieved that would reduce the traffic volumes at this location to those that would enable the adopted alternative mobility target to be met. In other words, an evaluation of how travel demand management strategies could be employed to offset potential impacts at this location.
  - Whether an increase to the 1.0 alternative mobility target beyond its current maximum is feasible. This evaluation would need to consider if accepting higher congestion at this location is viable inclusive of other system trade-offs that may result, including impacts to system safety and economic viability considerations.
  - The potential for and feasibility of additional geometric changes along the SW Yew Avenue/SW Airport Way corridor and/or at the US 97 northbound off-ramp.
- SW 19th Street/SW Airport Way – the planned single lane roundabout at this location will need to be expanded with additional turn lanes and/or constructed as a multilane to accommodate up to 500 additional vehicles per hour. Based on the March memo, the timing of this expansion need is anticipated to occur in approximately 2035.
- New Southern Interchange – per the modeling data, the potential for a new southern interchange would divert approximately 250 – 350 vehicles per hour from the Yew Avenue corridor to a new southern interchange instead. Further exploration of the overall cost/benefits is needed as part of any alternatives analysis conducted in the future. As discussed in our March memo, there are other non-PM peak hour demand considerations that can be served by an additional overcrossing and/or interchange on US 97, including emergency planning, event management, and system redundancy.
- SW Elkhorn overcrossing and/or interchange – the Bend-Redmond travel demand model does not account for either an Elkhorn overcrossing or a potential interchange to/from the south. Further evaluation of the potential for either configuration and the associated benefits/costs of providing can help inform planning efforts and should be a part of any future alternatives evaluation.

STATEWIDE PLANNING GOAL AND POLICY CONSIDERATIONS

There are a number of applicable state and federal planning goals and policy considerations that should be considered when exploring and evaluating potential transportation network changes that would support future development of the LLI employment densities and other regional needs in the vicinity, including providing for alternative access to the Redmond Municipal Airport during a Cascadia subduction event, events at the Deschutes County Fairgrounds and Expo Center, and overall system redundancy. Some examples of the considerations are provided below.

Oregon Statewide Planning Goals 2 (Land Use Planning), 3 (Agricultural Lands), and 12 (Transportation)

This evaluation would require an assessment of Statewide Planning Goals 2, 3 and 12 to investigate whether an exception to these goals, which would likely be needed to implement an interchange south of the LLI lands, can be justified. This detailed evaluation would need to consider whether the combination of alternative modes of transportation, traffic management measures, and the implications of making changes to existing transportation facilities within the UGB can serve the growth in traffic associated with the economic development anticipated or if an exception to the statewide planning goals is required. As noted above, there are four areas in particular that may need to be further explored, such as but not limited to:

- The level of non-single occupancy vehicle travel by future employees on the LLI lands that may need to be achieved to reduce the traffic volumes at the SW Yew Avenue/Northbound US 97 ramp intersection on to those that would enable the adopted alternative mobility target to be met.
- Whether an increase to the 1.0 alternative mobility target beyond its current maximum is feasible. This evaluation would need to consider if accepting higher congestion at this location is viable inclusive of other system trade-offs that may result, including impacts to system safety and economic viability considerations.
- The potential for additional and feasibility of geometric changes along the SW Yew Avenue/SW Airport Way corridor and/or at the US 97 northbound off-ramp.
- Further evaluation of the feasibility, costs and benefits of a SW Elkhorn Avenue extension and overcrossing and/or a new interchange with US 97 to/from the south.

If a detailed needs and alternatives evaluation is conducted and no options are deemed to be feasible and a southern interchange is identified as needed, per OAR 660-012-0070, a goal exception would be required. This goal exception evaluation would need to identify the needed "size, design and capacity" of needed facilities as well as the "long-term economic, social, environmental and energy consequences" of all potential alternatives within and external to the UGB that are considered.

Interchange Planning and Design Considerations

Whether a new overcrossing and/or interchange is considered within the Redmond UGB (i.e., SW Elkhorn Avenue) or at a location south of the UGB, there are a number of ODOT and Federal Highway Administration (FHWA) policy documents and requirements that must be evaluated.

Section 600 of ODOT's Highway Design Manual (HDM, March 2024) provides a summary of the primary planning and design steps related to considerations of new overcrossings and/or interchanges. As

outlined in this section, there are a number of elements/steps that must be considered, including but not limited to:

- Evaluation of the warrants for overcrossing and interchanges that consider locational characteristics, the designation of the highway, congestion, safety, topography, volume, user benefits, etc.
- Interchange spacing requirements
- Guidance on the traffic studies needed to justify an overcrossing and/or interchange
- The process for applying for an exception to both ODOT standards and the need for approval by FHWA for any added access to US 97
- The purpose of and need for preparing an Interchange Area Management Plan (IAMP). Per ODOT guidance, the IAMP includes the following objectives:
  - *Protect the state and local investment in major facilities;*
  - *Establish the desired function of interchanges;*
  - *Protect the function of interchanges by maximizing the capacity of the interchanges for*
  - *safe movement from the mainline highway facility;*
  - *Balance the need for efficient interstate and state travel with local use;*
  - *Preserve and improve safety of existing interchanges;*
  - *Provide safe and efficient operation between connecting roadways;*
  - *Adequately protect interchanges from unintended and unexpected development while accommodating planned community development;*
  - *Manage the existing interchange capacity and new capacity provided through improved interchange improvements;*
  - *Establish how future land use and transportation decisions will be coordinated in interchange areas between ODOT and the local governments;*
  - *Minimize impacts to farm and forest lands and other resource lands around rural interchanges in accordance with adopted Statewide Planning Goals;*

Major Investment Policy Considerations

As noted in the TSP, City policies, the Comprehensive Plan, and Council priorities focus on strategic investments that support mixed-use neighborhoods, providing options for increased use of walking and cycling, enhancing safety, and continued support for the economic health and prosperity of the region. Further, the highest priority projects for strategic investments are those that (1) protect the existing system and (2) improve the efficiency and safety of existing multimodal facilities.

We also note that ODOT's Highway Plan, Policy 1G (Action 1G.2) notes that any major improvements to state facilities must meet all of the following conditions:

- *The improvement is needed to satisfy a state transportation objective or objectives;*
- *The scope of the project is reasonably identified, considering the long-range projection of need;*
- *The improvement was identified through a planning process that included:*
  - *Thorough public involvement;*
  - *Evaluation of reasonable transportation and land use alternatives including measures for managing the existing transportation system and for reducing demands for highway capacity; and*
  - *Sufficient environmental analysis at the fatal flaw planning level.*

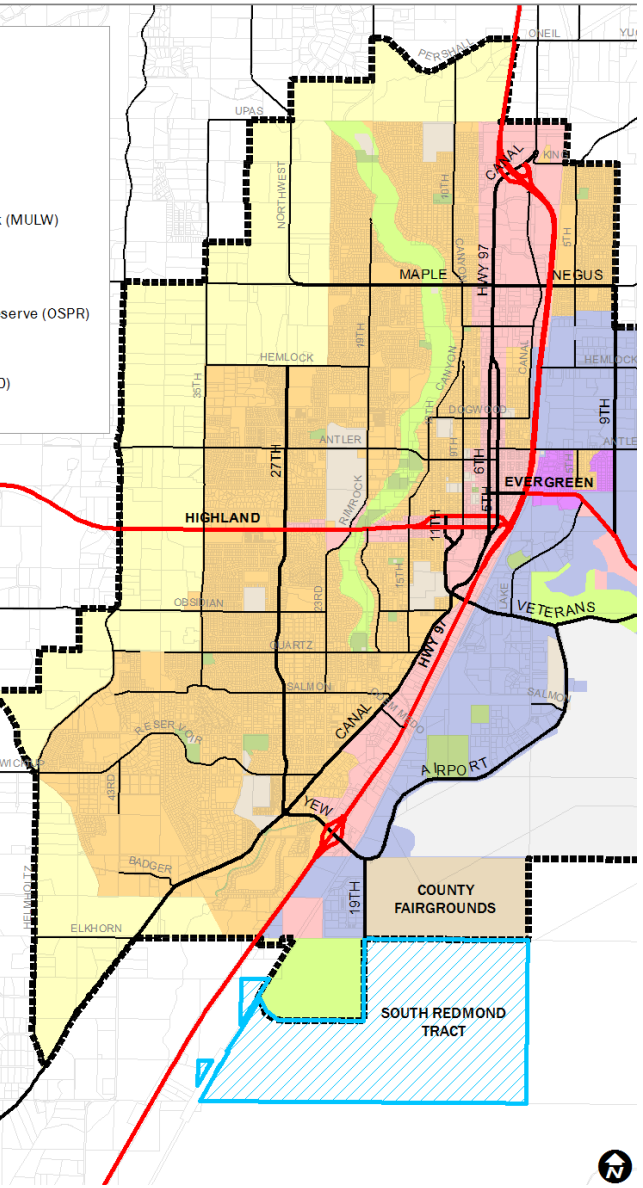
- *The plan includes measures to manage the transportation system, but these measures will not satisfy identified highway needs during the planning period or there is a need to preserve a future transportation corridor for future needs beyond the planning period;*
- *The improvement would be a cost-effective means to achieve the objective(s);*
- *The proposed timing of the improvement is consistent with priorities established in corridor plans and regional transportation plans and the financing program identifies construction as being dependent on the future availability of funds;*
- *Funding for the project can reasonably be expected at the time the project is ready for development and construction;*
- *The local government schedules funding for local street improvements in its local transportation financing program if these are needed to attain the objectives of the major improvement; and*
- *The plan includes policies and implementing measures that protect the corridor and its intended function.*

The above would apply to any of the options that could be considered to meet the long-term needs of the LLI lands. As noted above, the conditions that must be met include the environmental documentation, design exceptions, design decisions, the IAMP, etc. Pending an amendment to the TSP, we recommend that the agencies outline a clear process for evaluating the need for and the study, planning and design considerations related to any major investment that the City may further explore.

Please let us know if you have any questions related to the above and the potential next steps as part of the TSP Amendment.

EXHIBIT C

No public comments were received by the Planning Division.



SOUTH REDMOND TRACT
LARGE LOT INDUSTRIAL
INFRASTRUCTURE MASTER PLAN

CITY COUNCIL PUBLIC HEARING
JULY 28, 2026

SOUTH REDMOND TRACTS

1

140 ACRES

Deschutes County Fairgrounds

2

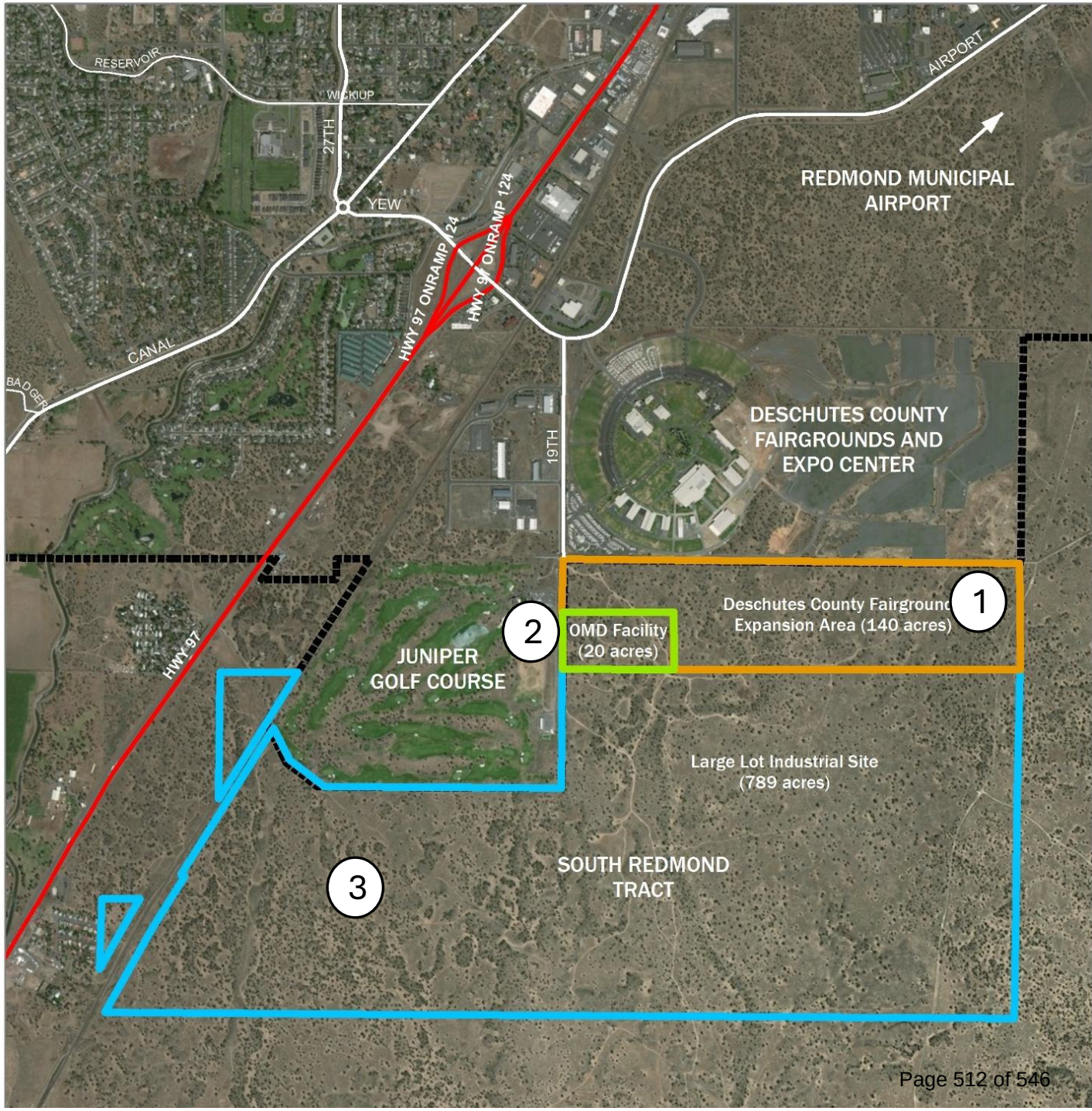
20 ACRES

Oregon Military Department

3

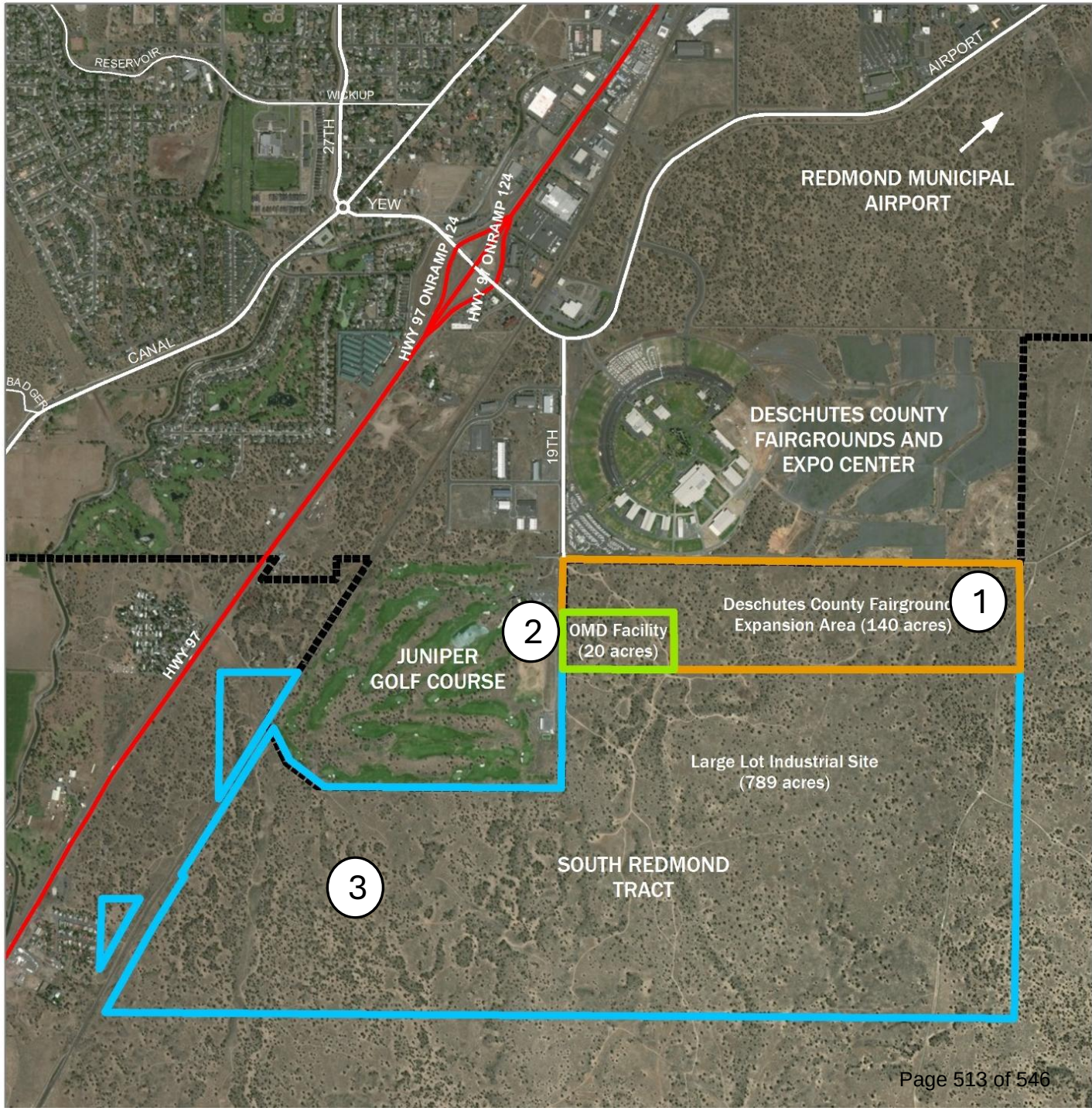
789 ACRES

DSL Large Lot Industrial



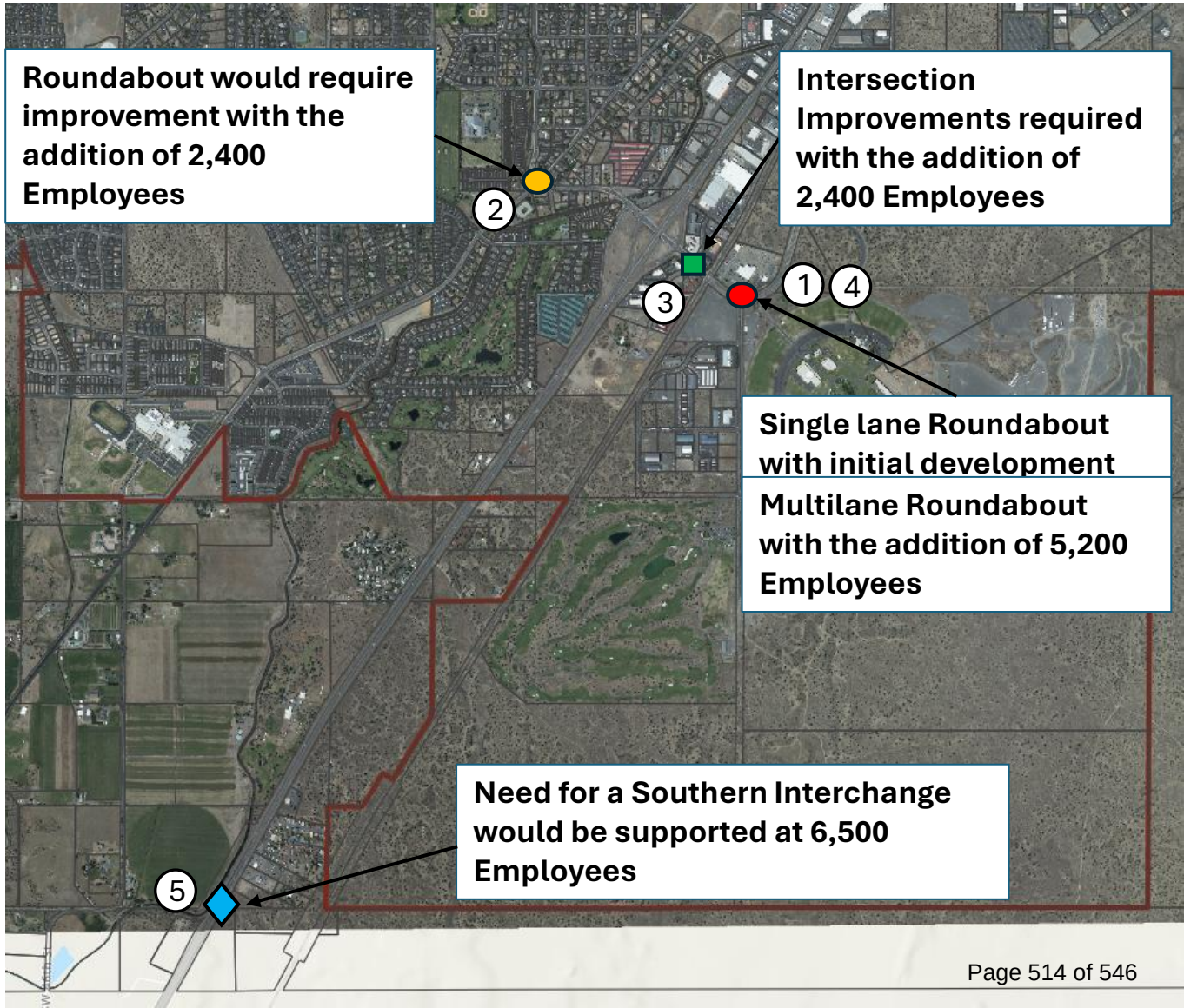
ESSENTIAL INFRASTRUCTURE

- TRANSPORTATION
- WASTEWATER
- WATER



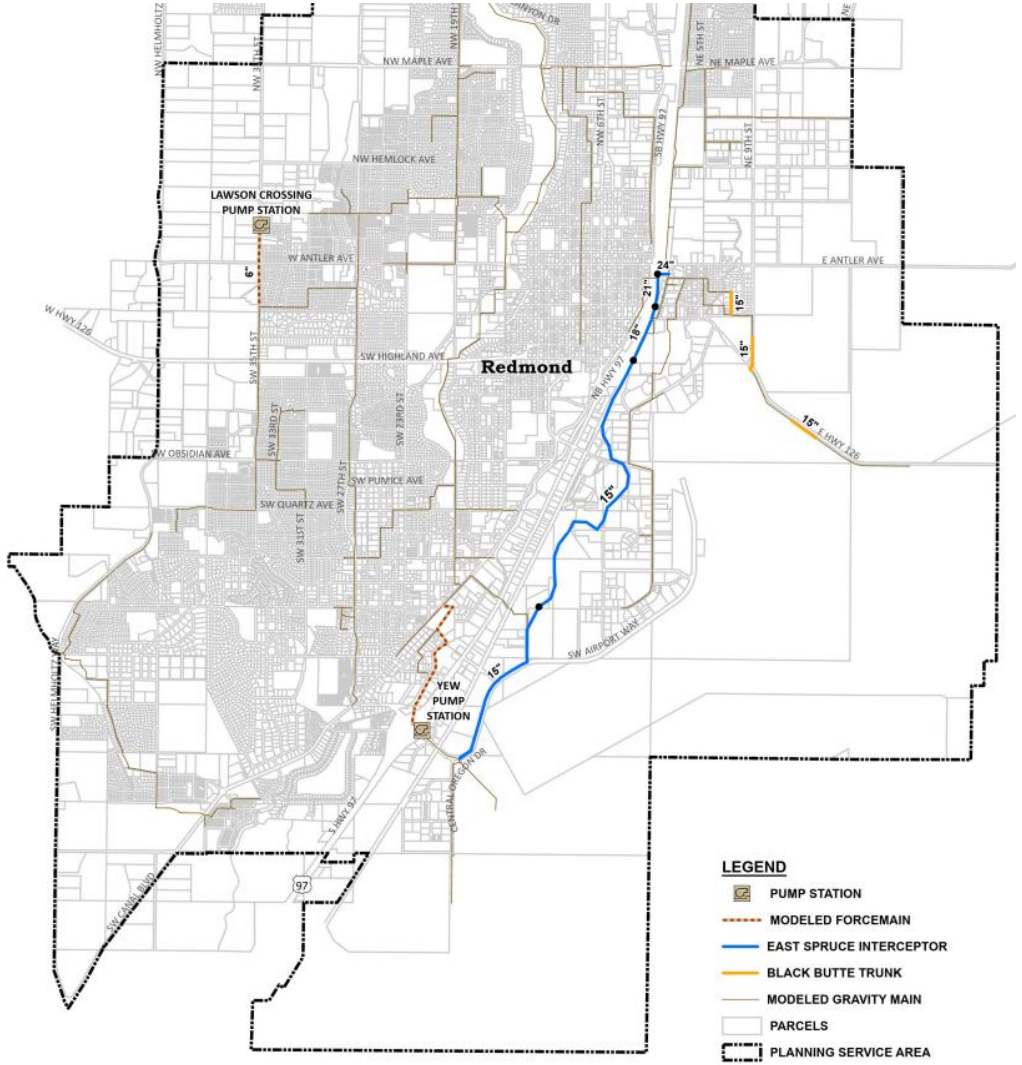
TRANSPORTATION INFRASTRUCTURE

Intersection	Estimated Cost	Employment Trigger
19th St. and Airport Way Single Lane Roundabout	$3,000,000 (SDC)	Immediately, needed with first development
Canal/27th/ Yew Roundabout Improvements	$3,000,000 (SDC)	2,400 Employees
21st and Airport Way Improvements	$1,000,000 (Proportionate Share)	2,400 Employees
19th St. and Airport Way Multi- Lane Roundabout	$3,000,000 (Proportionate Share)	5,200 Employees
Southern Interchange	$50,000,000-$80,000,000 (Unfunded)	6,500 Employees



WASTEWATER INFRASTRUCTURE

Capital Improvement Program Project Number	Wastewater Improvement	Project Cost
LS-01	Yew Lift Station Pump Upgrade	$150,000 (City)
LS-02	Yew Lift Station Capacity Upgrade	$3,000,000 (SDC)
P-02	East Spruce Interceptor Extension	$15,000,000 (SDC)

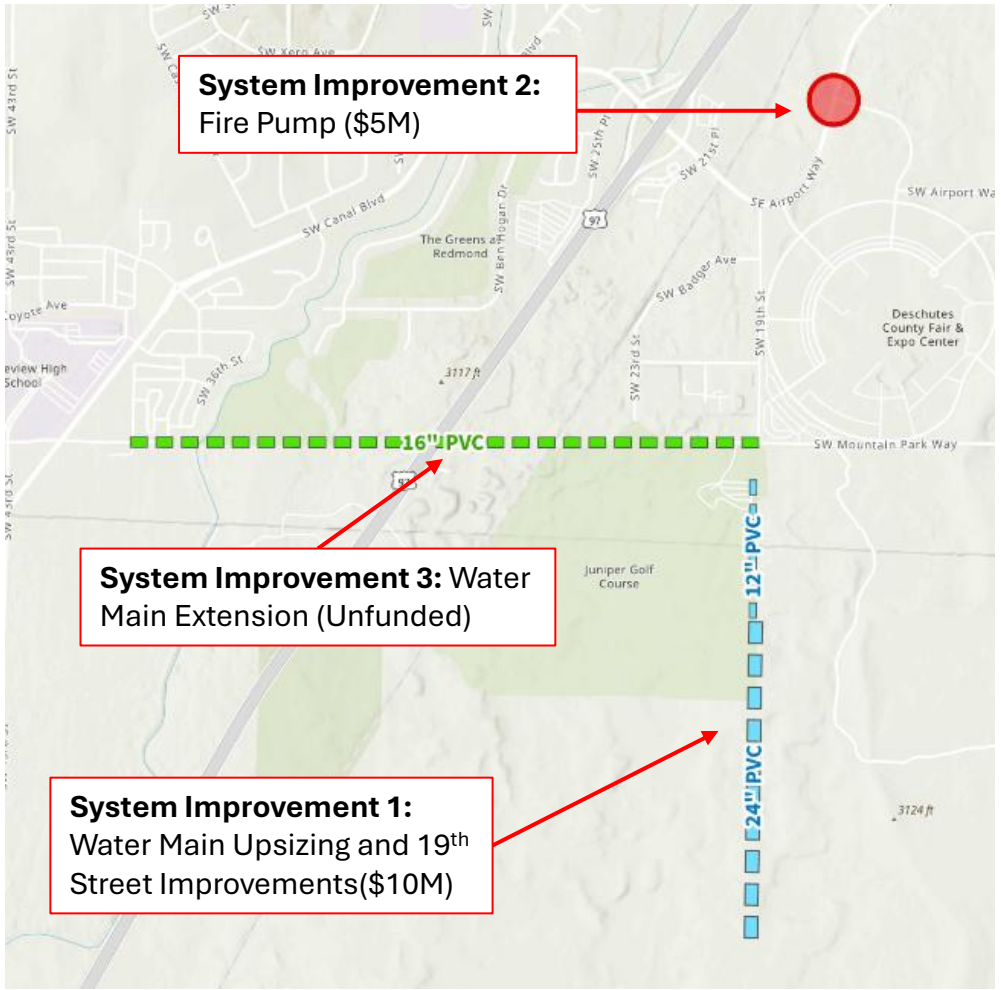


WATER INFRASTRUCTURE

Project	Cost	Responsibility
Improvement #1: Water main upsizing and 19th St Improvements	$10,000,000	DSL
Improvement #2: Fire Pump	$5,000,000	City
Improvement #3: Water main extension	Unfunded (may not be needed based on development type)	TBD

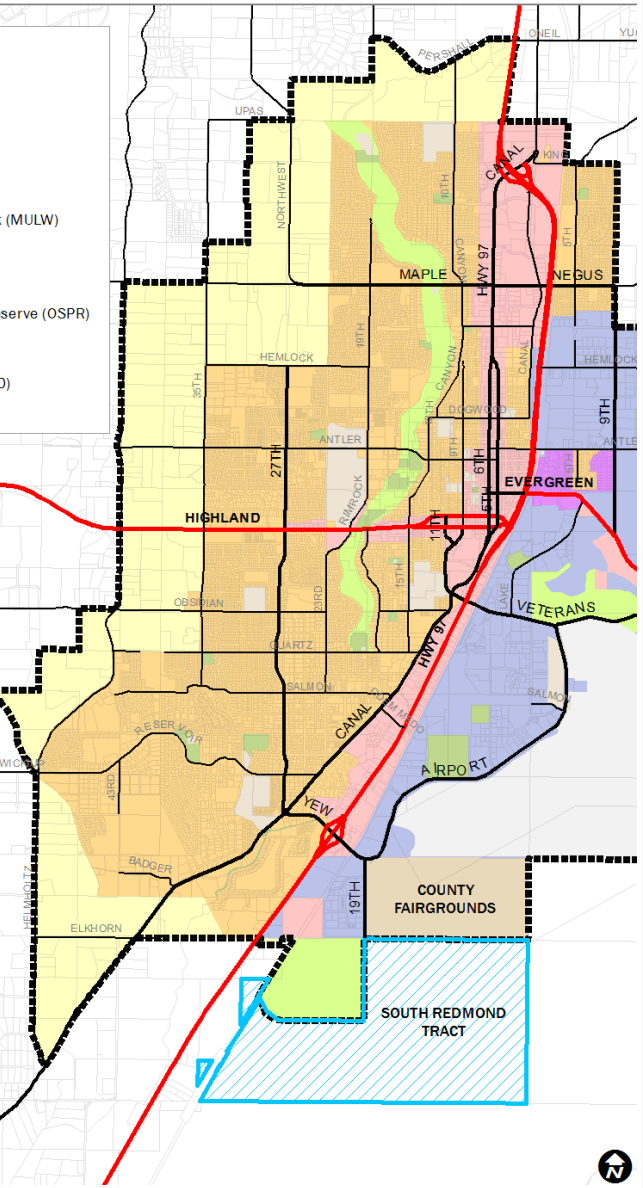
EXAMPLE DEMAND TYPES

Development Type	gpm/50 ac	gpm/789 ac
Warehouse / Distribution	25	395
Light Industrial	40	630
Heavy Industrial	50	789
Data Center	110	1,735



ROADMAP


Planning Commission Hearing
July 15
City Council Hearing
July 28
Amended Annexation Agreement and Master Development Plan


(MULW)
serve (OSPR)
0)
MAPLE
HEMLOCK
ANTLER
DOGWOOD
HIGHLAND
EVERGREEN
VETERANS
OBSIDIAN
QUARTZ
SALMON
RESERVOIR
AIRPORT
YEW
BADGER
ELKHORN
COUNTY
FAIRGROUNDS
SOUTH REDMOND
TRACT
HWY 97
CANAL
CANYON
RIMROCK
LAKE
NORTHWEST
UPAS
PERSHALL
O'NEIL
KINNEGUS
27TH
19TH
15TH
11TH
9TH
6TH
5TH

QUESTIONS

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
FROM: Keith Leitz, City Attorney
SUBJECT: Ordinance #2026-10: An ordinance declaring a temporary ban on psilocybin service centers.

Report in Brief:
This item requests the City Council conduct a public hearing and adopt Ordinance #2026-10 to declare a two-year ban on psilocybin service centers, and refer that decision to voters at the November 2026, General Election.

Background:
Psilocybin is a psychedelic drug found in certain mushrooms. In spring 2022, the passage of state Ballot Measure 109 allowed for the licensed manufacturing and supervised use of psilocybin in licensed service centers. The law provides that a city or county may adopt an ordinance to be referred to voters to prohibit the establishment of licensed psilocybin product manufacturers and/or psilocybin service centers.

On November 8, 2022, Redmond voters approved a local ballot measure to prohibit psilocybin service centers for two years (ending on December 31, 2024). On November 5, 2024, voters again approved a ballot measure prohibiting psilocybin service centers for an additional two years (ending on December 31, 2026).

Discussion:
Council has three options regarding psilocybin service centers:
Option 1: Approve an Ordinance extending the ban on psilocybin service centers within City limits for an additional two years, and referring the matter to voters to be decided during the November 3, 2026, General Election.

Option 2: Impose time, place and manner restrictions on such facilities under the Development Code, which can be completed after the November 3, 2026, General Election.

Option 3: Take no action and let the current prohibition sunset on December 31, 2026. Under state law, applicants for licenses must still obtain a land use compatibility statement from the City stating that the proposed facility is consistent with the local government's Comprehensive Plan and land use regulations.

Key Considerations / Analysis:
Option 1 — Redmond can extend the ban on psilocybin service centers within the city limits, permanently or for a limited duration. Pursuant to state law, a psilocybin ban must be approved by the voters during a statewide general election. Thus, if the City Council wants to propose a temporary ban to the voters, it must do so for this November's election, or it will need to wait until the November 2028 election to do so.

Option 2 — The City Council may also impose time, place, and manner restrictions on such facilities. Often, such regulations are included as part of a local jurisdiction's development code. State law already prohibits locating psilocybin service centers within 1000 feet of schools.

Approval of the attached Ordinance will direct staff to complete the ballot measure paperwork for the purpose of submitting a two-year moratorium on the establishment of psilocybin service centers within the city. The moratorium would sunset after two years. The City Councilors have the option individually of submitting arguments for or against the measure.

As required by the City Charter, on July 21, 2026, notices regarding this Ordinance were posted in three places. Copies of the Ordinance were available for review at City Hall.

Fiscal Impact:
None.

Alternative Courses of Action:
Conduct the public hearing and consider additional public testimony. Courses of action include:

1. Approve Ordinance #2026-10.
2. Do not approve Ordinance #2026-10 and allow the current prohibition to sunset on December 31, 2026.

Recommendation / Suggested Motion:
“I move to have a first and second reading of Ordinance #2026-10, by title only.” (Voice vote)

(The City Attorney will read the ordinance by title only, twice.)

“I move to approve Ordinance #2026-10” (Roll call vote)

CITY OF REDMOND
ORDINANCE NO. 2026-10

AN ORDINANCE DECLARING A TEMPORARY BAN ON PSILOCYBIN SERVICE CENTERS.

WHEREAS, in November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery, and administration of psilocybin at licensed facilities; and

WHEREAS, ORS 475A.235 provides that the Oregon Health Authority will regulate the manufacturing, transportation, delivery, sale and purchase of psilocybin products and the provision of psilocybin services in the state; and

WHEREAS, the Oregon Health Authority has conducted ongoing rulemaking processes to implement the state's psilocybin regulatory program and began accepting applications for psilocybin-related licenses on January 2, 2023; and

WHEREAS, ORS 475A.718 provides that a city council may adopt an ordinance to be referred to the electors of the city prohibiting the establishment of state licensed psilocybin service centers in the area subject to the jurisdiction of the city; and

WHEREAS, the Redmond City Council believes that temporarily prohibiting psilocybin service centers within the city's jurisdictional boundaries to enable the adoption of the state's psilocybin licensing and regulatory program and to allow the City to adopt reasonable time, place, and manner regulations on the operation of psilocybin facilities is in the best interest of the health, safety, and welfare of the people of Redmond; and

WHEREAS, the Redmond City voters approved a ballot measure in 2022 to place a two-year moratorium on psilocybin service centers, which expired on December 31, 2024; and

WHEREAS, the Redmond City voters approved a ballot measure in 2024 to place a two-year moratorium on psilocybin service centers, which expires on December 31, 2026; and

WHEREAS, the City Council seeks to refer to the voters of Redmond the question of whether to extend the two-year moratorium on state-licensed psilocybin service centers within the City's jurisdictional boundaries.

NOW, THEREFORE, THE CITY OF REDMOND ORDAINS AS FOLLOWS:

SECTION ONE: PROHIBITION. The establishment of psilocybin service centers licensed under ORS 475A.305 is prohibited in the city of Redmond

SECTION TWO: REFERRAL. This ordinance is referred to the electors of the city of

Redmond for approval at the next statewide general election on November 3, 2026.

SECTION THREE: SEVERABILITY. The provisions of this Ordinance are severable. The invalidity of any section, clause, sentence, or provision of this Ordinance shall not affect the validity of any other part of this Ordinance which can be given without such invalid part or parts.

SECTION FOUR: EFFECTIVE DATE. The City Council finds that it is in the best interest of the City of Redmond to have this Ordinance take effect on January 1, 2027, if approved by voters during the next statewide general election.

SECTION FIVE: SUNSET. This ordinance is repealed on December 31, 2028.

PASSED by the City Council and **APPROVED** by the Mayor this 28th day of July 2026.

_____
Ed Fitch, Mayor

ATTEST:

_____
Kelly Morse, City Recorder

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
FROM: Keith Leitz, City Attorney
SUBJECT: Resolution #2026-16: A resolution of the Redmond City Council declaring a temporary ban on Psilocybin Service Centers.

Report in Brief:
This item is a follow-up from City Council's direction on June 15, 2026, to draft a ballot measure resolution to refer a measure to voters that would extend the current psilocybin service center moratorium for two years beginning on January 1, 2027.

Background:
State law provides that a city or county may adopt a resolution to be referred to voters to prohibit the establishment of licensed psilocybin product manufacturers and/or psilocybin service centers. In 2022 and 2024, Redmond voters passed a ballot measure to prohibit psilocybin service centers for two years. The current prohibition ends on December 31, 2026.

Discussion:
The attached resolution would direct staff to file a ballot title for publication of notice for the purpose of a temporary ban on the establishment of psilocybin service centers within the City. State law also allows the electorate of Redmond to repeal the ban at any time.

Fiscal Impact:
None.

Alternative Courses of Action:
Options Summary:
Option 1: Adopt a resolution to direct a ballot title to be filed to refer a limited duration (temporary ban) moratorium ordinance to the voters prohibiting the establishment of psilocybin product manufacturers and/or psilocybin service centers within the City of Redmond.

Option 2: Take no action and allow the current moratorium to expire on December 31, 2026.

Recommendation / Suggested Motion:
"I move to adopt Resolution 2024-21."

CITY OF REDMOND
RESOLUTION NO. 2026-16

A RESOLUTION OF THE REDMOND CITY COUNCIL DECLARING A TEMPORARY BAN ON PSILOCYBIN SERVICE CENTERS.

WHEREAS, in November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery and administration of psilocybin at licensed facilities; and

WHEREAS, ORS 475A.235 provides that the Oregon Health Authority will regulate the manufacturing, transportation, delivery, sale and purchase of psilocybin products and the provision of psilocybin services in the state; and

WHEREAS, the Oregon Health Authority began accepting applications for psilocybin-related licenses on January 2, 2023; and

WHEREAS, ORS 475A.718 provides that a city council may adopt an ordinance to be referred to the electors of the city prohibiting the establishment of state licensed psilocybin product manufacturers and/or psilocybin service centers in the area subject to the jurisdiction of the city; and

WHEREAS, the Redmond City voters approved a ballot measure in 2022 to place a two-year moratorium on psilocybin service centers, which expired on December 31, 2024; and

WHEREAS, the Redmond City voters approved a ballot measure in 2024 to place a two-year moratorium on psilocybin service centers, which expires on December 31, 2026; and

WHEREAS, the City Council seeks to refer to the voters of Redmond the question of whether to extend the two-year moratorium on state-licensed psilocybin service centers within the City's jurisdictional boundaries through December 31, 2028.

NOW, THEREFORE, be it resolved by the City of Redmond City Council as follows:

SECTION ONE: City Council hereby calls for submission of the ballot title for publication of notice for the purpose of submitting to the electors of the City of Redmond that the establishment of psilocybin service centers licensed under ORS 475A.305 is prohibited in the city of Redmond for consideration at the General Election on November 3, 2026.

SECTION TWO: The election will be conducted by the Deschutes County Clerk. The precincts for the election shall include all territory within the City of Redmond and no other territory.

SECTION THREE: City Council will submit the ballot caption, question and summary for the measure as determined by Council.

SECTION FOUR: City Council will submit the explanatory statement for the measure as determined by Council.

SECTION FIVE: The City Council directs the City Manager, the City Recorder or their respective designees (each an "Authorized Representative") to take all necessary steps to effectuate this

resolution, including providing public notice and submitting required materials to the Deschutes County Clerk.

SECTION SIX: The provisions of this Resolution are severable. The invalidity of any section, clause, sentence, or provision of this Resolution shall not affect the validity of any other part of this Resolution which can be given without such invalid part or parts.

SECTION SEVEN: This resolution shall be effective on this 28th day of July 2026

ADOPTED by the City Council and **SIGNED** by the Mayor this 28th day of July 2026.

Ed Fitch, Mayor

ATTEST:

Kelly Morse, City Recorder

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
Steve Ashworth, Deputy City Manager
FROM: Kyle Roberts, Planning Director
SUBJECT: Resolution #2026-15 - A resolution declaring certain territory (2729 NW Hemlock Avenue) as being annexed to and incorporated within the City of Redmond.

Report in Brief:
This item requests the City Council approve a resolution to annex an 11-acre property located at 2729 NW Hemlock Avenue (taxlot 1513080001000) owned by Michael Segoviano as authorized by ORS 222.750.

Background:
The subject property, owned by Michael Segoviano, is 11 acres in size and is located at the corner of NW Hemlock Avenue and NW 27th Street. It has a situs address of 2729 NW Hemlock Avenue (also described as Parcel No. 1 of Minor Land Partition MP-78-150 or taxlot 1513080001000). Existing on site is a cell tower, an outbuilding, and a dwelling. The dwelling is abandoned and in a state of disrepair. Additionally, a Central Oregon Irrigation District (COID) canal traverses the property.

The property is wholly surrounded by the Redmond city limits. As such, the City may annex the property pursuant to ORS 222.750 after holding at least one public hearing for which notice has been sent via Certified Mail to the owner of record of the property. Furthermore, the annexation must be by ordinance or resolution, subject to referendum, with or without consent of the property owner. Importantly, the City may annex the property immediately if the property is not in residential use at the time when the annexation is initiated. Because the property is not in residential use at the time the Certified Mail was sent, the intent is to immediately annex the property.

Discussion:
Upon an annexation, the property will be rezoned from the Deschutes County's Urban Holding-10 zone to the City's medium and high-density residential zones (R-4 and R-5), allowing for greater private development potential. Additionally, the City Transportation System Plan identifies a future extension of NW 27th Street, a minor arterial, through the easternmost 50 feet of the property. This extension would facilitate the connection of NW 27th Street from NW Hemlock Avenue north to NW Maple Avenue, providing a major enhancement to Redmond's transportation system.

There have also been public safety concerns associated with this property. Both the City and County have responded to several complaints and calls for services. In the past year alone, the following activity and calls involving this property have occurred:

- 12 calls for service to the Deschutes County Sheriff's Office for criminal mischief.
- Three calls to the Redmond Police Department
- Five code compliance citations for junk/debris and attractive nuisances (e.g., the need for the abandoned dwelling to be boarded up).

For these reasons, it is in the community's best interest to annex the property.

Fiscal Impact:
None.

Alternative Courses of Action:

1. Adopt Resolution #2026-15
2. Request more information
3. Do not adopt Resolution #2026-15

Recommendation / Suggested Motion:

"I move to adopt Resolution #2026-15."

AFTER RECORDING RETURN TO:
City Recorder's Office
City of Redmond
411 SW 9th Street
Redmond, OR 97756

CITY OF REDMOND
RESOLUTION NO. 2026-15

A RESOLUTION DECLARING CERTAIN TERRITORY (2729 NW HEMLOCK AVENUE) AS BEING ANNEXED TO AND INCORPORATED WITHIN THE CITY OF REDMOND.

WHEREAS, the City Council has initiated annexation of the property described in Exhibit "A" per ORS 222.750; and

WHEREAS, the real property described in Exhibit "A" attached hereto and incorporated by reference is surrounded by the corporate boundaries of the City of Redmond; and

WHEREAS, the City may initiate an annexation with or without consent of all owners of the territory described in Exhibit "A" as authorized per ORS 222.750; and

WHEREAS, the annexation will occur immediately because the property is not in residential use when annexation is initiated by the City per ORS 222.750; and

WHEREAS, the City Council finds that this annexation complies with the Redmond Urban Area Comprehensive Plan; and

WHEREAS, the City Council finds that this annexation is in the best interest of the City and of said territory described in Exhibit "A".

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE CITY OF REDMOND AS FOLLOWS:

SECTION 1: Annexation Area: The real property described in Exhibit "A" to this resolution is hereby proclaimed to be annexed to the City of Redmond, Oregon.

SECTION 2: Record: The City Recorder shall submit to the Secretary of State of the State of Oregon a copy of this Resolution together with a copy of the statement of consent of the landowners of the property described in Exhibit "A".

The City Recorder shall also send a description by metes and bounds or legal subdivision of the new boundaries of the City of Redmond to the Deschutes County Tax Assessor and the Deschutes County Clerk within 10 days of the date of this Resolution.

SECTION 3: Zoning: Upon annexation and at time when development is proposed, the parcel described in Exhibit "A" will be rezoned in compliance with the 2040 Greater Redmond Area Comprehensive Plan and Zone Map.

ADOPTED by the City Council and **SIGNED** by the Mayor this 28th day of July 2026

Ed Fitch, Mayor

ATTEST:

Kelly Morse, City Recorder

State of Oregon

County of Deschutes

On July 28, 2026, Ed Fitch, Mayor of the City of Redmond personally appeared before me

____ who is personally known to me

____ whose identity I proved on the basis of _____

____ whose identity I proved on the oath/affirmation of _____,
a credible witness

to be the signer of the above document, and he/she acknowledged that he/she signed it.

_____
Notary Public

EXHIBIT “A”

A tract of land located in Section 8, Township 15 South, Range 13 East of the Willamette Meridian, Deschutes County, Oregon, more particularly described as follows:

Beginning at the center quarter corner of said Section 8; thence North 89º45’24” West a distance of 463.83 feet; thence North 22º07’10” East a distance of 401.29 feet; thence North 10º29’51” West a distance of 286.55 feet; thence North 84º34’13” East a distance of 22.61 feet; thence North 09º14’07” East a distance of 367.24 feet; thence North 10º06’46” East a distance of 621.55 feet; thence East a distance of 171.54 feet; thence South 00º19’23” West a distance of 1631.96 feet to the place of beginning.

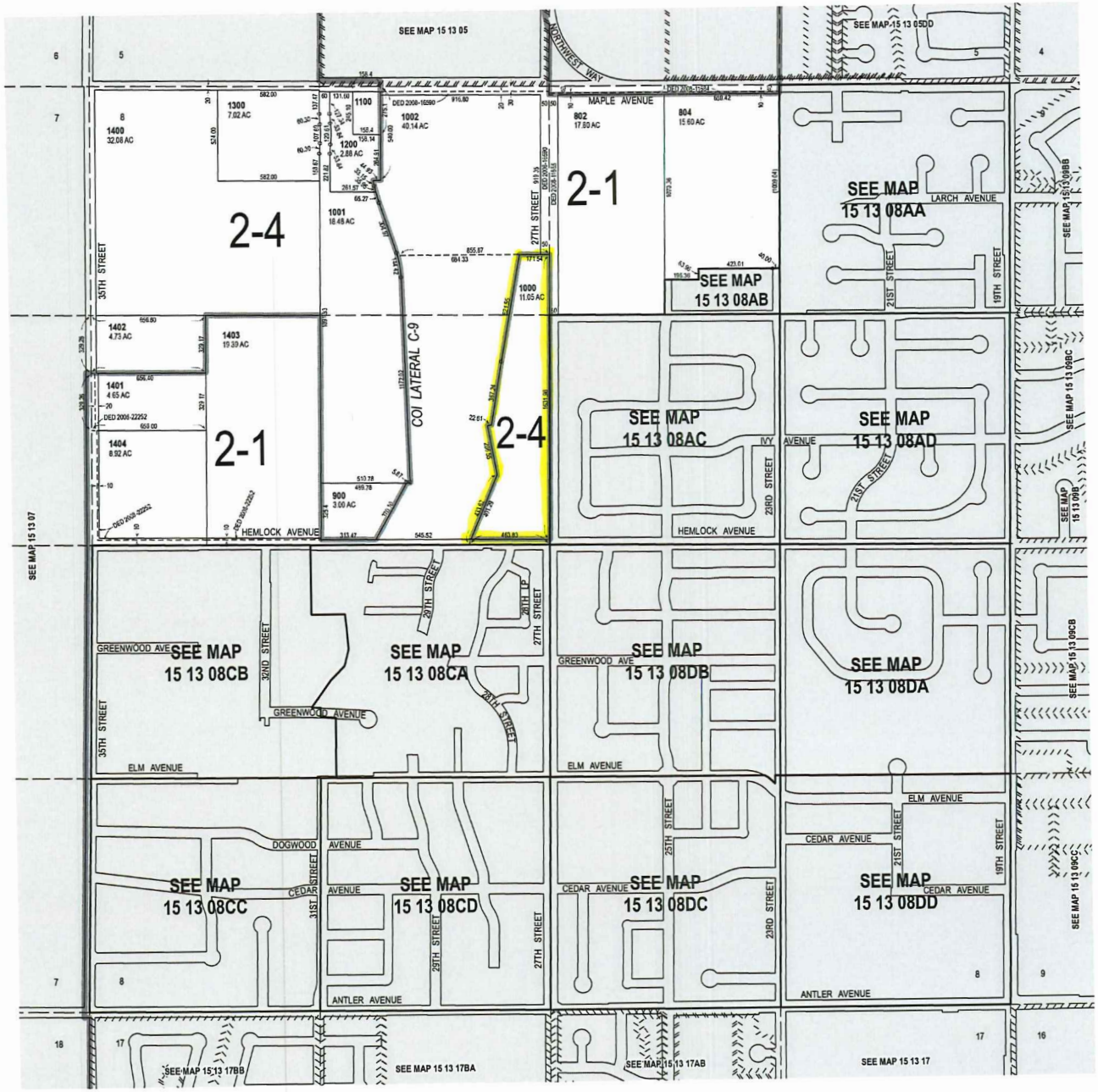
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

3/9/2023

SECTION 8 T.15S. R.13E. W.M.
DESCHUTES COUNTY
1" = 400'

15 13 08
& INDEX

Cancelled Nos.
100 thru 801
803
805
1500 thru 2501



15 13 08
& INDEX

222.750 Annexation of unincorporated territory surrounded by city; delayed annexation for certain property. (1) As used in this section:

(a) "Creek" means a natural course of water that is smaller than, and often tributary to, a river, but is not shallow or intermittent.

(b) "River" means a large, continuous and natural stream of water that is fed along its course by converging tributaries and empties into an ocean, lake or other body of water.

(2) When territory not within a city is surrounded by the corporate boundaries of the city, or by the corporate boundaries of the city and the corporate boundaries of another city, the ocean shore, a river, a creek, a bay, a lake or Interstate Highway 5, the city may annex the territory pursuant to this section after holding at least one public hearing on the question for which notice has been mailed to each record owner of real property in the territory proposed to be annexed.

(3) This section does not apply if the territory not within a city:

(a) Is surrounded entirely by water; or

(b) Is surrounded as provided in subsection (2) of this section, but a portion of the corporate boundaries of the city that consists only of a public right of way, other than Interstate Highway 5, constitutes more than 25 percent of the perimeter of the territory.

(4) Unless otherwise required by the city charter, annexation by a city under this section must be by ordinance or resolution subject to referendum, with or without the consent of any owner of real property within the territory or resident in the territory.

(5) For property that is zoned to allow residential use as a permitted use in the zone and is in residential use when annexation is initiated by the city under this section, the city shall specify an effective date for the annexation that is at least three years and not more than 10 years after the date the city proclaims the annexation approved. The city recorder or other officer performing the duties of the city recorder shall:

(a) Cause notice of the delayed annexation to be recorded by the county clerk of the county in which any part of the territory subject to delayed annexation is located within 60 days after the city proclaims the annexation approved; and

(b) Notify the county clerk of each county in which any part of the territory subject to delayed annexation is located not sooner than 120 days and not later than 90 days before the annexation takes effect.

(6) Notwithstanding subsection (5) of this section:

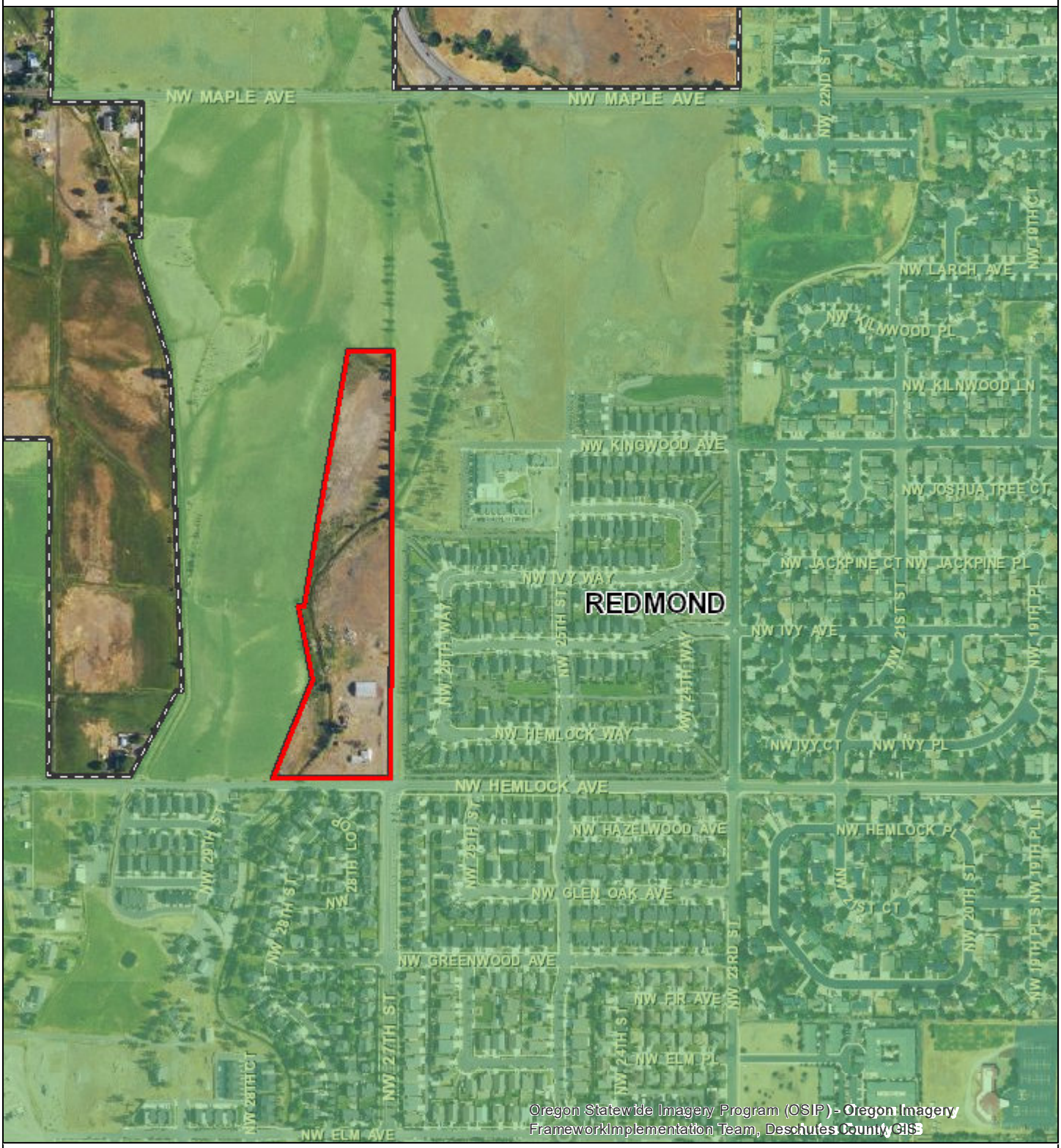
(a) Property that is subject to delayed annexation becomes part of the city immediately upon transfer of ownership.

(b) The record owner of real property described in subsection (5) of this section that is located in the territory to be annexed may waive the delay of the effective date of the annexation provided under subsection (5) of this section. The property becomes part of the city immediately upon the waiver.

(7) This section does not limit provisions of a city charter, ordinance or resolution that are more restrictive than the provisions of this section for creating or annexing territory that is surrounded as described in subsection (2) of this section.

(8) If a city charter, ordinance or resolution requires the city to conduct an election in the city, the city shall allow electors, if any, in the territory proposed to be annexed to vote in the election on the question of annexation. If the governing body of the city finds that a majority of the votes cast in the city and the territory combined favor annexation, the governing body, by ordinance or resolution, shall proclaim the annexation approved. The proclamation shall contain a legal description of each territory annexed. [Amended by 1963 c.444 §1; 1985 c.702 §16; 2007 c.654 §1; 2007 c.706 §1; 2019 c.197 §1; 2019 c.315 §3]

2729 NW Hemlock Ave.





Date: 7/10/2026

N

0 320 640 1,280 ft

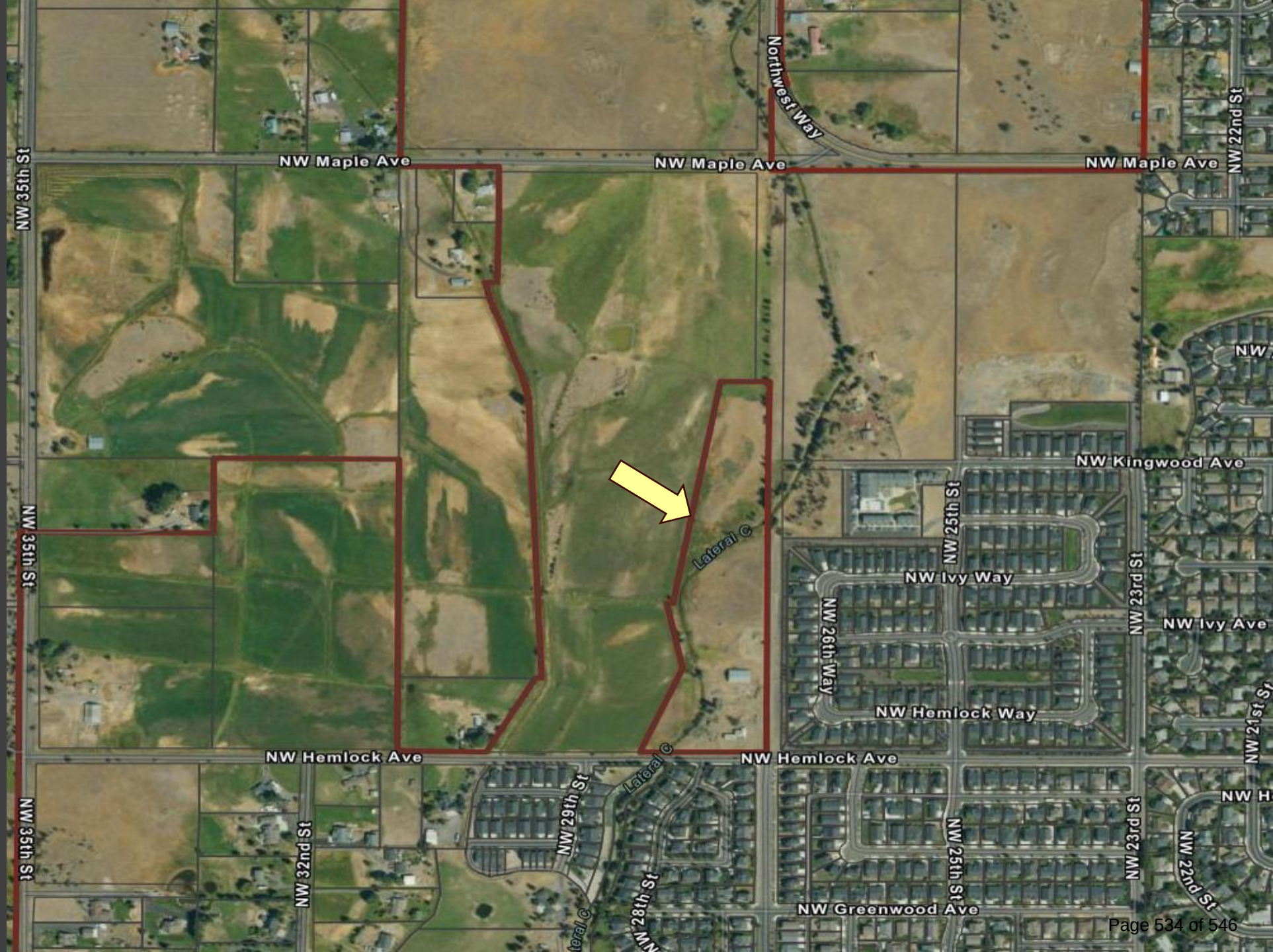
1 inch = 752 feet

2729 NW HEMLOCK AVE

11 ACRES

UH-10 ZONE

EXISTING DWELLING, OUTBUILDING, & CELL TOWER

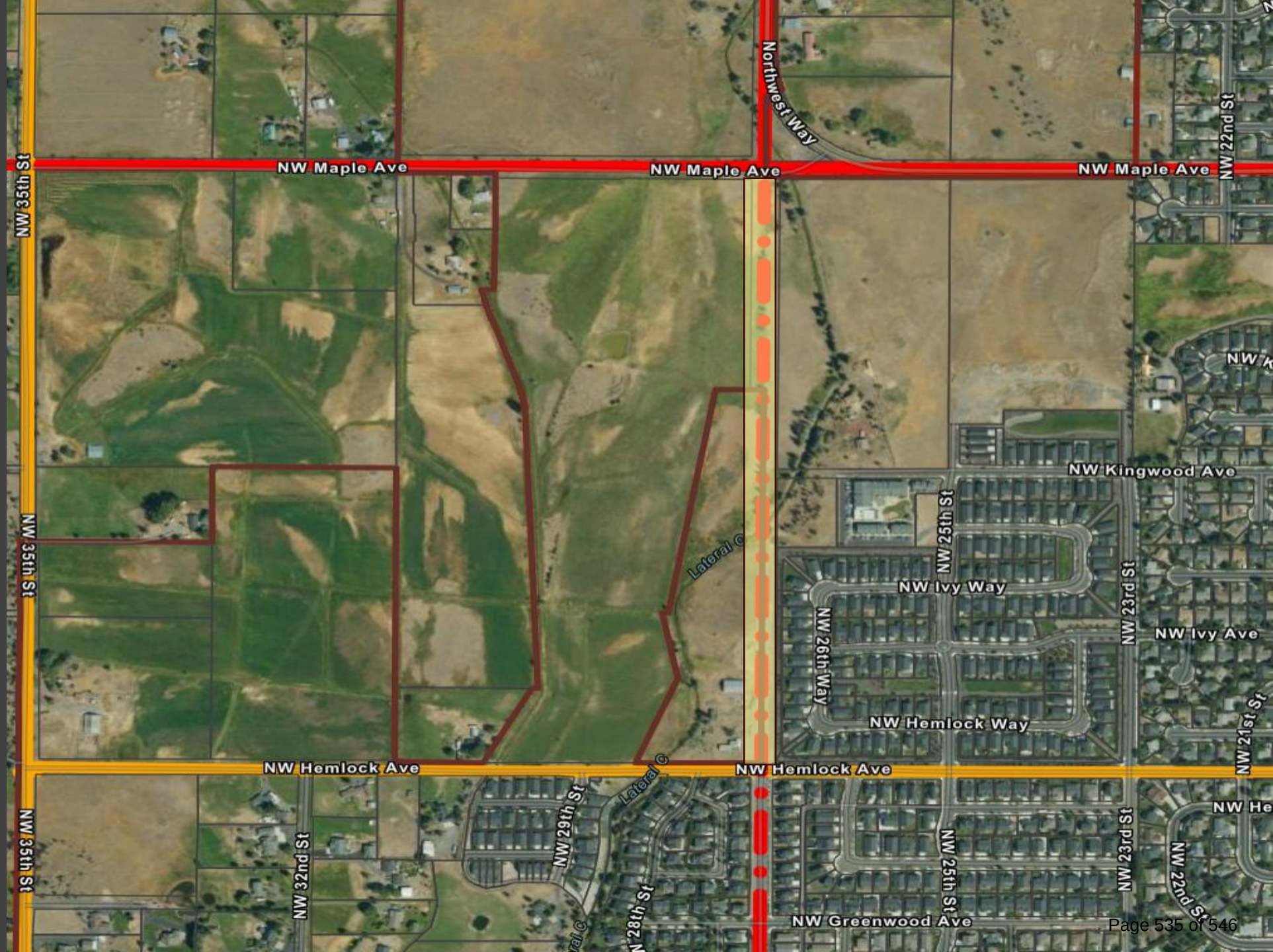


ISLAND ANNEXATION

NW 27TH ST CONNECTION

DWELLING IS ABANDONED

PUBLIC SAFETY CONCERNS











QUESTIONS?

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
FROM: Zachary Bass, Airport Director
SUBJECT: Amendment to Task Order #10 to City Contract #2020-59 with Morrison Maierle, Inc., increasing the contract by $121,800 to re-design aspects of the Redmond Airport Quick Turnaround Facility Project.

Report in Brief:
This item requests the City Council (Council) approve an amendment to Task Order #10 to City Contract #2020-59 with Morrison Maierle, Inc. (MMI), increasing the contract by $121,800 — from $516,196 to $637,996, to re-design aspects of the Redmond Airport Quick Turnaround Facility Project.

Background:
The Airport's Quick Turnaround Facility (QTA) is currently estimated to cost $15,800,000. Since the development of the initial design in 2020, changes have occurred to local and state building codes. Therefore, modifications to the QTA design occurred. With the progression of the design, particularly since March 2025, the team has identified further modifications that are expected to reduce the construction costs by around $1,000,000. In order to proceed with the modifications, the contract approved in March 2025 needs to be increased by $121,800.

Discussion:
In March 2025, the Council approved Task Order #10 to contract #2020-59 with MMI for the engineering re-design of the QTA. Since the approval of Task Order #10, the Airport and MMI have gone through various stages of value engineering for cost savings, but also safety and operational efficiencies.

This re-design will also improve ongoing maintenance and ADA functionality.

Fiscal Impact:
The fiscal impact of the amended MMI re-design and construction management, funded entirely through Customer Facility Charge revenues, as part of Task Order #10 will be in the amount of $121,800.

Alternative Courses of Action:

1. Approve amendment to Task Order #10
2. Do not approve amendment to Task Order #10
3. Request more information

Recommendation / Suggested Motion:
"I move to approve an amendment to Task Order #10 to City Contract #2020-59 with MMI for engineering re-design and construction administrative services for the Quick Turn Around Facility in the amount $121,800 and authorize the City Manager to sign the amendment."

RDM Quick Turnaround Facility Re-Design

Redmond City Council

July 28, 2026

CONTRACT #2020-59 TASK ORDER #10

INITIAL RE-DESIGN (MARCH '25)	$516,196
INCREASE CURRENTLY REQUESTED:	$121,800
TOTAL TASK ORDER #10	$637,996

EXPECTED CONSTRUCTION REDUCTION WITH NEW DESIGN: $1,060,000.

QUESTIONS

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: July 28, 2026
TO: City Council
THROUGH: Keith Witcosky, City Manager
FROM: Keith Witcosky, City Manager
SUBJECT: Resolution #2026-17 - A resolution modifying the Greater Redmond Area Enterprise Zone Agreement to increase the Extended Abatement to ten years.

Report in Brief:
This item requests the City Council approve an up to ten-year extended abatement option for Enterprise Zone (EZone) Agreements.

Background:
All employment lands in the City of Redmond are part of the State EZone program. This program allows qualifying businesses and investments to receive a 100% abatement of property taxes associated with the assessed value of new qualifying capital improvements. Companies continue to pay taxes on the value of the land and any capital investments that are not eligible for the abatement.

Depending upon the nature of the State program being used, EZone abatements can range from three (3) years to five (5) years (known as the Extended program). The duration of the abatement is connected to the number of jobs created and wage level. The three-year abatement can be approved administratively (without City Council action). Extended abatements require zone sponsor approval.

The Greater Redmond Area EZone has three co-sponsors: the City of Redmond; Deschutes County; and the City of Sisters. It is the prerogative of the sponsor agency whether the approval is made by the governing body or administratively. The City of Redmond's policy is that the Redmond City Council approves all extended EZone agreements.

The three-year abatement does not have an average wage requirement; however, the Extended abatement requires wages that are certified at 150% of Deschutes County average annual compensation, updated annually by Business Oregon.

Compensation under the criteria includes salary, overtime, bonuses, medical and retirement benefits. Not all jobs created need to exceed the 150% average annual compensation criteria, but rather, an average of the overall compensation for all net new jobs needs to exceed the 150% average annual compensation criteria. If less than half of the jobs meet the compensation criteria, then that qualifies for a one-year extension. If more than half of the jobs meet the compensation criteria, then that qualifies for a two-year extension.

Additionally, the City of Redmond waives or reduces, depending upon specific set criteria, land-use, building and permitting fees.

In the latest 2026 Enterprise Zone report, there is currently $79,968,460 in capital investment in both personal and real property that are under Enterprise Zone exemption. That includes eleven companies that have made new investments in Redmond that will be taxable in the next three to five years. In 2026, there is over $2 million in new taxable property that was previously under exemption coming onto the tax rolls.

Discussion:
House Bill 4084 (2026) went into effect on June 5, 2026. This Bill amended ORS 285C.160 to expand the extended tax exemption period available after year three, from up to two additional years (five total) to up to seven additional years (ten total), if requested by the enterprise zone sponsor and if the eligible business firm demonstrates that its project involves substantial capital investment, regional economic impact, or alignment with local development goals as described in OAR 123-674-0500(6). The extended period, which is established in ORS 285C.160(2)(b)(B), must be set forth in a written agreement with the enterprise zone sponsor. Zone sponsors must opt to allow for this new extended exemption period by adopting a corresponding resolution.

Fiscal Impact:
This action has no financial impact. It merely allows the use of the economic development tool. Any subsequent use of the 10-year abatement on a company-by-company basis would return to City Council for approval.

Alternative Courses of Action:

1. Approve the City's future use of the Enterprise Zone Extended 10-Year Abatement option.
2. Do not approve use of the 10-year abatement.

Recommendation / Suggested Motion:
“I move to adopt Resolution #2026-17, allowing the use of the Enterprise Zone Extended 10-Year Abatement option as an economic development tool."

CITY OF REDMOND
RESOLUTION NO. 2026-17

A RESOLUTION MODIFYING THE GREATER REDMOND AREA ENTERPRISE ZONE AGREEMENT TO INCREASE THE EXTENDED ABATEMENT TO TEN YEARS.

WHEREAS, the Greater Redmond Area Enterprise Zone (E-Zone) program encourages economic development by waiving property taxes on declared investments for eligible businesses and reduces or waives many City fees; and

WHEREAS, the E-Zone was established in 1988, renewed in 1998, reconfigured in 2009 to include the City of Sisters, and renewed in 2020; and

WHEREAS, the City of Redmond, City of Sisters and Deschutes County serve as the Governing Body (Zone Sponsor) of the E-Zone; and

WHEREAS, Redmond Economic Development Inc. (REDI) serves as the manager of the E-Zone; and

WHEREAS, under ORS 285C.175, the standard statutory tax exemption period allowed is three years; and

WHEREAS, under ORS 285C.160, an extended statutory tax exemption period of up to two additional years has been available to eligible business firms; and

WHEREAS, HB 4084 (2026) went into effect on June 5, 2026, amending ORS 285C.160 to expand the extended tax exemption period available after year three, from up to two additional years to up to seven additional years (ten total); and

WHEREAS, the extended period, which is established in ORS 285C.160(2)(b)(B), must be set forth in a written agreement with the enterprise zone sponsor; and

WHEREAS, zone sponsors must opt to allow for this new extended exemption period by adopting a corresponding resolution; and

WHEREAS, allowing eligible businesses in the Greater Redmond Area Enterprise Zone to utilize the extended statutory exemption period of up to ten years, as expanded by HB 4084 (2026), will benefit the Redmond business community by supporting local efforts to increase employment opportunities, raise local income, attract investments, and diversify the local economic base; and

WHEREAS, making the extended statutory exemption period of up to ten years available to eligible business firms in the Redmond Enterprise Zone does not grant or imply permission to develop land within the Zone without complying with all prevailing zoning, regulatory and permitting processes and restrictions of any and all local jurisdictions; nor does int indicate any public intent to modify those processes or restrictions; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REDMOND, OREGON, AS FOLLOWS:

SECTION ONE: Redmond Economic Development, Inc. (REDI) is hereby authorized to consider and process applications for extended tax exemption periods of up to ten years submitted by eligible business firms in the Greater Redmond Area Enterprise Zone. REDI's processing shall be done in accordance with ORS 285C.160(2)(b)(B) and rules adopted by the Oregon Business Development Department. If an eligible business firm demonstrates that its project involves substantial capital investment, regional economic impact or alignment with local development goals, REDI is authorized to prepare and facilitate the execution of a corresponding written agreement between the eligible business firm and the City of Redmond, as sponsor of the Greater Redmond Area Enterprise Zone, to extend the period during which the eligible business firm's qualified property is exempt from taxation in the amount of time sought by the firm, up to ten total years, beyond the three years allowable under ORS 285C.175.

SECTION TWO: This Resolution shall be effective following its adoption by the City Council.

ADOPTED by the City Council and **SIGNED** by the Mayor this 28th day of July 2026.

_____
Ed Fitch, Mayor

ATTEST:

_____
Kelly Morse, City Recorder