Exhibit B1

Engineering Department
Land Use Application
Review Comments & Conditions

Home of the Tualatin River National Wildlife Refuge

To:	Eric Rutledge, Associate Planner
From:	Craig Christensen P.E., Civil Engineer
Project:	Cedar Creek Gardens Subdivision (LU 2021-023)
Date:	June 13,2022

Engineering staff has reviewed the information provided for the above referenced private development project. Final construction plans will need to meet the standards established by the City of Sherwood Engineering Department and Public Works Department, Clean Water Services (CWS) and Tualatin Valley Fire & Rescue (TVF&R), in addition to requirements established by other jurisdictional agencies providing land use comments. City of Sherwood Engineering Department comments are as follows:

General Information

The proposed subdivision consists of 41 single family residential (SFR) lots, with separate tracts of land used for stormwater quality treatment facility (Tracts A & C), open spaces (Tracts B, D, H and I), shared driveway (Tract G) and visual corridor (Tracts E and F). The proposed site development is located along SW Brookman Road, immediately east of the Reserve at Cedar Creek Subdivision.

Transportation

The preliminary site development plans indicate that Lots 1 thru 8 will take access of the existing SW Yamel Terrace, ½ street constructed with the Reserve at Cedar Creek Subdivision. The Cedar Creek Gardens Subdivision will construct the remaining ½ street construction of SW Yamel Terrace. Lots 9 thru 39 will take access off of proposed Street 'B' to Street 'A' to SW Brookman Road while Lots 40 and 41 will take access off of SW Brookman Road.

A TIA was conducted by Lancaster Mobley, dated April 8, 2020. The results identified 4 intersection impacts where fee in-lieu-of construction amounts are recommended. The TIA and related recommendations are sufficient to conduct LU review for the proposed development.

The proposed site development plans show a 33-foot right-of-way dedication along SW Brookman Road frontage, with no public improvements being recommended along this frontage. Brookman Road east of Tract 'H' will be a future local street, therefore street frontage improvements and right-of-way dedication shall be based upon a city local street standard. Washington County approval for this driveway connection to SW Brookman Road is required.

WACO submitted a letter dated June 30, 2020 listing several conditions and requirements. The applicant will be required to comply with all the requirements of the letter.

Condition: Prior to Acceptance of Constructed Public Improvements, applicant will comply with all the requirements and conditions of the WACO letter dated June 30, 2022.

A proportionality analysis has been performed (see attached TIA report), with the following conclusions and conditions:

Condition: Prior to Issuance of the Engineering Compliance Agreement, the following payments shall be made to the City, and distributed into the appropriate fund accounts (either WACO TDT or City transportation SDC) as determined by the applicant.

1. Brookman Road frontage right-of-way land dedication.

a. WACO is requiring a 33-foot wide right-of-way dedication along the frontage of SW Brookman Road.
b. Right-of-Way land valuation shall be credit eligible against either WACO TDT fees (100%), or the City transportation SDC fees (100%), or a combination of the two for right-of-way dedication in excess of a city half street local street section (26 feet).

2. SW Sunset Boulevard/SW Woodhaven Drive TIA mitigation item A
    a. A proportionate share cost of $19,480.52 for a signalized intersection improvements.
    b. Mitigation item A is credit eligible at 100% for WACO TDT fees, or 100% City transportation SDC fees, or a combination of the two fees not to exceed $19,480.52.
3. SW Sunset Boulevard/SW Timbrel Lane TIA mitigation item B
    a. A proportionate share cost of $14,516.13 for a mini-roundabout intersection improvement.
    b. Mitigation item B is credit eligible at 100% for WACO TDT fees, or 100% City transportation SDC fees, or a combination of the two fees not to exceed $14,516.13.
4. SW Ladd Hill Road/SW Main Street/SW Sunset Boulevard mitigation item C
    a. A proportionate share cost of $8,650.52 for a signalized intersection improvement.
    b. Mitigation item C is credit eligible at 100% for WACO TDT fees, or 100% City transportation SDC fees, or a combination of the two fees not to exceed $8.650.52.
5. SW Baker Road/SW Murdock Road/SW Sunset Boulevard mitigation item D
    a. A proportionate share cost of $26,627.22 for addition of turn lane intersection improvements.
    b. Mitigation item D is credit eligible at 100% for WACO TDT fees, or 100% City transportation SDC fees, or a combination of the two fees not to exceed $26,627.22
6. SW Brookman Road/SW Highway 99
    a. A proportionate share cost of $30,941.88 (41 lots at $754.68/lot) for signalized intersection improvements.
    b. This mitigation item is credit eligible at 100% for WACO TDT fees.

Condition: Prior to Issuance of the Engineering Compliance Agreement, SW Brookman Road Frontage Improvements shall be installed to meet a 5-lane arterial class street meeting Washington County and City of Sherwood standards unless a Fee In-Lieu-Of Construction Payment is made. Fee-in-lieu will consist of the following: 14-feet of street widening at local street thickness, curb and gutter, 6-foot width of sidewalk, 2 catch basins, street lighting, street trees and storm water quality and hydromodification facilities ($1.50/sf) – since none of this is above the local street section, not credit eligible. Any payment in-lieu required by Washington County in excess of the payment above will be at 100% for WACO TDT fees, or 100% City transportation SDC fees, or a combination of the two fees.

Condition: WACO Transportation Development Tax (TDT) credit eligible offsets will be based on requirements and limitations established by WACO Ordinance Mo. 691A, as modified by Ordinances 729, 741, 746-A, 751 and 793-A, and as described in WACO's *Countywide Transportation Development Tax Procedures Manual*, dated July 2019. City Transportation SDC credit eligible off-sets will be based on requirements and limitations established by City of Sherwood Municipal Code Chapter 15.16 – System Development Charges and Chapter 15.20 – Park and Recreation System Development Charges on New Development.

Condition: Prior to Final Approval of Plat, applicant shall show a 33-foot wide right-of-way dedication to WACO along the SW Brookman Road frontage, meeting WACO's standards for half of a 5-lane arterial right-of-way section width of 53-feet as measured from the existing right-of-way centerline.

Condition: Prior to Final Approval of Plat, applicant shall show right-of-way dedication to establish a 26-foot wide right-of-way along the SW Brookman Road street frontage for Lot 41 and Tract H meeting the approval of the City of Sherwood Engineering Department.

Condition: Prior to Final Approval of Plat, show clear vision easements on all corner lots fronting public streets. The clear vision easement shall be to the City of Sherwood and conform with MC Section 16.58.010.

Condition: Prior to Final Approval of Plat, applicant shall show a minimum 8-foot wide public utility easement (PUE) on private property along all public street frontages unless otherwise approved by the City Engineer.

Condition: Prior to Final Approval of Plat, all proposed private street tracts shall comply with all the standards stated in the City MC Section 16.118.050 (Private Streets).

Condition: Prior to Final Approval of Engineering Plans, applicant shall submit a separate design modification request for each non-conforming public infrastructure design element, to the City Engineer for review and approval.

Condition: Prior to Final Approval of Engineering Plans, the interior street system providing access to the subject development shall be designed to meet the approval of the City of Sherwood Engineering Department.

Condition: Prior to Final Approval of Engineering Plans, street widening improvements along SW Brookman Road along the frontage of Lot 41 and Tract 'H' shall be designed to meet a standard residential street section with street light (mast arm and luminaire on power pole acceptable) meeting the approval of the City of Sherwood Engineering Department. A Washington County permit is also required for the driveway connection to SW Brookman Road.

Condition: Prior to Final Approval of Engineering Plans, the street lighting design shall include a photometric analysis report for review and approval by City Engineering. City lighting standards require Westbrooke fixtures on all internal streets to the subdivision. Street lighting for SW Brookman Road frontage shall conform to WACO standards.

Condition: Prior to Final Acceptance of Constructed Public Improvements, connection of the development area to the public transportation improvements being constructed by the adjacent Reserve at Cedar Creek Subdivision, will not be permitted until such time as the public transportation improvements being constructed by the Reserve at Cedar Creek Subdivision have been constructed, have received final inspection approval, and have been accepted as public infrastructure by the City or as otherwise approved by the Sherwood Engineering Department. Until that time, a minimum 10-foot physical separation between the Cedar Creek

Gardens site development public transportation infrastructure improvements and the adjacent Reserve at Cedar Creek Subdivision public transportation infrastructure improvements shall be maintained, unless otherwise approved by the City Engineer.

Condition: Prior to Final Acceptance of Constructed Public Improvements, all private street shall comply with all the standards stated in the City MC Section 16.118.050 (Private Streets).

Condition: Prior to Final Acceptance of Constructed Public Improvements, all conditions and requirements listing in a letter submitted by WACO, dated June 30, 2022 shall be complied with.

Notice: All TDT and SDC credit requests on credit eligible public improvements must be submitted in accordance with WACO Ordinance Mo. 691A, as modified by Ordinances 729, 741, 746-A, 751 and 793-A, and City of Sherwood Municipal Code Chapter 15.16 – System Development Charges and Chapter 15.20 – Park and Recreation System Development Charges on New Development, and conform and comply with the standards and requirements stated therein.

Notice: It is the applicant's responsibility to apply for System Development Charge/TDT credits in compliance with the Sherwood Municipal Code. The developer will need to obtain a credit voucher for credits to be applied against SDCs/TDTs. Any building permits SDCs/TDTs paid prior to issuance of credits will not be refunded. Developer shall take this into consideration when obtaining building permits.

City Engineer's Comment: Discussion with City Transportation Engineering (DKS Associates) requesting feedback on any potential safety concerns for SW Brookman Road. Two potential safety concerns were identified are; 1) narrow roadway width, and 2) edge drop-off conditions. SW Brookman Road generally has a narrow paved width section (18 to 20 feet), much narrower than what is typically found on City residential streets. The drop–off edge condition is most concerning in that driver reaction to right side tires falling off the road, result in overcorrection, then driving off the left side of the road. The narrow road pavement section width does not allow for much maneuvering room. This is a physical condition of the road that the City identifies as a potential safety issue, and that the City does not have the funds to correct for in the near future, and that the City cannot condition the developer to correct for as the cost of the needed improvements are not proportional to the impacts generated by the development. It is recommended that at a minimum, pavement edgelines/foglines be re-established along SW Brookman Road prior to Grant of Occupancy.

Sanitary Sewer

The submitted plans show the proposed public sanitary sewer main system connecting to the existing sanitary sewer main system constructed as part of the adjacent Reserve at Cedar Creek Subdivision. The construction of the Reserve at Cedar Creek public sanitary sewer must be completed, inspected, approved and accepted by the City before the proposed development may connect to the existing public system. Until such time as the City gives final acceptance of the public sanitary sewer being constructed with the Reserve at Cedar Creek Subdivision, the proposed Cedar Creek Gardens Subdivision shall maintain a 10-foot physical separation between the two systems.

A regional sanitary sewer trunk line extension (Brookman Sanitary Sewer Trunk Line Extension Project has been constructed through the Reserve at Cedar Creek Subdivision. The alignment of the proposed trunk line is shown on the submitted plans. The proposed trail in the area of

the sanitary trunk line shall also double as a maintenance access road for accessing sanitary trunk line manholes.

A regional sanitary sewer trunk line exists north of the subject property and west of SW Redfern Drive. Extension of this trunk line to the regional trail off of SW Redfern Drive will be required to allow for future extension to provide sanitary sewer service to the remainder of the properties within the eastern portion of the Brookman Expansion Area.

Condition: Prior to Final Approval of Engineering Plans, the subject development shall design to provide public sanitary sewer service to all proposed lots as required through new public streets/public easements meeting the approval of the Sherwood Engineering Department.

Condition: Prior to Final Approval of Engineering Plans, the subject development shall design for the extension of the sanitary sewer north of the subject property and west of SW Redfern Drive to be extended to the southern property line of the subject property meeting the approval of the Sherwood Engineering Department.

Condition: Prior to Final Acceptance of Constructed Public Improvements, connection to that portion of the adjacent Reserve at Cedar Creek Subdivision system, will not be permitted until such time as that sanitary sewer main line has been constructed, received final inspection approval, and accepted as public infrastructure by the City. Until that time, a minimum 10-foot physical separation between the Cedar Creek Gardens site development public sanitary infrastructure improvements and the adjacent Reserve at Cedar Creek Subdivision public sanitary infrastructure improvements shall be maintained.

Condition: Prior to Final Acceptance of Constructed Public Improvements, any public sanitary sewer to be located on private property shall have a recorded public sanitary sewer easement encompassing the related public sanitary sewer improvement meeting the approval of the City of Sherwood Engineering Department.

Condition: Prior to Grant of Occupancy, all private sanitary laterals shall be installed in compliance with the current Oregon Plumbing Specialty Code.

Storm Sewer

The proposed development submittal includes a Service Provider Letter issued by CWS (File No. 21-002919), dated April 20, 2022. The SPL lists 23 specific conditions which are to be completed and adhered to as part of the proposed project approval.

A preliminary stormwater drainage report prepared by PDG, dated April 26, 2022 has been submitted. Within the preliminary drainage report/preliminary plans the following important items are of note:

1) Two regional facilities will be constructed. One for Lots 1-8 and the other for Lots 9-39.
2) Lots 40 and 41 will have individual on-lot LIDA facilities.
3) The proposed regional facilities will provide for water quality treatment, hydro-modification and detention.

Condition: Prior to Final Plat Approval, the stormwater treatment facilities shall be shown as being located in individual tracts of land dedicated to the City of Sherwood.

Condition: Prior to Final Plat Approval, an easement over the vegetated corridors tracts of land granting access to CWS shall be recorded with the plat.

Condition: Prior to Final Engineering Plan Approval, submitted site development plans shall provide for compliance with all 23 requirements and conditions stated in the CWS issued Service Provider Letter (File No. 21-002919).

Condition: Prior to Final Engineering Plan Approval, submitted site development stormwater improvement plans shall provide for City access to stormwater outfall/outlet structures for maintenance purposes.

Condition: Prior to Final Engineering Plan Approval, a Final Stormwater Drainage Report shall be provided to City of Sherwood Engineering Department for review and approval.

Condition: Prior to Final Engineering Plan Approval, a Stormwater Connection Permit shall be obtained from CWS.

Condition: Prior to Final Engineering Plan Approval, obtain and submit to Engineer a concurrence letter from DSL for the wetlands on the site or submit documentation from DSL that concurrence is not required.

Condition: Prior to Final Engineering Plan Approval, the subject development shall design to provide stormwater improvements as needed to serve new street improvements and to serve each lot meeting the approval of the City of Sherwood Engineering Department.

Condition: Prior to Final Acceptance of Constructed Public Improvements, any public stormwater system that is located on private property shall have a recorded public stormwater easement encompassing the related public stormwater sewer improvement meeting the approval of the City of Sherwood Engineering Department.

Condition: Prior to Final Acceptance of Constructed Public Improvements, all private stormwater laterals shall be installed in compliance with the current Oregon Plumbing Specialty Code.

Condition: Prior to Grant of Occupancy, Lots 40 and 41 shall have constructed individual LIDA facilities meeting the approval of the City of Sherwood Engineering Department.

Condition: Prior to Grant of Occupancy, Lots 40 and 41 shall have Private Stormwater Facility Access and Maintenance Covenant recorded with Washington County. A O&M plan is also required to be submitted to the City of Sherwood Engineering Department.

Water

The proposed development submittal indicates the public water system previously construction by the Reserve at Cedar Creek Subdivision will be used to connect to/extend to provide service to the subject development.

The City of Sherwood Water System Master Plan shows the need for construction of 12-inch waterline within Brookman Road. The public water line will extend the proposed water main constructed with the Reserve at Cedar Creek Subdivision, across the entire SW Brookman Road frontage of the Cedar Creek Gardens Subdivision. Because the line is sized larger than the residential standard of 8-inches, the construction cost of this line will be eligible for water system SDC credits on that portion greater than 8-inches. This water line will be extended into the subject property to provide water service to Lots 9-39. This also includes installing a 12-inch waterline within SW Brookman Road along the frontage of Lot 41 and Tract H. This section may be a payment in lieu at the cost an 8-inch waterline along the frontage of Lot 41 and Tract H if it would result in a short, dry waterline.

Lots 1-8 will obtain service via connection to the existing water line constructed within SW Yamel Terrace with the Reserve at Cedar Creek Subdivision. Lots 40-41 will obtain water from the extension of an existing water line within SW Redfern Drive. Per TVF&R, a fire hydrant on the west side of SW Brookman Road is required to provide fire service to Lots 40 and 41.

Condition: Prior to Final Approval of Engineering Plans, the subject development shall design to provide public water service to all proposed lots as required through new public streets/public easements meeting the approval of the Sherwood Engineering Department. All public water pipe shall have joint restraints.

Condition: Prior to Final Approval of Engineering Plans, the applicant shall obtain any necessary Right-of-Way Permits and/or Utility Facilities Permits from WACO for constructing public improvements within the SW Brookman Road right-of-way.

Condition: Prior to Final Approval of Engineering Plans, applicant shall obtain and provide letter from Sherwood Public Works Department, that existing public water system has the capacity and pressure to provide appropriate public water and fire service to the proposed development.

Condition: Prior to Final Approval of Engineering Plans, the subject development shall design for the installation of a 12-inch waterline running down SW Brookman Road, shall extend the entire length of the property frontage right-of-way line. The oversizing cost of construction (greater than 8") shall be eligible for water system SDC credits. A payment-in-lieu may be accepted by the city in place of construction of a 12-inch waterline along the frontage of Lot 41 and Tract H.

Condition: Prior to Final Acceptance of Public Improvements, connection to that portion of the public water system being constructed by the adjacent Reserve at Cedar Creek Subdivision, will not be permitted until such time as that portion of the public water system is constructed, has received final inspection approval, and is accepted as public infrastructure by the City. Until that time, a minimum 10-foot physical separation between the proposed site development public water system and the Reserve at Cedar Creek Subdivision public water systems, shall be maintained.

Condition: Prior to Issuance of Occupancy of any residential lot structures, all service laterals shall be installed in compliance with the current Oregon Plumbing Specialty Code.

Grading and Erosion Control

An environmental assessment report prepared by ESA, dated November 12, 2021 has been included in the submittal.

The site abuts wetlands that include a FEMA defined 100-year flood plain limit. The applicant submittal indicates that each residential structure built in the subdivision shall meet FEMA requirements for the ground finished floor elevation being 1.5-feet above the 100-year flood plain elevation.

Condition: Prior to Final Engineering Plan Approval, applicant shall obtain an NPDES 1200C permit.

Condition: Prior to Grant of Occupancy, for each residential structure constructed within the subdivision and abutting the Flood Plain corridor (Lots 1-18), a completed FEMA Elevation Certificate Form shall be submitted to the City for its records.

Other Engineering Issues

Condition: Per City Municipal Code Chapter 16.118, all new utilities shall be placed underground unless covered by exceptions noted under Section 16.118.040, and as approved by the City Engineer.

Condition: Prior to Issuance of an Engineering Compliance Agreement, final engineering plan approval by the Engineering Department is required, performance and payment bonds and insurance riders must be submitted to the City.

Condition: Prior to Issuance of Building Permits, the applicant will need to receive substantial completion of the public improvements from the Sherwood Engineering Department for the phase which contains the lot. Phase improvements are divided by Cedar Creek with improvements west of Cedar Creek being part of Phase 1 and improvements east of Cedar Creek part of Phase 2.

Condition: Prior to Issuance of Building Permit, the developer/home builder shall pay the designated reimbursement amount from any reimbursement districts that the lot is within.

Condition: Prior to Final Acceptance of Constructed Public Improvements, Sherwood Broadband utilities (vaults and conduit) shall be installed along all subject properties street frontages per requirements set forth in City Ordinance 2005-017 and City Resolution 2005-074 unless a fee-in-lieu is accepted.

Condition: Prior to Final Acceptance of Public Improvements, all public improvements shown within the approved engineering plans shall be in place and approved by the City of Sherwood Engineering Department for the phase being accepted. Phase improvements are divided by Cedar Creek with improvements west of Cedar Creek being part of Phase 1 and improvements east of Cedar Creek part of Phase 2.

Condition: Prior to Final Acceptance of Public Improvements, the subdivision plat shall be recorded with Washington County and monuments shall be set.

Condition: Prior to Grant of Occupancy, final acceptance of the constructed public improvements shall be obtained from the Engineering Department for the phase which contains the lot. Phase improvements are divided by Cedar Creek with improvements west of Cedar Creek being part of Phase 1 and improvements east of Cedar Creek part of Phase 2.

END OF ENGINEERING CONDITIONS OF APPROVAL

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Design Modification Request to Exceed the Maximum Spacing Between Intersections Along Street "B" Between Street "A" and the East Property Line – Section 210.6.E.

LU 2021-023 SUB Cedar Creek Garden Completeness Review – January 13th, 2022

To: Bob Galati, P.E. – City Engineer
Through: Craig Christensen, P.E. – City Project Manager
From: Brent Fitch, P.E. – Principal
PDG Project Number: 285-021

Location of Requested Design Modification

SW Brookman Road, a County arterial street, is located along the southern boundary of the site. Proposed Street "A" provides access to the site from SW Brookman Road, further intersecting with Proposed Street "B", which in turn serves proposed Lots 9 – 39 before terminating as a street stub at the eastern shared boundary with Tax Lot 105 (Exhibit A – Sheet P.3.0., Preliminary Plat).

Current Standards

Section 210.6.E. of the City of Sherwood Engineering Manual requires full access intersection spacing of a maximum of 530 feet for local streets.

Section 210.6.E.3. of the City of Sherwood Engineering Manual states "Provide full street connections with spacing of no more than 530 feet between connections except where prohibited by barriers."

Section 210.6.E.4. of the City of Sherwood Engineering Manual states "Provide bike and pedestrian access ways in-lieu-of streets with spacing of no more than 330 feet except where prevented by barriers."

Design Modification Being Requested

We are requesting that no additional connections are required between Street "A" and the eastern shared boundary with Tax Lot were 105.

Existing Conditions

The site includes a number of restricting topographic features, including the Cedar Creek channel and the associated broad floodplain flowing through the site, from the west central site boundary to the northeast site boundary. Two unnamed intermittent tributaries to Cedar Creek have shallower topographic relief and enter the site near the southwest and southeast site corners, providing a narrow corridor to access the site between the two, and sloping down within relatively broad, flat topography to the north at about 2% before reaching the Cedar Creek floodplain elevation. Between the tributaries is a higher ridge of forested area that also slopes down from the southern site boundary to the north at about 5% (Exhibit A – Fig. 3, Existing Conditions Map).

Result of Meeting Standards

Section 210.6.E.3. of the City of Sherwood Engineering Manual includes a provision to allow for exceptions to the street connections required above where such connections are prohibited by barriers.

The development site meets the requirements for an exception to the maximum intersection spacing standards on the basis that the presence of topographical features including stream channels, wetlands, and 100-year flood plain mean that additional connections cannot be reasonably provided without substantial impacts to significant natural resources. In addition, approved development to the west does not provide a stub street or pedestrian connection at locations which facilitate additional connections, also due to the location of topographical features. As such, additional street connections are unwarranted, and may ultimately cause the denial of the application through a negative Sensitive Area Service Provider Letter from Clean Water Services due to unnecessary permanent impacts to the resource.

Proposed Design Modification

No additional connections be required shall be required on Street "B" between Street "A" and the eastern shared boundary with Tax Lot were 105.

Reason Why Design Request Should be Approved

As proposed, the site plan provides needed pedestrian connections to the community trails within the site in order to provide connections to existing and approved access points. No street connections are required to the west as no existing or approved street stubs exist, and connectivity is provided to the east through the street stub to Tax Lot 105. The proposed plan provides these connections while avoiding and/or minimizing permanent impacts to surrounding significant natural resources.

Brent Fitch, P.E. – Principal — 1-13-2022 — Date

Craig Christensen, P.E. — Digitally signed by Craig Christensen, P.E. Date: 2022.06.21 15:25:37 -07'00'

Craig Christensen, P.E. - City Project Manager — 6/21/2022 — Date

BOB, I CONCUR THAT MEETING MAXIMUM BLOCK LENGTH STANDARDS WITH ALL OF THE SENSETIVE AREAS WOULD BE MORE OF A DETRIMENT THAN A BENEFIT

- [x] Approved
- [ ] Approved with Conditions (conditions below or on attached sheet)
- [ ] Denied

Bob Galati PE, City Engineer — Digitally signed by Bob Galati PE, City Engineer Date: 2022.06.29 15:16:25 -07'00'

Bob Galati, P.E. - City Engineer — 06/29/2022 — Date

Exhibit A – Sheet P3.0, Preliminary Plat
Exhibit B – Fig. 3., Existing Conditions Plan

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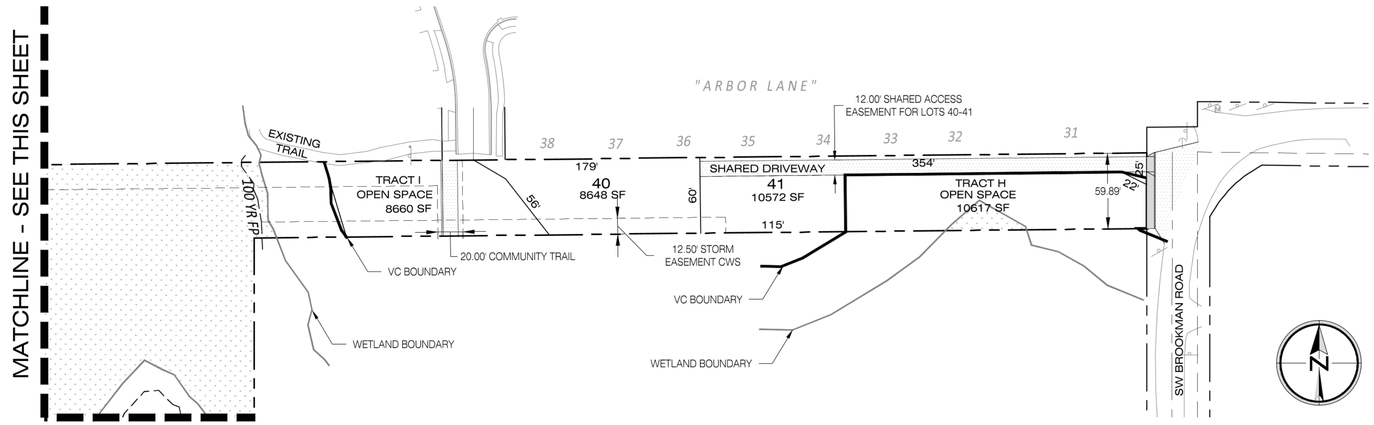
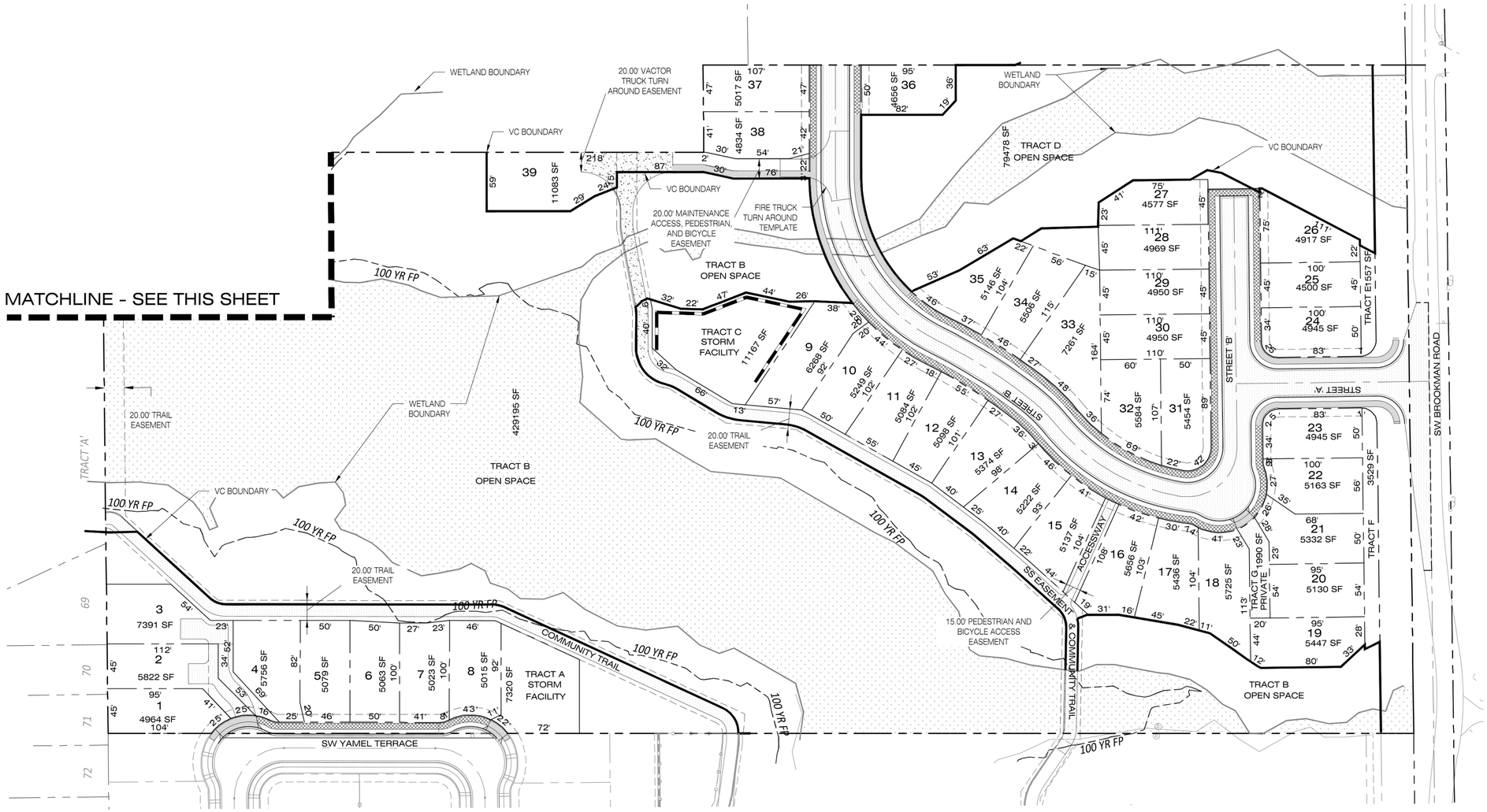
Exhibit A – Sheet P3.0, Preliminary Plat

Exhibit B2





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PRELIMINARY PLAT

CEDAR CREEK GARDENS
CITY OF SHERWOOD, OREGON

Designed by	MLS	Date	08/2021
Drawn by	CFS	Date	08/2021
Reviewed by	MLS	Date	08/2021
Project No.	285-021	REF.	
Horiz. Scale:			
Vert. Scale:			

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No.	Date	Revision	By

Project
CEDAR CREEK GARDENS
No.
285-021
Type
PLANNING
Sheet
P3.0

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Exhibit B – Exhibit A – Fig. 3., Existing Conditions Plan

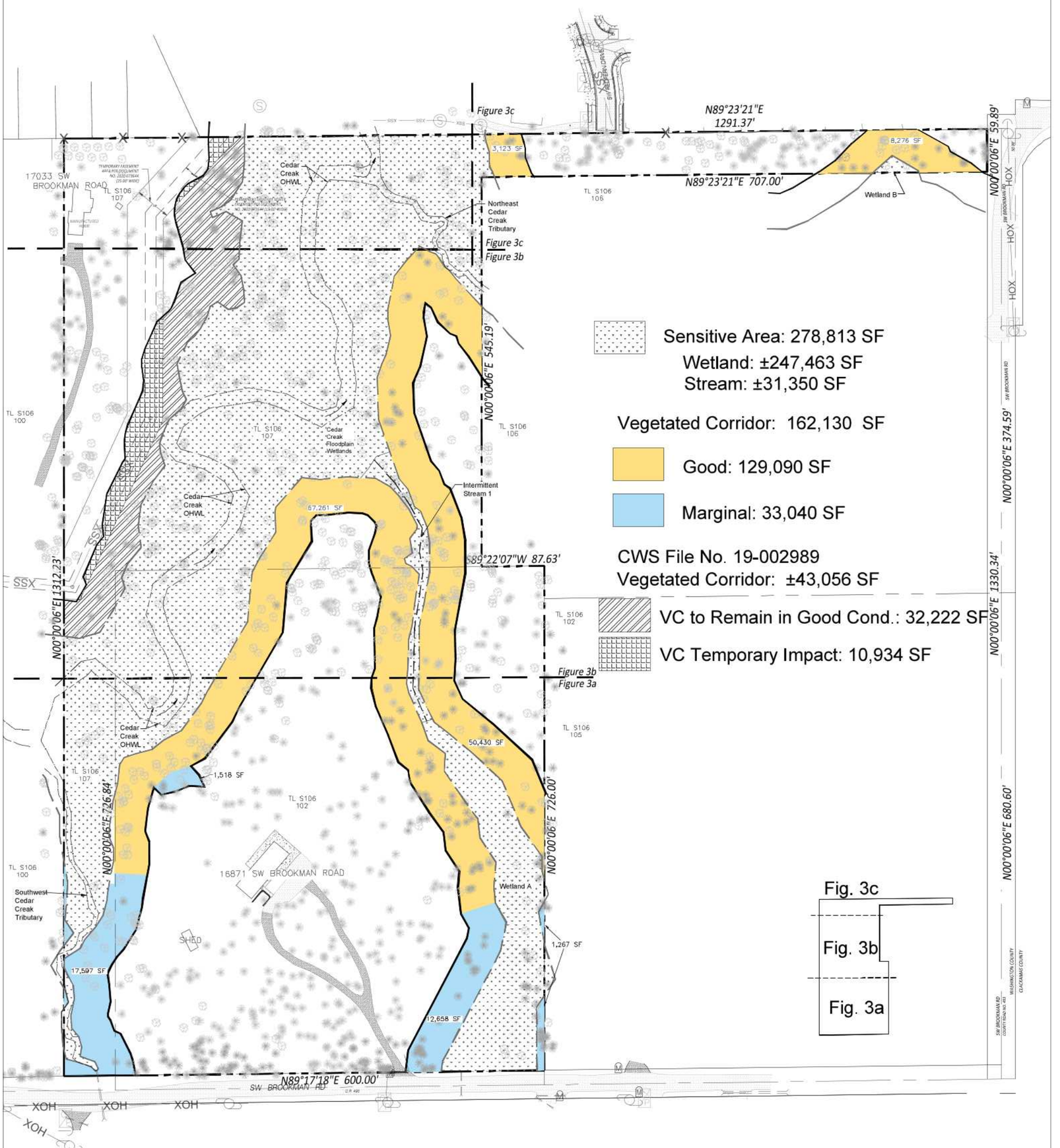

Fig. 3

Job: 21004
Rev: 00/00
Date: 10/21
Mod. By: KR

Base Map Source:
Pioneer Design
Group, Inc.

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1"=140'
0 75 140

Existing Conditions Map
Cedar Creek Gardens
Sherwood, Oregon

Environmental
Science &
Assessment, LLC
esa
4831 NE Fremont St.
Suite 2B
Portland, OR 97213
Phone: 503.478.0424
www.esapdx.com

Exhibit B2

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Portland, Oregon 97223

Design Modification Request to Reduce the Minimum Length of Road Between Intersections between SW Brookman Road and Street 'B' – Section 210.6.E.

LU 2021-023 SUB Cedar Creek Garden Completeness Review – January 13th, 2022

To: Bob Galati, P.E. – City Engineer
Through: Craig Christensen, P.E. – City Project Manager
From: Brent Fitch, P.E. – Principal
PDG Project Number: 285-021

Location of Requested Design Modification

SW Brookman Road, a County arterial street, is located along the southern boundary of the site. Proposed Street "A" provides access to the site from SW Brookman Road, and in turn intersects with Proposed Street "B" 194 feet north of SW Brookman Road (centerline of SW Brookman Road to centerline of Street "B"). Street "A is proposed as a local street.

Current Standards

Section 210.6.E. of the City of Sherwood Engineering Manual requires full access intersection spacing of a minimum of 200 feet for local streets.

Section 210.6.E.1. of the City of Sherwood Engineering Manual states "Distance between streets is measured from the centerline of the subject street to the centerline of the adjacent street."

Design Modification Being Requested

We are requesting that a spacing of 194 feet between intersections be approved for Street "A" between SW Brookman Road and Street "B".

Existing Conditions

The site includes a number of restricting topographic features, including the Cedar Creek channel and the associated broad floodplain flowing through the site, from the west central site boundary to the northeast site boundary. Two unnamed intermittent tributaries to Cedar Creek have shallower topographic relief and enter the site near the southwest and southeast site corners, providing a narrow corridor to access the site between the two, and sloping down within relatively broad, flat topography to the north at about 2% before reaching the Cedar Creek floodplain elevation. Between the tributaries is a higher ridge of forested area that also slopes down from the southern site boundary to the north at about 5% (Exhibit A – Fig. 3, Existing Conditions Map).

Result of Meeting Standards

To meet the 200-foot minimum intersection spacing, Street "A" would be required to be extended to the north by 6 feet, with Street "B" also being required to move a corresponding 6 feet to the north. The site is severely impacted by the presence of significant natural resource areas, with only 6.82 acres of the total 20.03 acres (34%) of the site available for development. As a result, any relocation of Streets "A" or "B" will be required to be accommodated within the proposed lots, in order to avoid permanent impacts to the adjoining resource areas and 100-year floodplain. On the north side of Street "B", any alteration to the location of the street would reduce Lot 27 below 4,500 square feet (currently 4,577 square feet), which is below the minimum lot size allowed including a 10% adjustment. Lots 28, 29, and 30 are also proposed at

below 5,000 square feet and would be further reduced in size, while Lot 31 would be reduced below the minimum lot width, again including the maximum 10% reduction allowed. Any alterations to the site plan to distribute these impacts across lots to the north would have a similar, cascading impact on the ability of those lots to comply with the required standards of the Sherwood Zoning and Community Development Code (SZCDC) (Exhibit B – Sheet P3.0, Preliminary Plat), and ultimately result in the loss of lots from the development.

In addition to the above, the extension of Steet "A" by 6 feet and the associated relocation of Street "B" would impact the inside corner radius of the proposed eyebrow corner, and result in further cascading changes to the lots to the north over and above the changes which would already be required. Such revisions would ultimately result in a further loss of density on an already constrained site.

Proposed Design Modification

The 200-foot minimum full access intersection spacing for local streets would be reduced to 194 feet between intersections for Street "A" between SW Brookman Road and Street "B".

Reason Why Design Request Should be Approved

Due to the existing conditions on-site, the modification represents an appropriate balance between compliance with these Engineering Design Standards, the SZCDC, and other jurisdictional requirements for the preservation of significant natural resources. In turn, the Traffic Impact Assessment prepared for the site by Lancaster Mobley (Exhibit C – Cedar Creek Gardens Subdivision Transportation Impact Analysis), and which studied the operation of the intersection of SW Brookman Road and Street "A", found that "All study intersections are projected to operate acceptably per their respectively jurisdictional standards by year 2024 with buildout of the proposed subdivision. Accordingly, no operational mitigation is necessary as part of the proposed Cedar Creek Subdivision".

Brent Fitch, P.E. - Design Engineer — 1.13.2022 Date

Craig Christensen, P.E. Digitally signed by Craig Christensen, P.E. Date: 2022.06.21 15:31:45 -07'00'

Craig Christensen, P.E. - City Project Manager — 6/21/2022 Date

BOB, ALTHOUGH I BELIEVE THAT THIS STANDARD COULD BE MET, IT WOULD LIKELY END UP WITH A SKEWED OR REVERSE CURVED DEAD END WHICH WOULD MAKE FOR ODD LOT LAYOUT. ULTIMATELY THE 6 FEET OF LOSS BETWEEN THE INTERSECTIONS IS NOT SIGNIFICANT AS THERE IS STILL QUEUEING LENGTH FOR 6 VEHICLES IN STREET 'A'.

- [x] Approved
- [ ] Approved with Conditions (conditions below or on attached sheet)
- [ ] Denied

Bob Galati PE, City Engineer Digitally signed by Bob Galati PE, City Engineer Date: 2022.06.29 15:13:13 -07'00'

Bob Galati, P.E. - City Engineer — 06/29/2022 Date

Exhibit A – Fig. 3., Existing Conditions Plan
Exhibit B – Sheet P3.0, Preliminary Plat
Exhibit C – Cedar Creek Gardens Subdivision Transportation Impact Analysis

PIONEER DESIGN GROUP, INC.
CIVIL • PLANNING • SURVEY • LANDSCAPE
P 503.643.8286 www.pd-grp.com
9020 SW Washington Square Rd Suite 170
Portland, Oregon 97223

Exhibit A – Fig. 3., Existing Conditions Plan

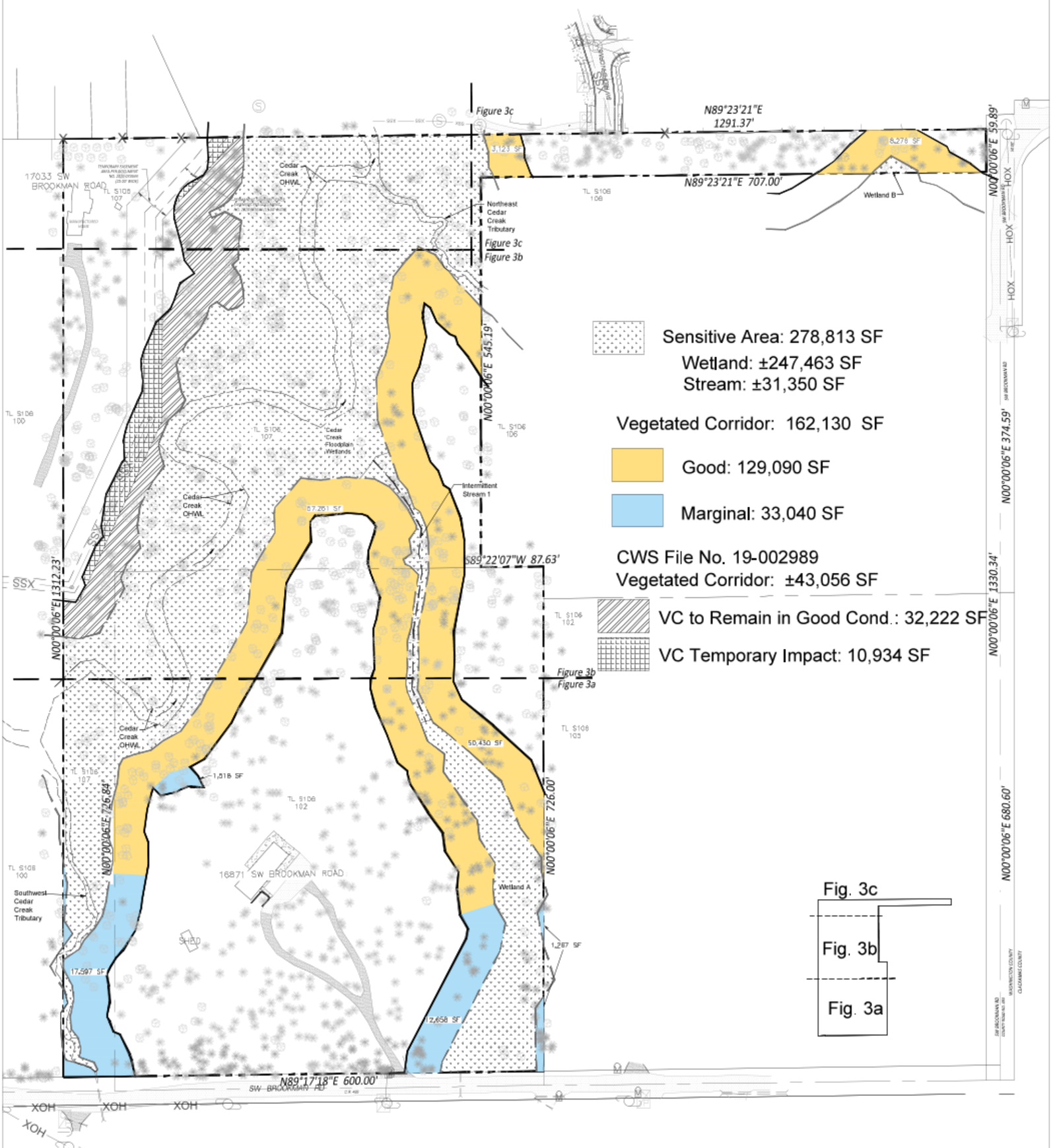

Fig. 3

Job: 21004
Rev: 00/00
Date: 10/21
Mod. By: KR
Base Map Source: Pioneer Design Group, Inc.

N
1"=140'
0 75 140

Existing Conditions Map
Cedar Creek Gardens
Sherwood, Oregon

Environmental Science & Assessment, LLC
4831 NE Fremont St
Suite 2B
Portland, OR 97213
Phone: 503.478.0424
www.esapdx.com

Exhibit B2

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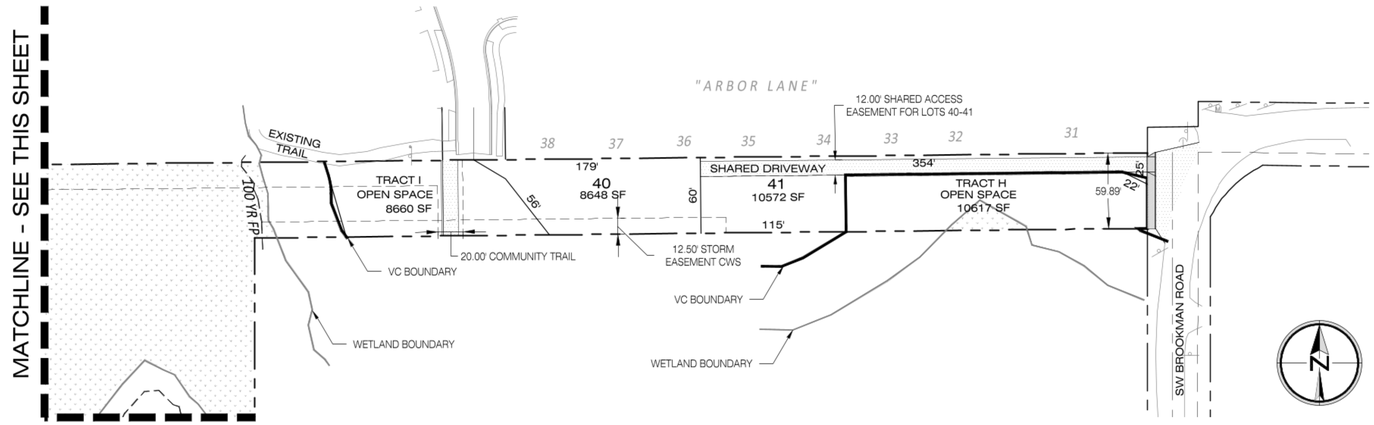
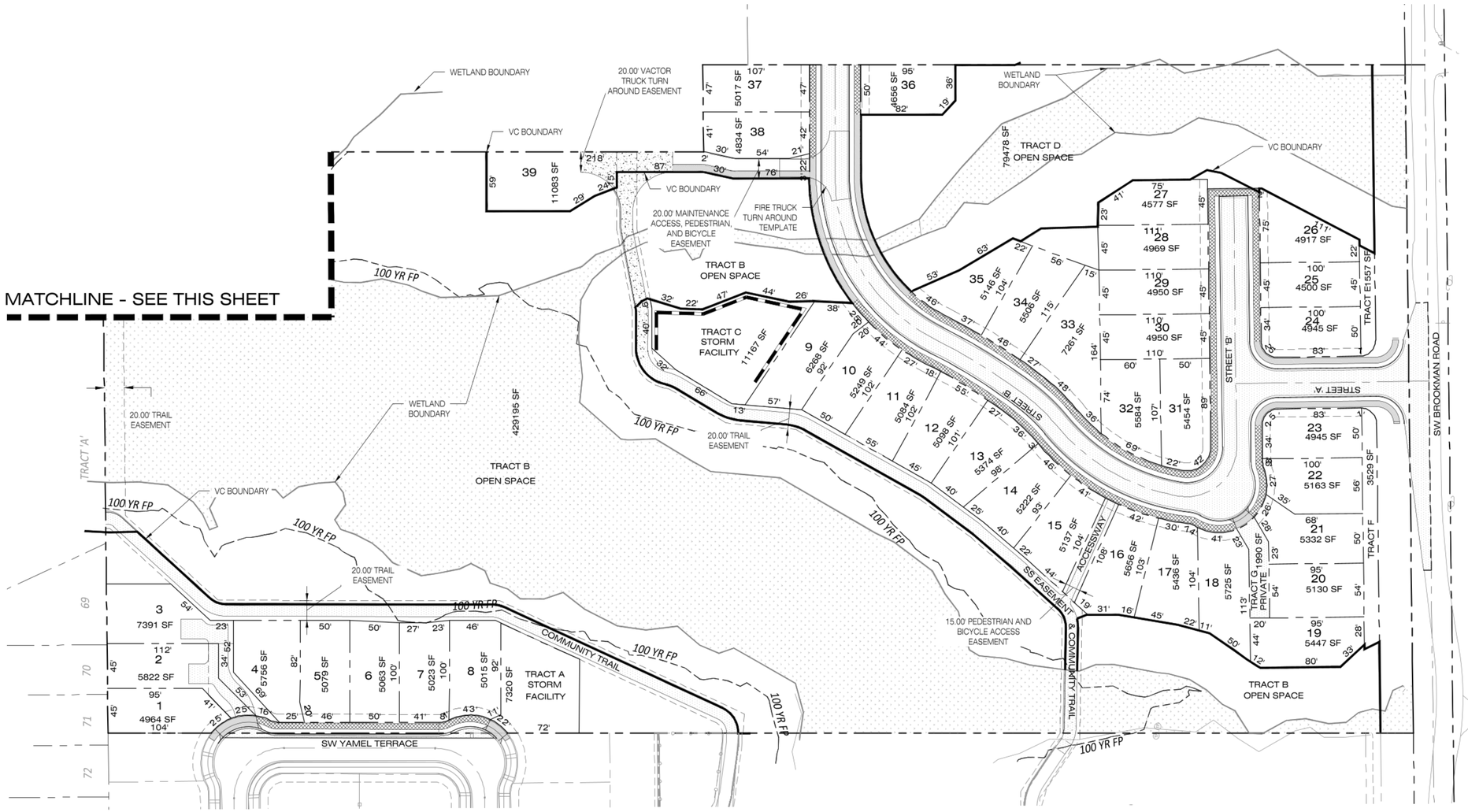
P 503.643.8286 www.pd-grp.com
9020 SW Washington Square Rd Suite 170
Portland, Oregon 97223

Exhibit B – Sheet P3.0, Preliminary Plat

Exhibit B2





PIONEER DESIGN GROUP
CIVIL ENGINEERING • LAND USE PLANNING • LAND SURVEYING • LANDSCAPE ARCHITECTURE
PORTLAND, OREGON | HONOLULU, HAWAII
PH: 503.643.8286 PH: 808.753.2276
WWW.PD-GRP.COM

PRELIMINARY PLAT

CEDAR CREEK GARDENS
CITY OF SHERWOOD, OREGON

Designed by	MLS	Date	08/2021
Drawn by	CFS	Date	08/2021
Reviewed by	MLS	Date	08/2021
Project No.	285-021	REF.	
Horiz. Scale:			
Vert. Scale:			
28521_P3.0plat.dwg			

No.	Date	Revision	By

Project
CEDAR CREEK GARDENS
No.
285-021
Type
PLANNING
Sheet
P3.0

B:\Projects\285-021-19\Planning\28521_P3.0plat.dwg 1/4/2022 3:06:11 PM

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9020 SW Washington Square Rd Suite 170
Portland, Oregon 97223

Exhibit C – Cedar Creek Gardens Subdivision Transportation Impact Analysis

lancaster mobley

Cedar Creek Gardens Subdivision

Transportation Impact Analysis

Sherwood, Oregon

Date:
November 10, 2021

Prepared for:
Westwood Homes, LLC

Prepared by:
Jennifer Danziger, PE

REGISTERED PROFESSIONAL ENGINEER
16168
Digitally signed by Jennifer Danziger
Date: 2021.11.10 13:52:55-08'00'
OREGON
SEPT. 15, 1992
JENNIFER ELISE DANZIGER

RENEWS: 12/31/2021

List of Figures

List of Tables

Executive Summary

1. The proposed Cedar Creek Gardens subdivision will redevelop the properties located at 16871 and 17033 SW Brookman Road in Sherwood, Oregon. The proposed development includes the construction of 42 single-family homes, removing two existing homes for a net increase of 40 homes. Access to the site will be provided via two public street connections and one shared driveway connection along SW Brookman Road.
2. The proposed development is projected to generate an additional 32 morning peak hour, 41 evening peak hour trips, and 426 weekday trips.
3. No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.
4. A review of existing sight lines and elevation profiles from Google Earth show that adequate sight distance can be available if the roadside vegetation is cleared with the development. Both the intersection sight distance and stopping sight distance can be met at the main site access and the shared driveway.
5. Left-turn lane warrants are not projected to be met at the site access intersection along SW Brookman Road upon completion and occupancy of the proposed development. Accordingly, installation of a left-turn lane at the site access intersection is not necessary or recommended.
6. All study intersections are projected to operate acceptably per their respectively jurisdictional standards by year 2024 with buildout of the proposed subdivision. Accordingly, no operational mitigation is necessary as part of the proposed Cedar Creek Subdivision.
7. Because the eastbound right-turn volumes on SW Elwert Road at Highway 99W are greater than the through volumes during both peak hours under all scenarios, agencies may wish to consider restriping the eastbound approach to provide a through and a right-turn lane. This change would eliminate occasional through vehicles in the right lane blocking other vehicles from executing a right-turn-on-red movement. A right-turn overlap phase could also be considered with the restriping. The change is not necessary to accommodate the proposed development.
8. *The Reserve at Cedar Creek Transportation Impact Analysis* (TIA) – *Sherwood, Oregon*, dated September 19th, 2019, identified four intersections as currently exceeding acceptable jurisdictional standards. Based on the projected site trip impacts to these intersections, a total proportionate share fee to mitigate impacts of $69,274.39 was calculated.

Project Description

Introduction

This report describes and evaluates the transportation impacts associated with the proposed Cedar Creek Gardens subdivision located at 16871 and 17033 SW Brookman Road in Sherwood, Oregon. The proposed development includes the construction of 42 single-family homes, removing two existing homes for a net increase of 40 homes. Access to the site will be provided via two public street connections and one shared driveway connection along SW Brookman Road.

Based on correspondence with the City of Sherwood, a safety and capacity/level of service analysis was conducted at the following intersections:

1. SW Elwert Road/SW Sunset Boulevard at Highway 99W
2. SW Brookman Road at Highway 99W
3. SW Brookman Road at Middlebrook Site Access
4. SW Brookman Road at Main Site Access
5. SW Brookman Road at North Site Access

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the existing and proposed uses and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The subject site is located at 16871 and 17033 SW Brookman Road and is situated adjacent to one in-process residential subdivision project: The Reserve at Cedar Creek. The site is located north of SW Brookman Road with The Reserve to the west. The subject property consists of two tax lots (3S10600 00107 and 00102) totaling approximately 20 acres. Each lot has an existing single-family house on the property which will be removed upon development.

Figure 1 displays a vicinity map of the project site, with the project site hatched and outlined in yellow. Other adjacent approved developments are shown in red, blue, and cyan. The future street network is represented with white. A site plan depicting the proposed project is provided in the appendix.

The site will take access from two public street connections and one shared driveway connection along SW Brookman Road. Eight (8) of the proposed homes will have driveways connecting to a roadway to be constructed as part of The Reserve subdivision. Their access to SW Brookman Road will be via a new roadway (SW White Oak Terrace) to be constructed as part of the Middlebrook subdivision. Thirty-one (31) of the proposed homes will access SW Brookman Road via a new roadway constructed with the subject subdivision. Three (3) of the proposed homes will share a driveway that will connect to SW Brookman Road at the northeast corner of the site.

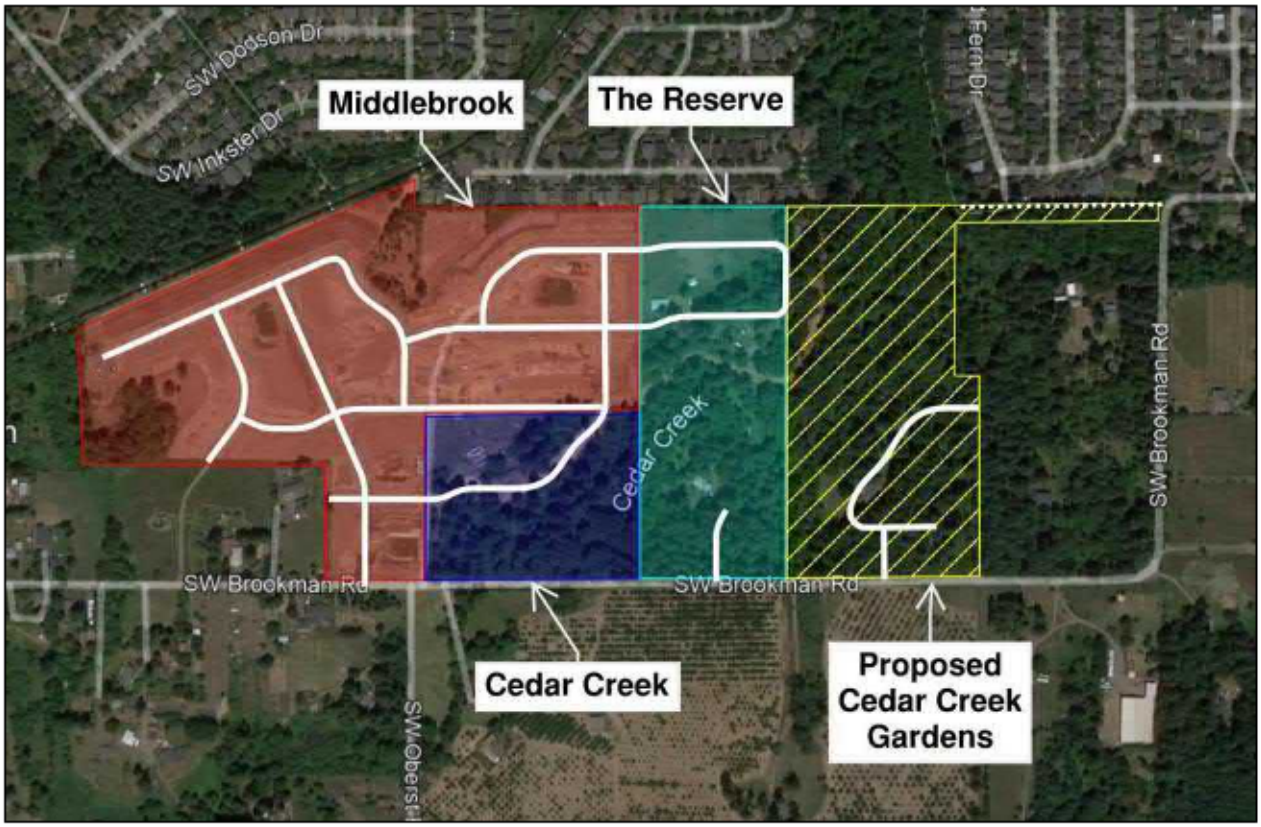


Figure 1: Project Location (image from Google Earth)

Vicinity Roadways

The proposed development is expected to impact three vicinity roadways. Table 1 provides a description of each vicinity roadway.

Table 1: Vicinity Roadway Descriptions

Roadway	Jurisdiction	Functional Classification	Cross-Section	Speed (mph)	On-street Parking	Bicycle Lanes	Curbs & Sidewalks
Highway 99W	ODOT	Principal Arterial	4 Lanes	45-55 Posted	Not Permitted	Partial Both Sides	None
SW Elwert Rd/ SW Sunset Blvd	City of Sherwood	Arterial	2 to 3 Lanes	35 Posted	Not Permitted	Both Sides	Both Sides
SW Brookman Rd	Washington County	Arterial	2 Lanes	25/35/55 Posted/ Statutory	Not Permitted	None	None

Notes: Functional Classification based on the City of Sherwood Transportation System Plan

Study Intersections

The proposed development is expected to impact three vicinity intersections of significance. A summarized description of the study intersections is provided in Table 2.

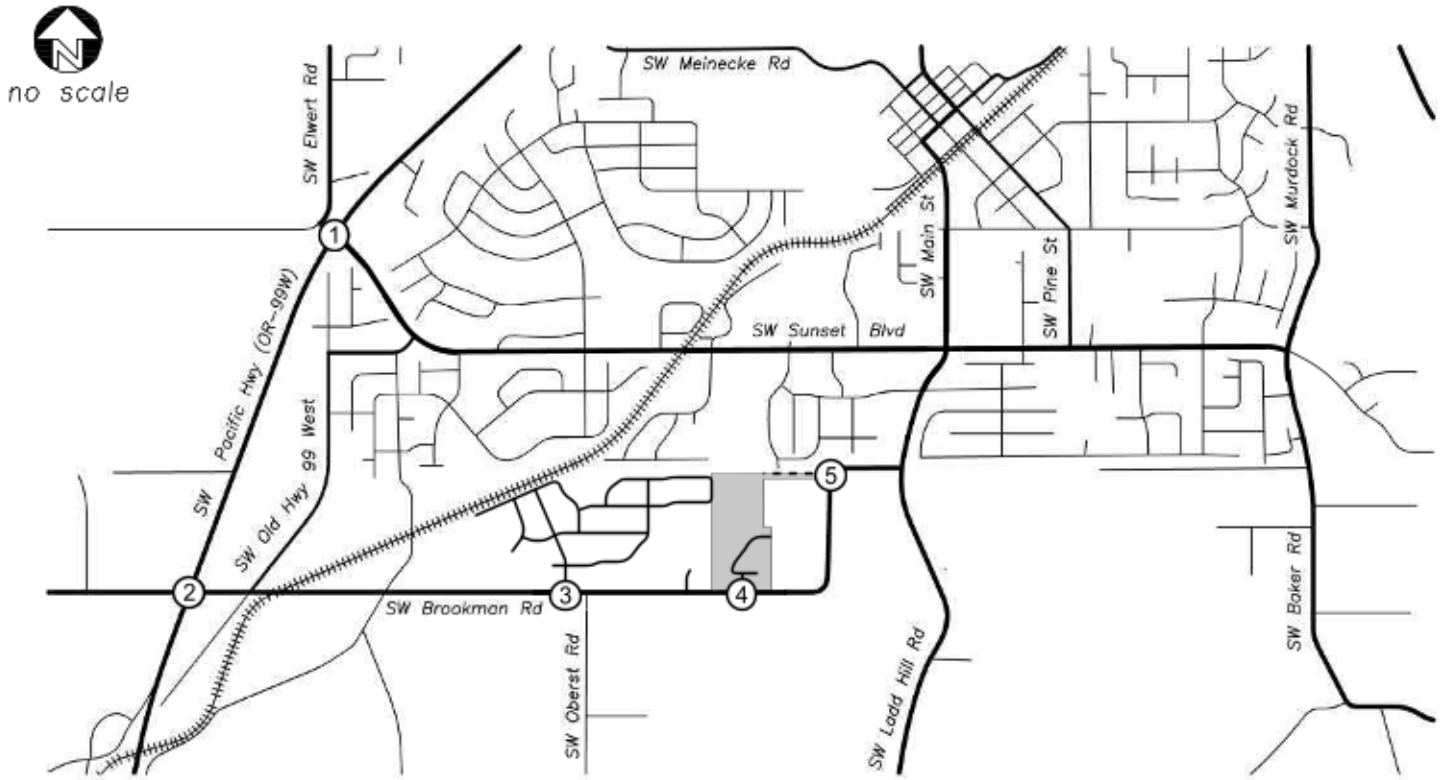
Table 2: Study Intersection Descriptions

Intersection		Geometry	Traffic Control	Phasing/Stopped Approaches
1	SW Elwert Rd/SW Sunset Blvd at Highway 99W	Four-Legged	Signalized	WB/EB Permitted LT, NB/SB Protected LT
2	SW Brookman Rd at Highway 99W	Four-Legged	Stop-Controlled	EB/WB Stop Controlled Approach
3	SW Brookman Rd at Site Access	Three-Legged (Future)	Stop-Controlled	SB Stop Controlled Approach

A vicinity map showing the project site, vicinity streets, and study intersection configurations is shown in Figure 2.

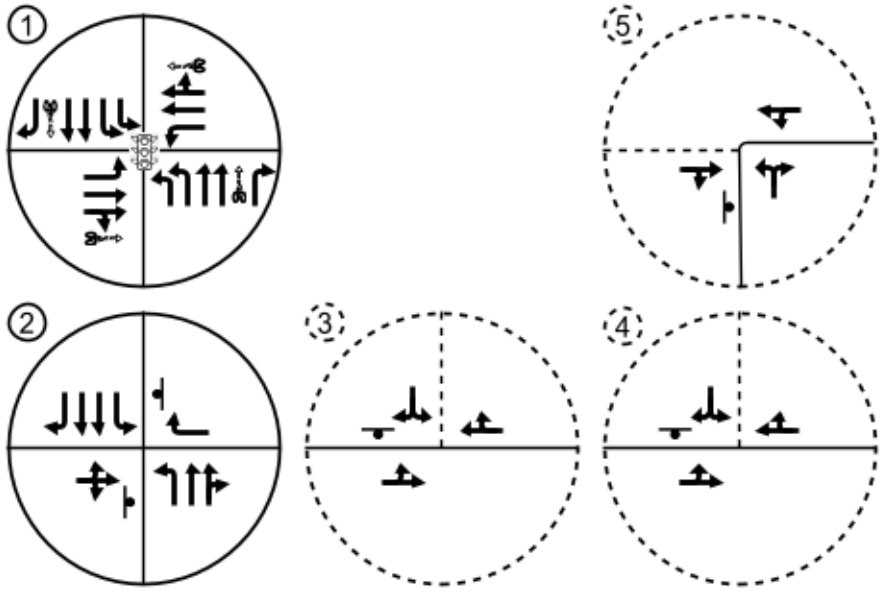
Transit

No nearby transit service is available near the proposed development.



LEGEND

- STUDY INTERSECTION (EXISTING)
- STUDY INTERSECTION (FUTURE)
- STOP SIGN
- TRAFFIC SIGNAL
- BICYCLE LANE
- PROJECT SITE
- ARTERIAL ROADWAY
- COLLECTOR ROADWAY
- LOCAL ROADWAY
- FUTURE ROADWAY
- RAILROAD TRACKS



lancaster mobley

VICINITY MAP & LANE CONFIGURATIONS

Figure 2
Cedar Creek Gardens
11/10/2021

Site Trips

Trip Generation

The proposed development includes the construction of 42 single-family homes. As part of the proposed development, two existing single-family homes will be removed for a net increase of 40 homes.

To estimate the number of site trips generated under existing and proposed conditions, trip rates from the *Trip Generation Manual*[1] were used. Specifically, the equations from land-use codes 210, *Single-Family Detached Housing*, were used based on the number of dwelling units.

As shown in Table 3, the trip generation calculations show that the proposed development is projected to generate an additional 32 morning peak hour, 41 evening peak hour trips, and 426 weekday trips. Detailed trip generation calculations are included in the technical appendix.

Table 3: Trip Generation Summary

Land Use	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
			In	Out	Total	In	Out	Total	
Proposed Development	210	42 DU	9	25	34	28	16	44	454
Existing Homes	*210*	*2 DU*	*-1*	*-1*	*-2*	*-2*	*-1*	*-3*	*-28*
Net New Site Trips			**8**	**24**	**32**	**26**	**15**	**41**	**426**

Trip Distribution

The directional distribution of site trips to/from the project site was referenced from *The Reserve at Cedar Creek Transportation Impact Analysis* (TIA) – *Sherwood, Oregon*, dated September 19th, 2019. The following trip distribution was used for analysis:

- Approximately 45 percent of site trips will travel to/from the north along Highway 99W
- Approximately 10 percent of site trips will travel to/from the north along SW Main Street
- Approximately 10 percent of site trips will travel to/from the north along SW Murdock Road
- Approximately 10 percent of site trips will travel to/from the south along Highway 99W
- Approximately 10 percent of site trips will travel to/from the south along SW Ladd Hill Road
- Approximately 10 percent of site trips will travel to/from the south along SW Baker Road
- Approximately 5 percent of site trips will travel to/from the west along SW Kruger Road

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Four intersections were identified as exceeding acceptable operation standards in *The Reserve TIA*:

A. SW Sunset Boulevard at SW Woodhaven Drive

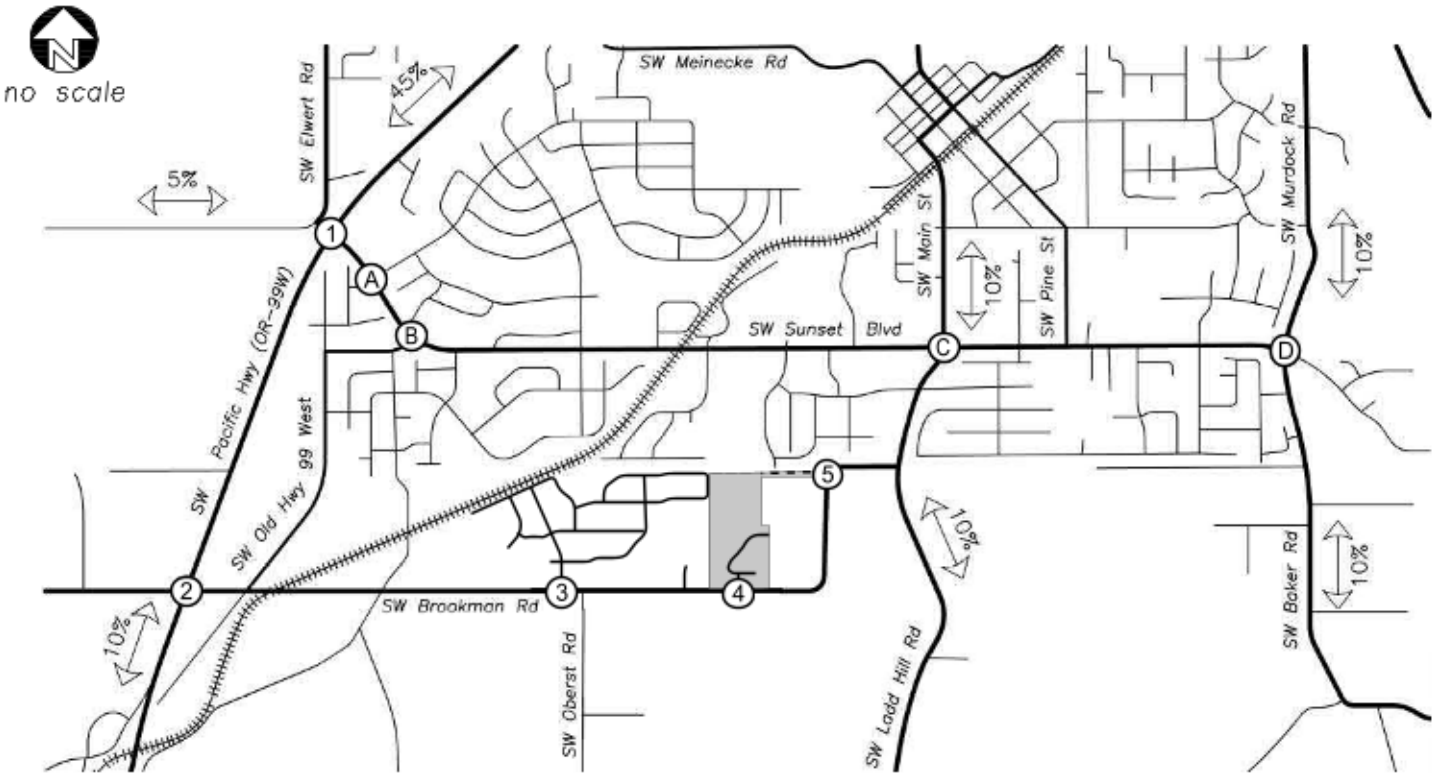
B. SW Sunset Boulevard at SW Timbrel Lane

C. SW Sunset Boulevard at SW Main Street/SW Ladd Hill Road

D. SW Sunset Boulevard at SW Murdock Road/SW Baker Road

Site trip assignment through these intersections was conducted to determine expected impacts from the proposed development to these intersections.

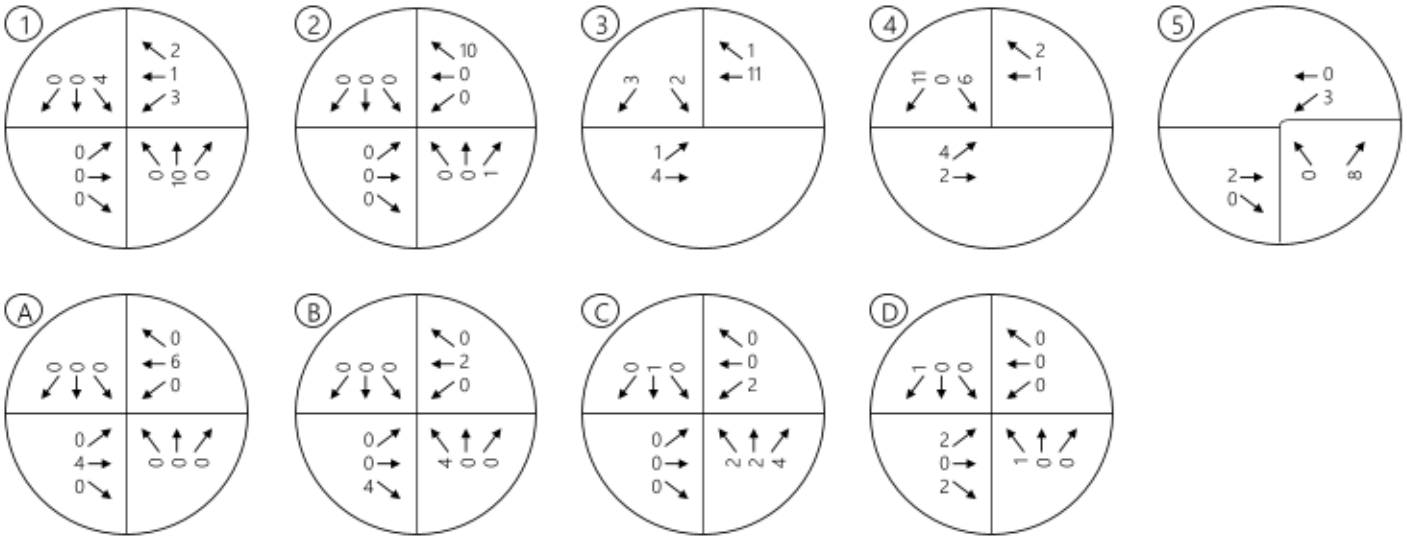
The trip assignment for site trips generated by the proposed development during is shown in Figure 3 for the morning peak hour and Figure 4 evening peak hour. This assignment reflects the layout of the proposed development with 8 homes using the Middlebrook subdivision access, 31 homes using the main site access, and 3 homes using the shared driveway.



NET TRIP GENERATION

	In	Out	Total
AM	8	24	32
PM	26	15	41
DAILY	213	213	426

AM PEAK HOUR

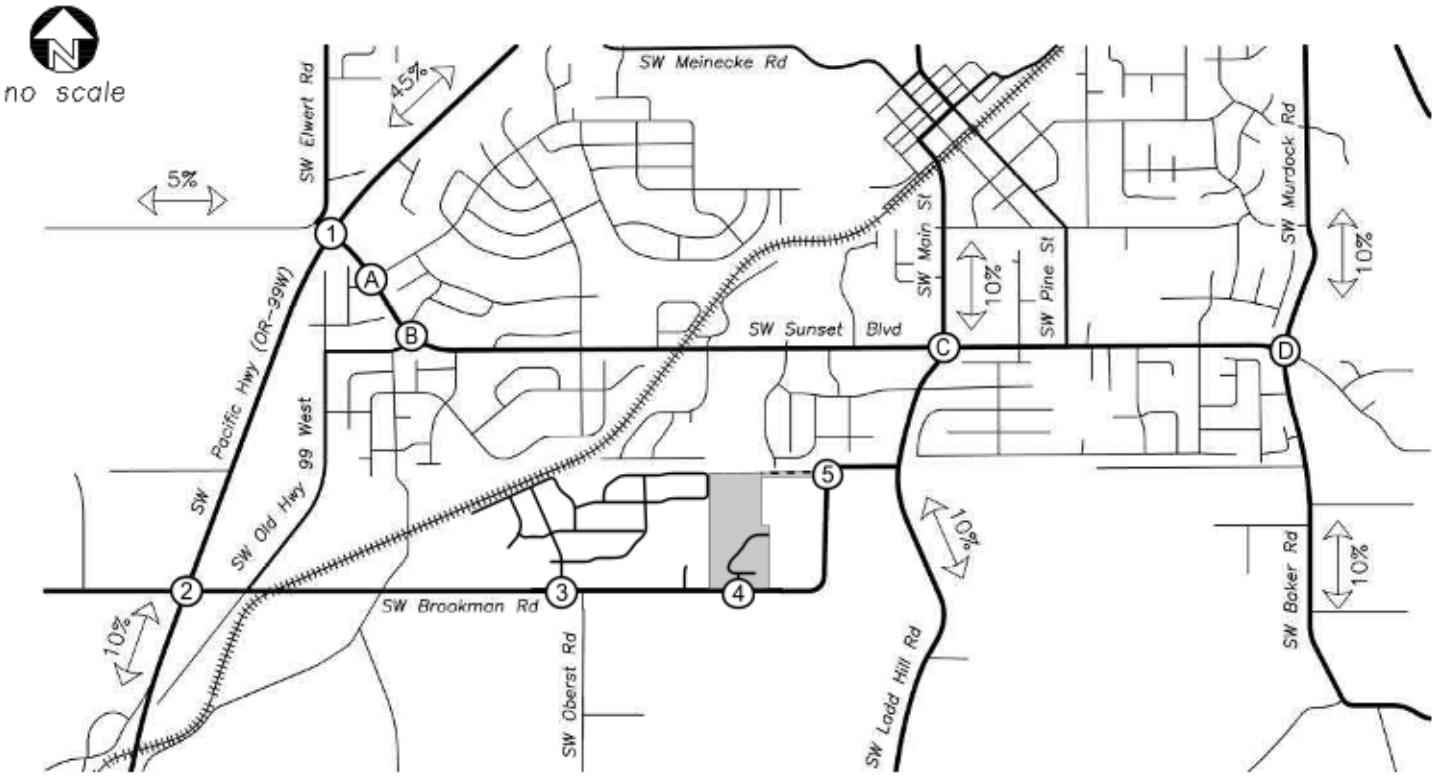


lancaster mobley

TRIP DISTRIBUTION & ASSIGNMENT - AM PEAK

TRAFFIC VOLUMES

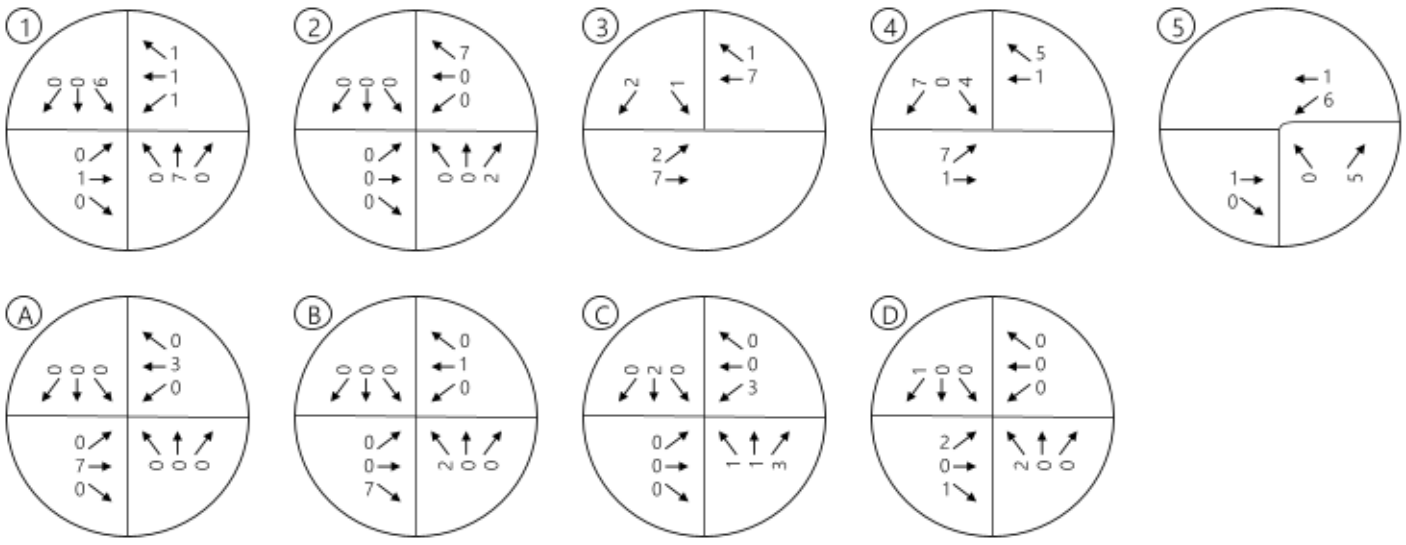
Figure 3
Cedar Creek Gardens
11/10/2021



NET TRIP GENERATION

	In	Out	Total
AM	8	24	32
PM	26	15	41
DAILY	213	213	426

PM PEAK HOUR



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TRIP DISTRIBUTION & ASSIGNMENT - PM PEAK

TRAFFIC VOLUMES

Figure 4
Cedar Creek Gardens
11/10/2021

Traffic Volumes

Existing Conditions

Due to the ongoing COVID-19 viral pandemic, traffic volumes have been depressed relative to normal conditions since mid-March 2020. Under these conditions, traditional traffic count data collection methods are not recommended. Therefore, to estimate existing traffic conditions, year 2017 traffic count data was referenced from *The Reserve TIA*, specifically volumes from Figures 4 and 5. Consistent with background growth methodologies used in *The Reserve TIA*, the year 2017 volumes were increased by 1% annually along Highway 99W and by 2% annually on all other movements at the study intersections to reflect existing year 2021 conditions. Note, these volumes do not capture the traffic demand from Sherwood High School, which was opened in the fall of 2021.

Since the traffic counts were collected, the westbound approach of SW Brookman Road at Highway 99W has been restricted to right turns only. The westbound left-turn and through volumes have been reassigned to reflect the traffic change. Ten percent of these movement was assumed to travel northbound to the signal at SW Sunset Boulevard and then U-Turn to travel southbound. Ninety percent was assumed to travel to SW Sunset Boulevard via other routes and turn left to travel southbound.

Figure 5 shows the existing traffic volumes at study intersections during the morning and evening peak hours.

Background Conditions

To provide analysis of the impact of the proposed development on the existing transportation facilities, an estimation of future traffic volumes is required. To reflect future traffic conditions without the proposed subdivision, volumes from two studies were used to estimate the Year 2024 background traffic volumes. *Year 2024 Total Intersection Operations* (Figures 12 and 13) volumes were referenced from *The Reserve TIA* and the trip assignments from the *Cedar Creek Subdivision TIA* (Figures 2 and 3) were added to those volumes. These volumes reflect the opening of the new Sherwood High School Campus.

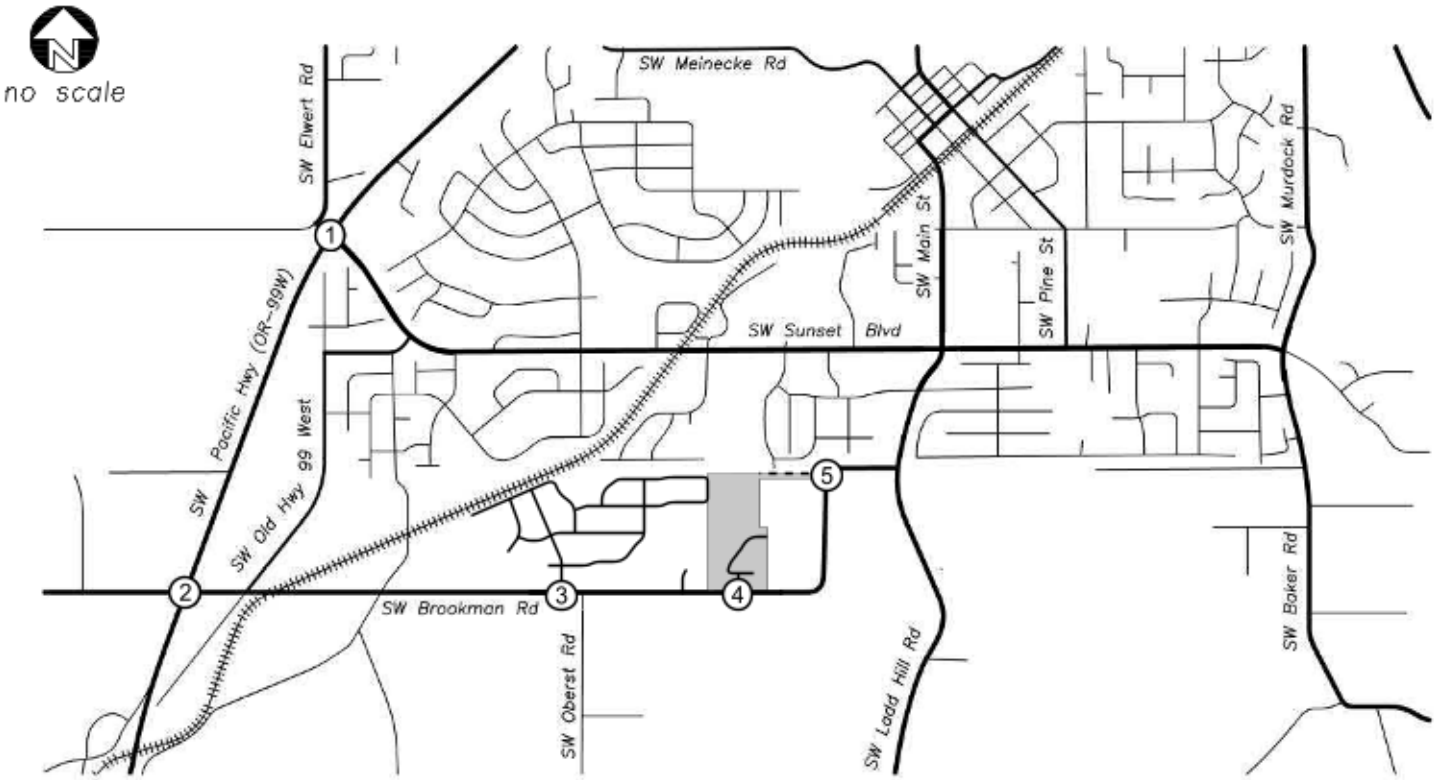
Note *The Reserve TIA* assumed additional turning movement restrictions at the intersection of SW Brookman Road at Highway 99W would be implemented by year 2024. The minor street approaches will be restricted to right-in/right-out only and U-turns along Highway 99W at the intersection would also be restricted. The volumes reflect this change.

Figure 6 shows the background traffic volumes at study intersections during the morning and evening peak hours.

Buildout Conditions

Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2024 background traffic volumes to obtain the expected 2024 buildout volumes.

Figure 7 shows the buildout traffic volumes at study intersections during the morning and evening peak hours.



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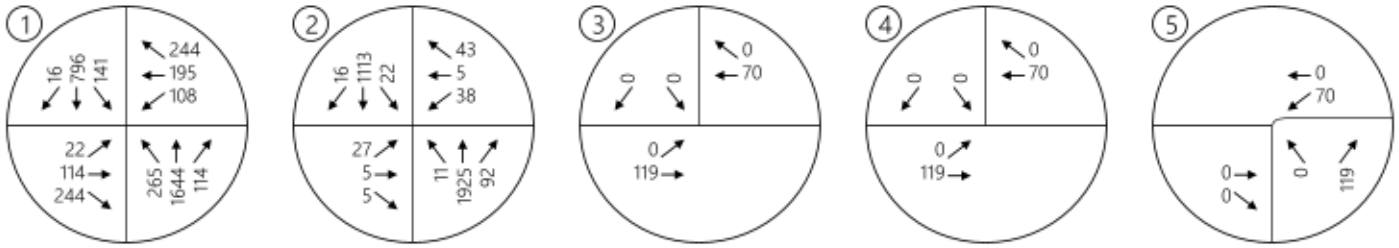

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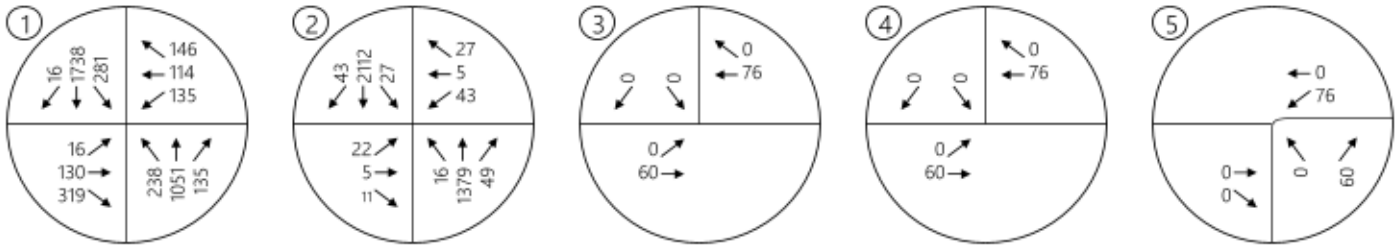
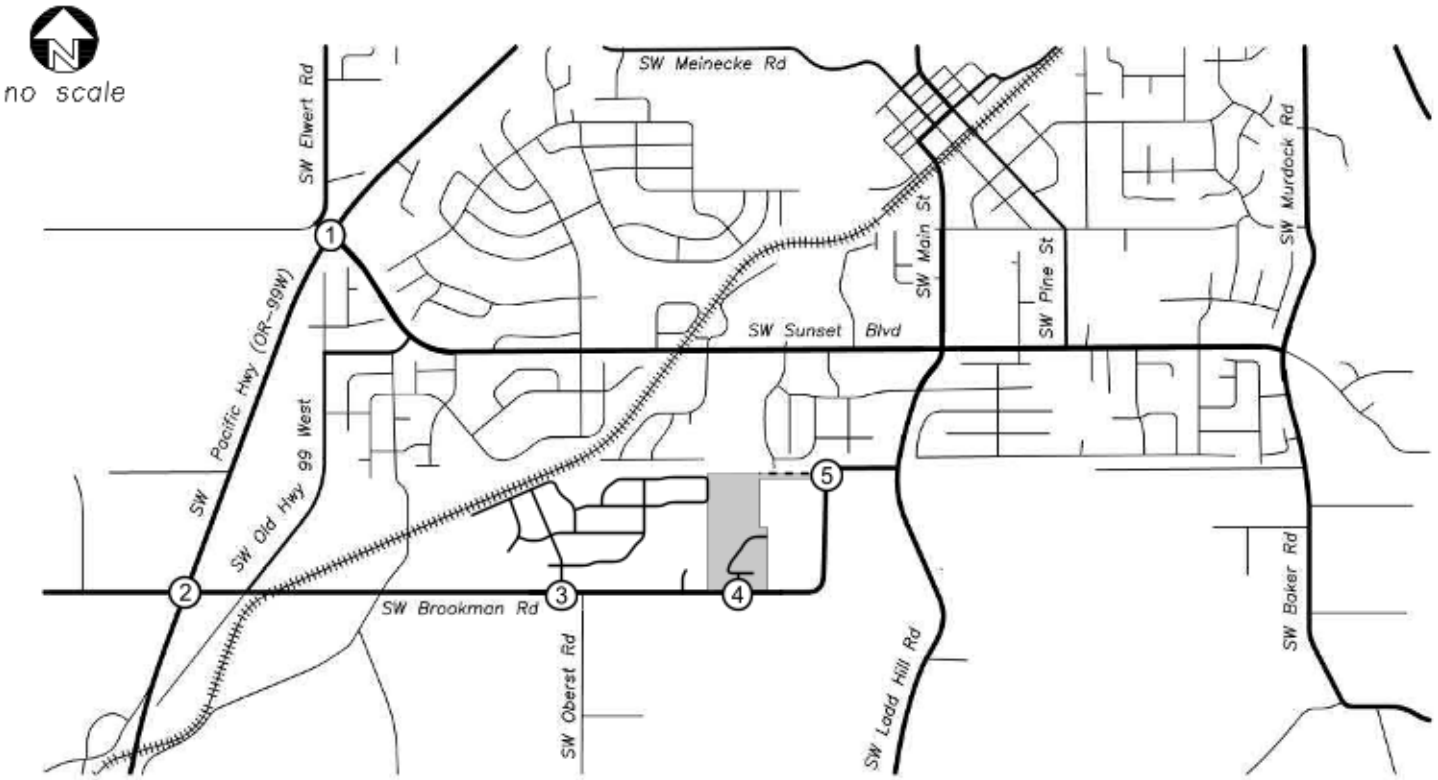


lancaster mobley

YEAR 2021 EXISTING CONDITIONS
TRAFFIC VOLUMES

Figure 5
Cedar Creek Gardens
11/2/2021



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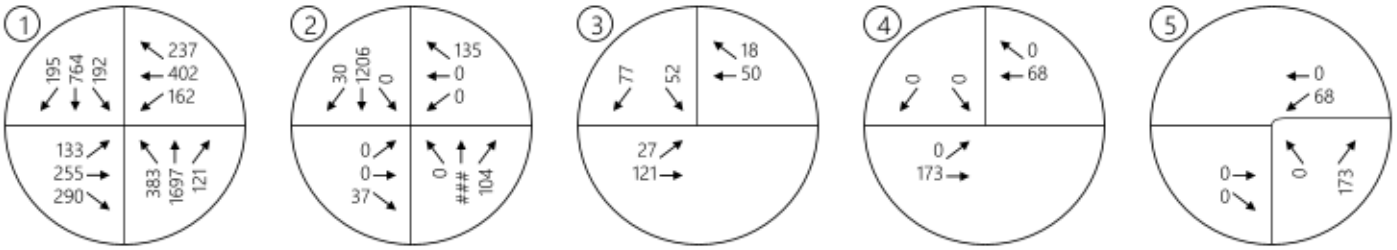

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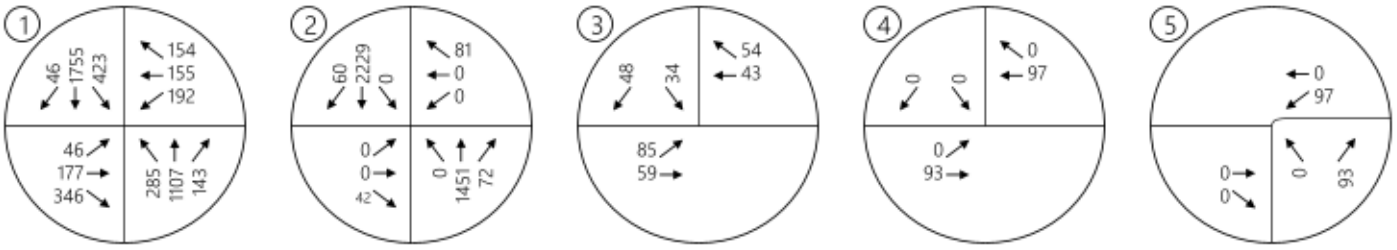
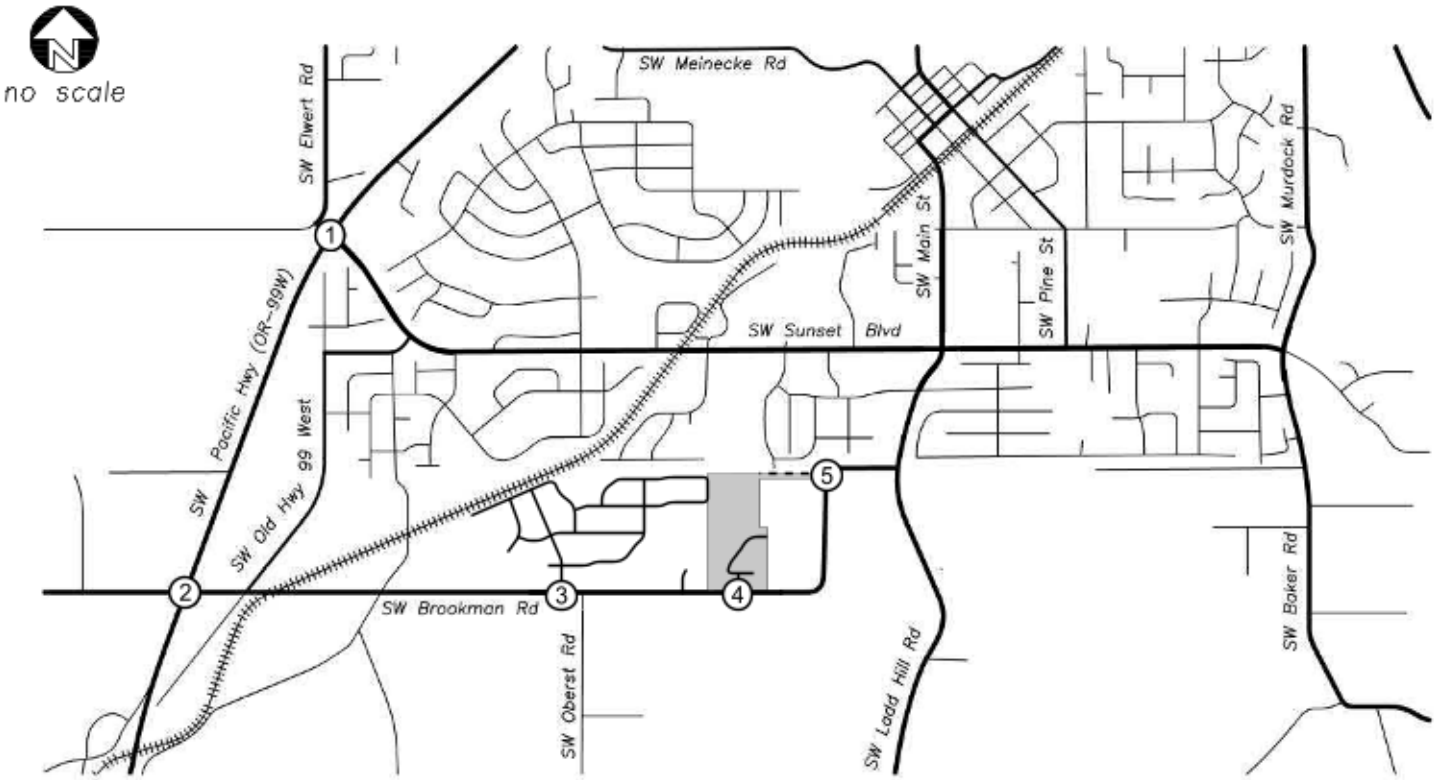


lancaster mobley

YEAR 2024 BACKGROUND CONDITIONS

TRAFFIC VOLUMES

Figure 6
Cedar Creek Gardens
11/2/2021



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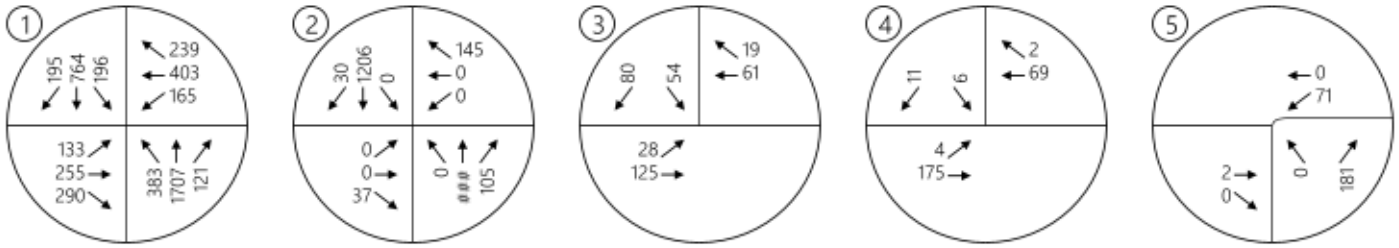

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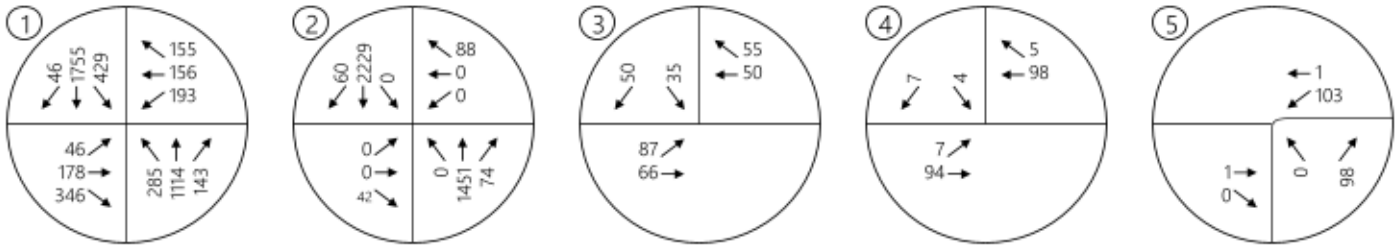


lancaster mobley

YEAR 2024 BUILDOUT CONDITIONS

TRAFFIC VOLUMES

Figure 7
Cedar Creek Gardens
11/2/2021

Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Data System, a review of approximately five years of the most recent available crash history (January 2014 through December 2018) was performed at the study intersections. The crash data was evaluated based on the number of crashes, the type of collisions, and the severity of the collisions. Crash severity is based on injuries sustained by people involved in the crash, and includes five categories:

- *PDO* – Property Damage Only;
- *Injury C* – Possible Injury;
- *Injury B* – Suspected Minor Injury;
- *Injury A* – Suspected Serious Injury; and
- *Fatality*

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak hour represents approximately 10 percent of the average daily traffic (ADT) at the intersection.

Table 4 provides a summary of crash types while Table 5 summarizes crash severities and rates for each of the study intersections. Detailed crash data is provided in the appendix to this report.

Table 4: Crash Type Summary

Intersection		Crash Type							Total Crashes
		Turn	Rear End	Angle	Fixed Object	Side swipe	Ped/ Bike	Other	
1	SW Elwert Road/ SW Sunset Boulevard at Highway 99W	9	48	3	0	1	1	0	62
2	SW Brookman Rd at Highway 99W	8	2	17	1	1	0	0	29

Table 5: Crash Severity and Rate Summary

Intersection		Severity					Total Crashes	ADT	Crash Rate	ODOT 90th %
		PDO	C	B	A	Fatal				
1	SW Elwert Road/ SW Sunset Boulevard at Highway 99W	18	33	10	1	0	62	42,650	0.797	0.860
2	SW Brookman Rd at Highway 99W	14	6	8	1	0	29	37,000	0.429	0.860

Crash Severity

Two reported crashes were classified as *Injury A*:

- One rear-end collision occurred in 2019 between vehicles traveling northbound on Highway 99W at SW Elwert Road/SW Sunset Boulevard. The driver at fault was "following too closely."
- One angle collision occurred in 2015 on Highway 99W at SW Brookman Road. The crash involved a northbound motorcycle and a westbound passenger vehicle. The vehicle driver "did not yield right-of-way" to the motorcyclist who was seriously injured as a result of the collision.

Vulnerable Travelers

One turning collision reported in 2015 involved a southbound bicyclist traveling on the highway who was struck by a westbound passenger vehicles turning left from SW Sunset Boulevard onto the highway. The bicyclist was reported to have minor injuries (Injury B).

ODOT 90th Percentile Crash Rates

The study intersections adhere to the crash analysis methodologies within ODOT's Analysis Procedures Manual (APM). According to *Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control* of the APM, intersections which experience crash rates in excess of their respective 90th percentile crash rates should be "flagged for further analysis". Crash rates in excess of 90th percentile crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

Intersection crash rates were calculated (Table 5); none have a rate above the respective ODOT 90th percentile crash rates.

ODOT Safety Priority Index System (SPIS)

The intersection of Highway 99W at SW Elwert Rd/SW Sunset Boulevard is reported in the worst 10 percent of intersections in ODOT's 2019 SPIS listing. No improvements are currently identified in the *2021-2024 Statewide Transportation Improvement Plan* that address this intersection.

Sight Distance Evaluation

A sight distance analysis was conducted at both the main site access and the shared driveway. To evaluate the sight distance available at these locations, intersection sight distance was measured in accordance with the current AASHTO manual[2]. According to AASHTO, the driver's eye is assumed to be 14.5 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye-height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

AASHTO provides a recommendation for intersection sight distance (ISD) and a requirement for stopping sight distance (SSD). Intersection sight distance is an operational measure, intended to provide sufficient line of sight along the major street so that a driver could turn from the minor street with minimal impedance of traffic flow. Stopping sight distance is considered the minimum requirement to ensure safe operation of the roadway. Stopping sight distance allows an oncoming driver to see a hazard in the roadway, react, and come to a

[2] American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018.

complete stop if necessary to avoid a collision. As long as the available intersection sight distance is at least equal to the minimum required stopping sight distance for the design speed of the roadway, adequate sight distance is available for safe operation of the intersection.

A field investigation was conducted on Tuesday, November 2, 2021, to measure sight distance for this location. Figure 8 displays sight distance viewpoints from the future site accesses associated with the project. Due to existing vegetation, sight lines could not be viewed from 14.5 feet from the edge of the travel way.

Main Site Access

At the main site access on SW Brookman Road, the posted speed is 35 mph, but it transitions to 25 mph just east of the access. For the sight distance assessment, the speed of approaching vehicles was assumed to be 40 mph, which is 5 mph over the posted speed. At 40 mph, the recommended ISD is 445 feet and the required ISD is 305 feet.

The images in Figure 8 and a review of the elevation profiles from Google Earth (see appendix) show that 445 feet of clear sight lines can be available if the roadside vegetation is cleared with the development. Both the ISD and SSD can be met.

Shared Driveway Access

At the shared driveway access on SW Brookman Road, the posted speed is 25 mph. For the sight distance assessment, the speed of approaching vehicles was assumed to be 25 mph due to the curvature of the roadway. At 25 mph, the recommended ISD is 280 feet and the required ISD is 155 feet.

The images in Figure 8 and a review of the elevation profiles from Google Earth (see appendix) show that 280 feet of clear sight lines can be available if the roadside vegetation is cleared with the development. Both the ISD and SSD can be met.

A. Main Site Access Looking East

B. Main Site Access Looking West

C. Shared Driveway Looking East

D. Shared Driveway Looking South

Figure 8: Sight Line Photos at Future Site Accesses

Warrant Analysis

Left-turn lane warrants were examined for the site access intersection under year 2024 buildout conditions. A left-turn refuge is primarily a safety consideration for the major-street approach, removing left-turning vehicles from the through traffic stream.

Warrants for an eastbound left-turn lane at the site access intersection were based on the methodology outlined in the National Cooperative Highway Research Program (NCHRP) Report Number 457[3]. This methodology evaluates the need for a left-turn lane based on the number of left-turning vehicles, the number of travel lanes, the number of advancing and opposing vehicles, and the roadway travel speed.

Left-turn lane warrants are not projected to be met upon completion and occupancy of the proposed development. The detailed warrant analysis is included in the appendix.

[3] Bonneson, James A. and Michael D. Fontaine, *NCHRP Report 457: An Engineering Study Guide for Evaluating Intersection Improvements*, Transportation Research Board, 2001.

Operational Analysis

A capacity and delay analysis was conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual*[4] (HCM). Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates little, or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Performance Standards

The operating standards adopted by Washington County, ODOT, and the City of Sherwood are summarized below.

Washington County

SW Brookman Road is under the jurisdiction of Washington County. The County has defined operating standards for signalized and stop controlled intersections as follows:

- For signalized intersections, the maximum intersection v/c ratio shall be no greater than 0.99.
- For unsignalized intersections, no movement shall experience a v/c ratio greater than 0.99.

ODOT

ODOT operates and maintains Highway 99W. ODOT's operating mobility target for intersections along Highway 99W in the study area is an intersection v/c ratio no greater than 0.99 during the 1st and 2nd peak hours per Table 7 of the *Oregon Highway Plan*[5].

City of Sherwood

According to the City of Sherwood's Transportation System Plan (TSP), both signalized and unsignalized intersections under City jurisdiction must operate at LOS D or better with a v/c ratio of 0.85 or less; however, two-way stop-controlled intersections are required to operate at LOS E or better with a v/c ratio of 0.90 or less[6].

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 6 for the morning and evening peak hours. Detailed calculations are included in the appendix.

[4] Transportation Research Board, *Highway Capacity Manual 6th Edition*, 2016.
[5] Oregon Department of Transportation, *Oregon Highway Plan*. 1999
[6] City of Sherwood, *Sherwood Transportation System Plan*. Adopted June 17th, 2014.

Table 6: Capacity Analysis Summary

Intersection & Condition	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1. SW Elwert Road/SW Sunset Boulevard at Highway 99W						
2021 Existing Conditions	C	25	0.78	C	34	0.86
2024 Background Conditions	D	40	0.94	D	46	0.95
2024 Buildout Conditions	D	41	0.95	D	46	0.95
2. SW Brookman Road at Highway 99W						
2021 Existing Conditions	F	60	0.37	F	212	0.83
2024 Background Conditions	F	63	0.73	D	30	0.23
2024 Buildout Conditions	F	70	0.79	D	30	0.23
3. SW Brookman Road at Middlebrook Site Access						
2024 Background Conditions	B	11	0.24	B	11	0.17
2024 Buildout Conditions	B	11	0.25	B	11	0.18
4. SW Brookman Road at Main Sitrie Access						
2024 Buildout Conditions	A	10	0.03	A	10	0.02
5. SW Brookman Road at North Site Access						
2024 Buildout Conditions	B	11	0.01	B	10	0.01

BOLDED results indicate operation above acceptable jurisdictional standards.

As shown, all study intersections are projected to operate within agency standards under all analysis scenarios for all conditions. These results differ slightly from the conclusions in previous studies for the following reasons:

- At the intersection of SW Elwert Road/SW Sunset Boulevard at Highway 99W, the analysis outputs indicate that the eastbound shared through-right lane acts as a de facto right-turn lane and recommends recoding the lane to reflect the condition. When the approach is recoded to show a single through lane and a right-turn lane, operations improve measurably because the right-turn factor is only applied to one lane rather than two lanes.
- According to the APM software settings for signalized intersection analysis, "ODOT default for lost time is 4.0 seconds." Therefore, all lost times were adjusted appropriately following the procedures in the APM.

Based on the above analysis and findings, all study intersections are projected to operate acceptably per their respectively jurisdictional standards by year 2024 with buildout of the proposed subdivision. Accordingly, no operational mitigation is necessary as part of the proposed Cedar Creek Subdivision.

As shown in Figure 7, the eastbound right-turn volumes on SW Elwert Road at Highway 99W are greater than the through volumes during both the morning and evening peak hours. Restriping the eastbound approach to provide a through and a right-turn lane could improve flow at the intersection because it would eliminate

occasional through vehicles in the right lane blocking other vehicles from executing a right-turn-on-red movement. A right-turn overlap phase could also be considered with the restriping.

Proportionate Share Mitigation Assessment

Consistent with *The Reserve TIA*, proportionate share fees were calculated at intersections determined as failing, using methodologies similar to those presented in Table 6 of the referenced TIA. Table 7 provides the methodology used to calculate proportionate share fees based on the Cedar Creek Gardens trip assignment.

Table 7: Proportionate Share Methodolgy Summary

Intersection	A. SW Sunset Boulevard at SW Woodehaven Drive	B. SW Sunset Boulevard at SW Timbrel Lane	C. SW Sunset Boulevard at SW Main Street/SW Ladd Hill Road	D. SW Sunset`` Boulevard at SW Murdock Road/SW Baker Road
Mitigation Project Summary	Construct Traffic Signal	Construct Mini Roundabout	Construct Traffic Signal	Construct NB LTL & SB RTL
City TSP Project ID	NA	D28	D26	D33
Peak Hour	Weekday AM	Weekday AM	Weekday PM	Weekday PM
Scenario Triggering Mitigation	No Build (2024)	No Build (2024)	No Build (2024)	No Build (2024)
Existing Total Entering Volume, TEV (X)	1,012	894	1,208	1,208
2024 No Build (Background with RIRO, Y)	1,541	1,318	1,487	1,371
2024 Project Trips (PT)	10	10	10	6
Background Growth (Z=Y-X)	529	424	279	163
Proportional Share (%, PT/(PT+Z))	1.86%	2.30%	3.46%	3.55%
Mitigation Cost Estimate ($)	$1,050,000	$630,000	$250,000	$750,000
Cost Estimate Reference	DKS (Ref 10)	DKS (Ref 10)	TSP (Ref 5)	TSP (Ref 5)
Proportional Share Cost	$19,480.52	$14,516.13	$8,650.52	$26,627.22
Total	$69,274.39			

Based on the proportionate share fee calculations, a total proportionate share fee to mitigate site trip impacts to the above intersections is $69,274.39.

Conclusions

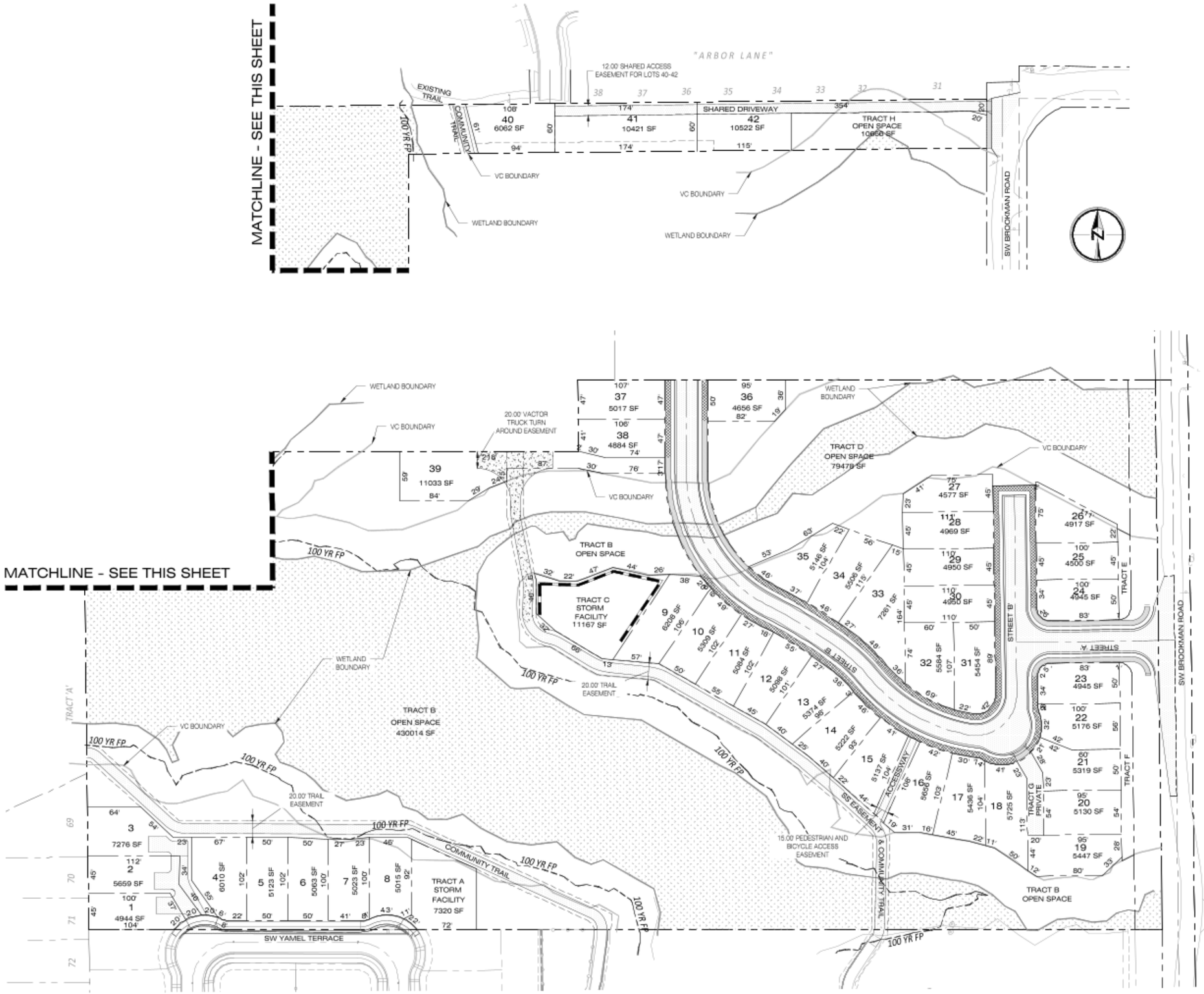
Key findings of this study include:

- No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.
- A review of existing sight lines and elevation profiles from Google Earth show that adequate sight distance can be available if the roadside vegetation is cleared with the development. Both the intersection sight distance and stopping sight distance can be met at the main site access and the shared driveway.
- Left-turn lane warrants are not projected to be met at the site access intersection along SW Brookman Road upon completion and occupancy of the proposed development. Accordingly, installation of a left-turn lane at the site access intersection is not necessary or recommended.
- All study intersections are projected to operate acceptably per their respectively jurisdictional standards by year 2024 with buildout of the proposed subdivision. Accordingly, no operational mitigation is necessary as part of the proposed Cedar Creek Subdivision.
- Because the eastbound right-turn volumes on SW Elwert Road at Highway 99W are greater than the through volumes during both peak hours under all scenarios, agencies may wish to consider restriping the eastbound approach to provide a through and a right-turn lane. This change would eliminate occasional through vehicles in the right lane blocking other vehicles from executing a right-turn-on-red movement. A right-turn overlap phase could also be considered with the restriping. The change is not necessary to accommodate the proposed development.
- *The Reserve at Cedar Creek Transportation Impact Analysis* (TIA) – *Sherwood, Oregon*, dated September 19th, 2019, identified four intersections as currently exceeding acceptable jurisdictional standards. Based on the projected site trip impacts to these intersections, a total proportionate share fee to mitigate impacts of $69,274.39 was calculated.

Appendix

- Site Plan
- Trip Generation
- Traffic Counts
- Reference Study Volumes
- In Process Trips
- Crash Data
- Sight Lines and Elevation Profiles
- Warrant Calculations
- Level of Service Definitions
- Operational Outputs

Exhibit B2



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PRELIMINARY PLAT

CEDAR CREEK GARDENS
CITY OF SHERWOOD, OREGON

Designed by	MLS	Date	08/2021
Drawn by	CPS	Date	08/2021
Reviewed by	MLS	Date	08/2021
Project No.	285-021	REF.	
Horiz. Scale:			
Vert. Scale:			

No.	Date	Revision	By

Project: CEDAR CREEK GARDENS
No.: 285-021
Type: PLANNING
Sheet: **P3.0**

B:\Projects\285-021-19\Planning\28621_P3.0plat.dwg 10/20/2021 12:27:11 PM

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 42

AM PEAK HOUR

Trip Equation: Ln(T)=0.91Ln(X)+0.120

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	**9**	**25**	**34**

PM PEAK HOUR

Trip Equation: Ln(T)=0.94Ln(X)+0.27

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	**28**	**16**	**44**

WEEKDAY

Trip Equation: Ln(T)=0.92Ln(X)+2.68

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**227**	**227**	**454**

SATURDAY

Trip Equation: Ln(T)=0.97Ln(X)+2.4

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**207**	**207**	**414**

Source: Trip Generation Manual, 11th Edition

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 2

AM PEAK HOUR

Trip Equation: Ln(T)=0.91Ln(X)+0.120

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	1	1	2

PM PEAK HOUR

Trip Equation: Ln(T)=0.94Ln(X)+0.27

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	2	1	3

WEEKDAY

Trip Equation: Ln(T)=0.92Ln(X)+2.68

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	14	14	28

SATURDAY

Trip Equation: Ln(T)=0.97Ln(X)+2.4

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	11	11	22

Source: Trip Generation Manual, 11th Edition

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

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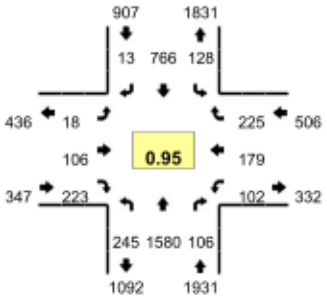
QC JOB #: 14401717

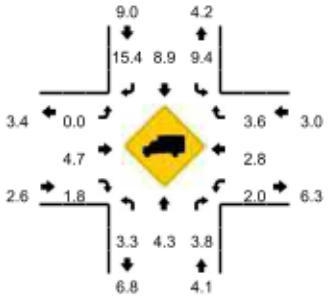
CITY/STATE: Sherwood, OR

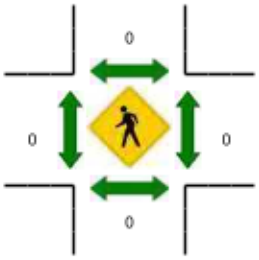
DATE: Thu, May 11 2017

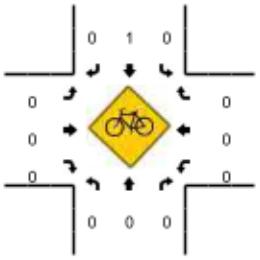


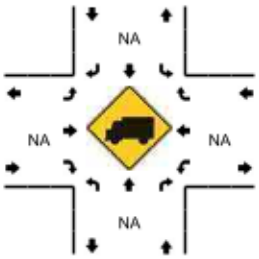
Peak-Hour: 7:05 AM -- 8:05 AM

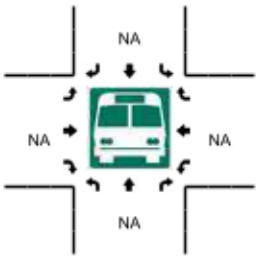
Peak 15-Min: 7:40 AM -- 7:55 AM











5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Elwert Rd/SW Sunset Blvd (Eastbound)				SW Elwert Rd/SW Sunset Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	22	126	6	0	2	43	0	1	0	5	15	0	11	13	12	0	256	
7:05 AM	10	136	9	0	3	71	2	0	3	5	19	0	8	8	17	0	291	
7:10 AM	20	118	8	0	8	54	1	1	1	7	25	0	14	19	12	0	288	
7:15 AM	34	127	9	0	6	44	1	1	1	9	17	0	9	15	19	0	292	
7:20 AM	23	140	8	0	5	60	0	0	3	5	16	0	16	8	16	0	300	
7:25 AM	22	154	14	0	7	76	1	0	0	5	14	0	3	15	16	0	327	
7:30 AM	19	119	7	0	11	50	1	1	4	14	20	0	4	21	17	0	288	
7:35 AM	22	123	5	0	12	52	1	1	1	9	14	0	13	25	16	0	294	
7:40 AM	20	139	9	0	13	64	0	1	1	9	14	0	7	19	19	0	315	
7:45 AM	23	122	7	0	20	69	2	2	2	9	21	0	7	15	23	0	322	
7:50 AM	14	121	8	0	11	100	2	0	0	13	24	0	8	14	23	0	338	
7:55 AM	26	115	10	0	17	59	1	1	2	10	20	0	7	11	29	0	308	3619
8:00 AM	11	166	12	1	7	67	1	0	0	11	19	0	6	9	18	0	328	3691
8:05 AM	8	79	9	0	8	63	0	1	1	5	26	0	10	5	15	0	230	3630
8:10 AM	16	81	4	0	6	48	0	3	2	2	11	0	7	14	12	0	206	3548
8:15 AM	12	133	6	0	6	83	0	1	1	4	12	0	5	7	12	0	282	3538
8:20 AM	23	98	8	0	6	40	0	4	0	6	16	0	7	8	7	0	223	3461
8:25 AM	11	110	9	0	6	55	0	2	2	2	19	0	7	8	9	0	240	3374
8:30 AM	16	76	5	0	13	51	0	3	0	3	10	0	7	6	14	0	204	3290
8:35 AM	17	128	7	0	7	66	2	1	1	8	13	0	5	9	11	0	275	3271
8:40 AM	9	112	11	0	9	62	1	1	1	3	10	0	3	4	3	0	229	3185
8:45 AM	8	93	8	0	7	60	0	0	1	4	10	0	11	8	17	0	227	3090
8:50 AM	9	96	11	0	3	59	0	1	1	7	23	0	7	6	12	0	235	2987
8:55 AM	9	86	6	0	8	74	1	3	1	8	8	0	5	3	11	0	223	2902

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	228	1528	96	0	176	932	16	12	12	124	236	0	88	192	260	0	3900
Heavy Trucks	12	68	4		12	60	4		0	4	0		0	4	16		184
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 5/19/2017 4:01 PM

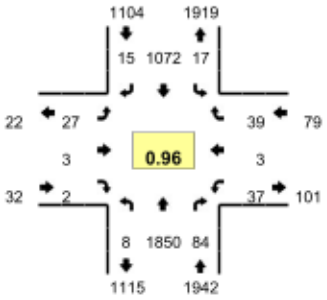
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW Pacific Hwy -- SW Chapman Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14401706
DATE: Thu, May 11 2017



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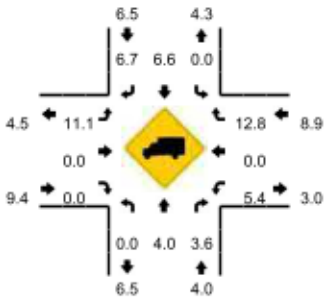
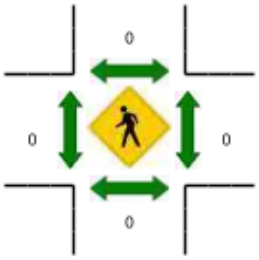
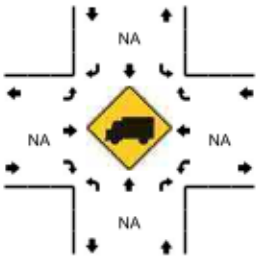
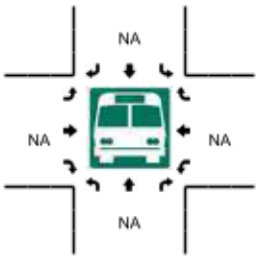
Peak 15-Min: 7:30 AM -- 7:45 AM









5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Chapman Rd (Eastbound)				SW Chapman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	133	2	0	0	74	0	0	1	0	0	0	4	0	3	0	217	
7:05 AM	0	169	5	1	0	81	4	0	0	0	0	0	2	0	0	0	262	
7:10 AM	0	159	6	0	0	99	1	1	1	0	0	0	1	0	1	0	269	
7:15 AM	1	165	11	0	1	75	0	0	0	1	0	0	2	0	2	0	258	
7:20 AM	0	174	7	0	0	100	0	1	1	1	0	0	3	0	1	0	288	
7:25 AM	0	141	8	1	1	78	1	0	3	0	0	0	4	0	2	0	239	
7:30 AM	0	177	8	0	1	84	0	0	4	0	1	0	0	1	4	0	280	
7:35 AM	0	177	8	0	0	85	1	0	0	0	0	0	4	0	3	0	278	
7:40 AM	1	147	14	1	1	85	1	0	4	0	0	0	3	1	5	0	263	
7:45 AM	1	142	9	0	4	99	2	0	3	0	0	0	2	0	4	0	266	
7:50 AM	0	147	6	0	1	125	1	1	2	0	0	0	4	1	3	0	291	
7:55 AM	1	133	1	0	3	82	2	0	1	1	1	0	8	0	6	0	239	3150
8:00 AM	0	119	1	1	2	79	2	0	8	0	0	0	4	0	8	0	224	3157
8:05 AM	0	98	4	0	2	85	4	0	5	0	0	0	2	1	1	0	202	3097
8:10 AM	0	127	2	0	1	82	1	0	0	1	0	0	3	0	1	0	218	3046
8:15 AM	0	130	3	0	2	72	2	0	3	0	1	0	2	0	2	0	217	3005
8:20 AM	1	135	6	0	1	89	1	1	0	1	0	0	3	0	2	0	240	2957
8:25 AM	0	115	5	0	3	63	0	0	0	0	0	0	0	0	1	0	187	2905
8:30 AM	0	127	3	0	1	71	0	0	1	0	0	0	3	1	3	0	210	2835
8:35 AM	0	118	3	0	1	83	2	0	2	0	0	0	0	1	1	0	211	2768
8:40 AM	1	143	0	1	1	68	2	1	1	0	0	0	3	0	0	0	221	2726
8:45 AM	0	108	1	0	1	87	4	1	0	1	0	0	3	0	2	0	208	2668
8:50 AM	1	127	3	0	0	88	1	0	0	1	1	0	1	0	1	0	224	2601
8:55 AM	0	93	4	0	1	89	3	0	2	1	1	0	3	1	1	0	199	2561

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	2004	120	4	8	1016	8	0	32	0	4	0	28	8	48	0	3284
Heavy Trucks	0	64	4		0	100	0		0	0	0		4	0	4		176
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 5/19/2017 4:01 PM

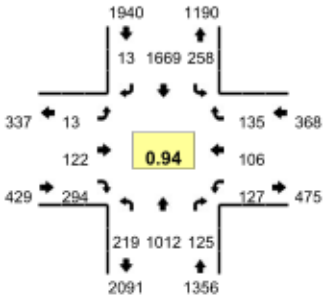
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

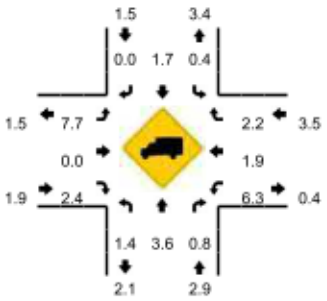
Method for determining peak hour: Total Entering Volume

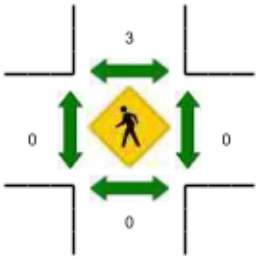
LOCATION: SW Pacific Hwy -- SW Elwert Rd/SW Sunset Blvd
CITY/STATE: Sherwood, OR

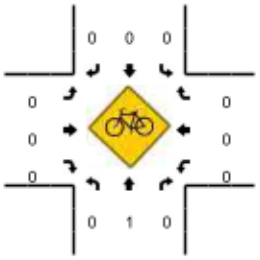
QC JOB #: 14401718
DATE: Thu, May 11 2017

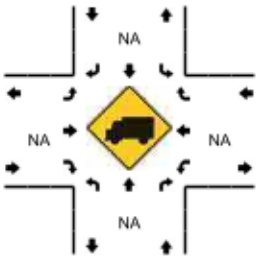


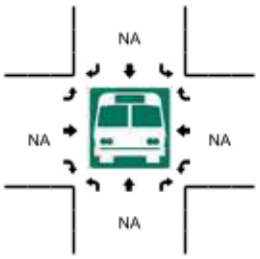
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM











5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Elwert Rd/SW Sunset Blvd (Eastbound)				SW Elwert Rd/SW Sunset Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	15	71	6	1	11	141	3	4	3	11	27	0	10	6	6	0	315	
4:05 PM	4	62	14	0	14	154	0	1	0	12	26	0	7	5	11	0	310	
4:10 PM	12	76	3	0	11	132	0	2	0	10	27	0	9	8	10	0	300	
4:15 PM	13	96	13	1	10	111	3	3	1	7	25	0	11	8	15	0	317	
4:20 PM	16	91	13	1	13	149	0	5	0	12	18	0	13	7	11	0	349	
4:25 PM	13	82	5	0	12	140	2	3	1	9	21	0	12	10	16	0	326	
4:30 PM	22	73	10	0	12	110	3	2	0	11	28	0	6	7	11	0	295	
4:35 PM	16	82	8	0	19	121	2	6	0	11	26	0	10	8	11	0	320	
4:40 PM	24	100	17	1	13	129	1	2	0	7	29	0	12	8	9	0	352	
4:45 PM	23	79	9	0	19	136	0	3	1	7	22	0	11	19	15	0	344	
4:50 PM	22	87	11	0	22	124	1	3	2	12	27	0	11	10	12	0	344	
4:55 PM	14	78	16	0	25	136	1	1	2	6	28	0	12	8	18	0	345	3917
5:00 PM	19	77	8	0	10	117	0	5	2	11	29	0	9	11	10	0	308	3910
5:05 PM	13	63	8	0	16	153	2	2	0	12	22	0	17	6	16	0	330	3930
5:10 PM	16	80	9	0	22	158	0	0	1	13	23	0	13	4	10	0	349	3979
5:15 PM	15	95	17	0	14	157	2	2	5	7	22	0	11	10	8	0	365	4027
5:20 PM	14	108	4	0	25	154	1	4	0	12	22	0	12	9	12	0	377	4055
5:25 PM	22	75	7	0	16	142	1	5	0	13	24	0	6	8	7	0	326	4055
5:30 PM	21	93	11	0	25	110	2	1	0	9	27	0	7	6	11	0	323	4083
5:35 PM	15	77	8	0	21	153	2	2	0	13	19	0	6	7	7	0	330	4093
5:40 PM	17	89	9	0	21	131	0	7	0	10	25	0	4	8	8	0	329	4070
5:45 PM	17	88	13	0	8	136	3	1	1	5	26	0	7	8	11	0	324	4050
5:50 PM	19	87	15	0	22	134	0	3	1	11	25	0	10	5	11	0	343	4049
5:55 PM	17	64	8	0	31	134	4	2	0	12	15	0	11	6	11	0	315	4019

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	1132	120	0	244	1876	12	24	24	128	268	0	144	92	120	0	4364
Heavy Trucks	8	40	4		0	20	0		4	0	8		8	0	0		92
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/19/2017 4:01 PM

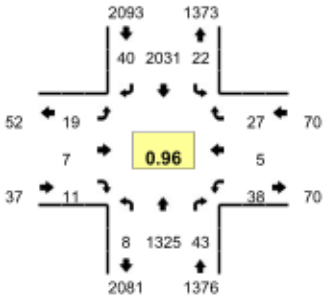
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

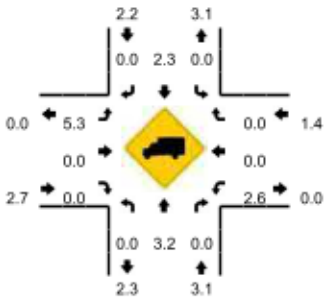
Method for determining peak hour: Total Entering Volume

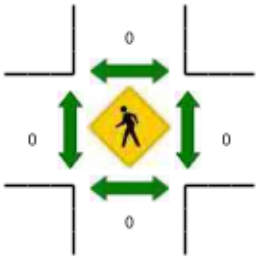
LOCATION: SW Pacific Hwy -- SW Chapman Rd
CITY/STATE: Sherwood, OR

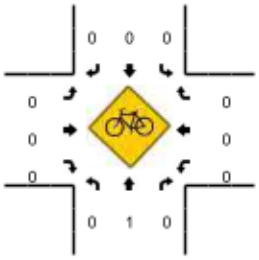
QC JOB #: 14401707
DATE: Thu, May 11 2017

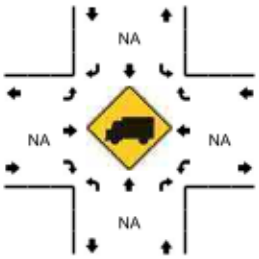


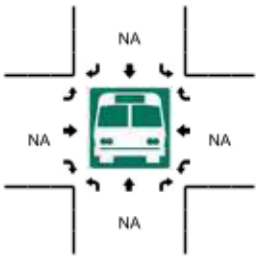
Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:10 PM -- 5:25 PM











5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Chapman Rd (Eastbound)				SW Chapman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	89	1	0	1	184	2	0	1	1	0	0	2	0	0	0	281	
4:05 PM	0	72	6	1	0	166	3	0	0	0	1	0	5	0	0	0	254	
4:10 PM	1	103	2	1	1	160	1	0	1	0	1	0	3	0	1	0	275	
4:15 PM	0	126	4	0	1	163	4	0	4	0	0	0	4	0	2	0	308	
4:20 PM	0	124	1	0	1	153	1	0	1	0	0	0	4	0	0	0	285	
4:25 PM	1	92	5	0	1	172	4	0	1	0	0	0	4	0	2	0	282	
4:30 PM	1	102	2	0	3	149	0	0	0	0	0	0	4	0	2	0	263	
4:35 PM	2	114	0	0	1	153	3	0	2	2	0	0	1	0	4	0	282	
4:40 PM	0	117	2	0	3	149	4	0	5	1	3	0	6	0	4	0	294	
4:45 PM	0	108	2	0	0	176	3	0	3	1	1	0	3	0	5	0	302	
4:50 PM	0	117	5	0	2	177	4	0	0	1	1	0	4	1	1	0	313	
4:55 PM	2	121	3	0	1	173	5	0	0	0	1	0	1	0	3	0	310	3449
5:00 PM	0	102	6	0	4	159	1	1	0	0	2	0	3	0	1	0	279	3447
5:05 PM	0	91	2	0	2	183	3	0	1	0	1	0	0	1	0	0	284	3477
5:10 PM	0	110	6	0	4	187	2	1	4	0	0	0	5	0	1	0	320	3522
5:15 PM	2	119	3	0	1	189	5	0	0	1	1	0	2	1	1	0	325	3539
5:20 PM	1	107	1	1	0	161	3	0	2	0	0	0	6	0	5	0	287	3541
5:25 PM	0	114	6	0	2	177	5	0	1	0	1	0	4	0	0	0	310	3569
5:30 PM	0	105	7	0	0	147	2	0	1	1	0	0	3	2	2	0	270	3576
5:35 PM	0	100	0	0	1	164	2	1	1	0	1	0	4	1	2	0	277	3571
5:40 PM	0	132	4	0	0	156	2	0	1	0	1	0	0	0	1	0	297	3574
5:45 PM	0	114	4	0	0	149	1	0	4	0	0	0	5	0	2	0	279	3551
5:50 PM	0	93	3	0	3	158	1	0	0	4	0	0	5	1	1	0	269	3507
5:55 PM	0	82	3	0	2	151	0	0	1	2	0	0	5	0	1	0	247	3444

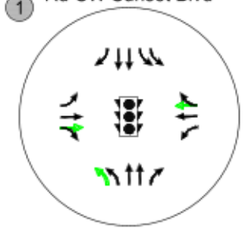
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	1344	40	4	20	2148	40	4	24	4	4	0	52	4	28	0	3728
Heavy Trucks	0	44	0		0	40	0		0	0	0		0	0	0		84
Pedestrians		0				0				0				0			0
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad Stopped Buses																	

Comments:

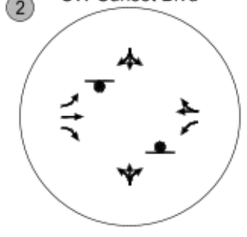
Report generated on 5/19/2017 4:01 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

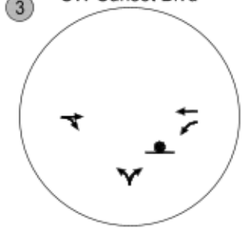
1 Hwy 99W/SW Elwert Rd-SW Sunset Blvd



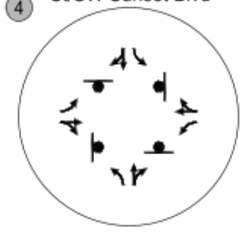
2 SW Woodhaven Dr/ SW Sunset Blvd



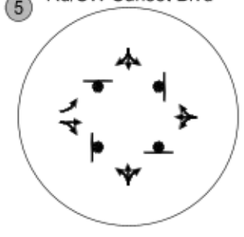
3 SW Timbrel Ln/ SW Sunset Blvd



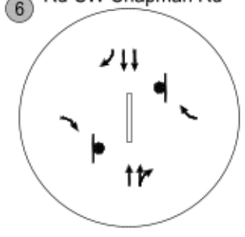
4 SW Ladd Hill Rd-SW Main St/SW Sunset Blvd



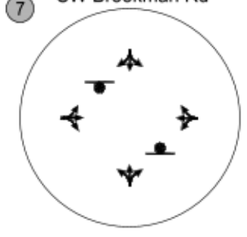
5 SW Baker Rd-SW Murdock Rd/SW Sunset Blvd



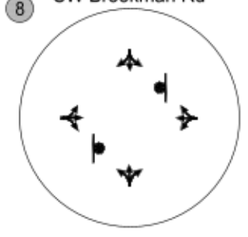
6 Hwy 99W/SW Brookman Rd-SW Chapman Rd



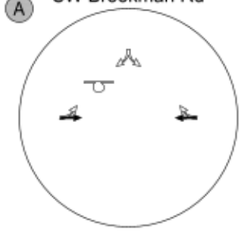
7 Old Hwy 99W/ SW Brookman Rd



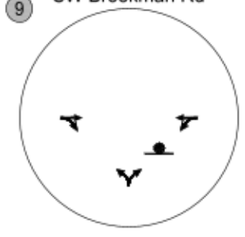
8 SW Middleton Rd/ SW Brookman Rd



A Middlebrook Access/ SW Brookman Rd



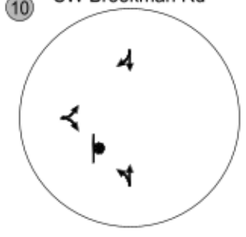
9 SW Oberst Rd/ SW Brookman Rd



B The Reserve Access/ SW Brookman Rd

Future Intersection

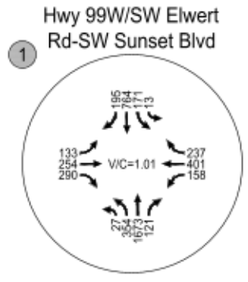
10 SW Ladd Hill Rd/ SW Brookman Rd

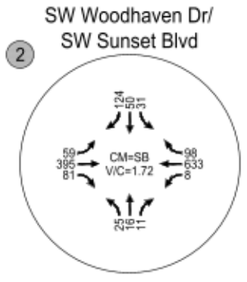


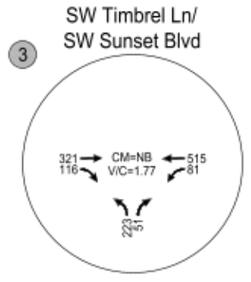
- STOP SIGN
- TRAFFIC SIGNAL
- RAISED MEDIAN
- EXISTING
- PLANNED IMPROVEMENT
- MOVEMENT/IMPROVEMENT ADDED WITH MIDDLEBROOK DEVELOPMENT

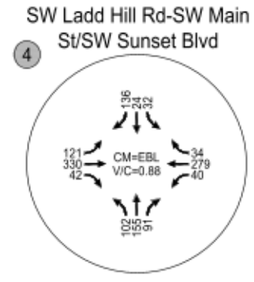
Year 2024 Background Assumed Lane Configurations and Traffic Control Devices
Sherwood, Oregon

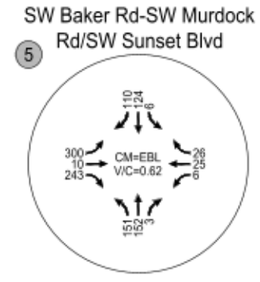
Figure 6

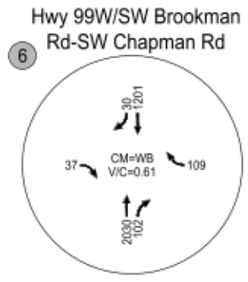


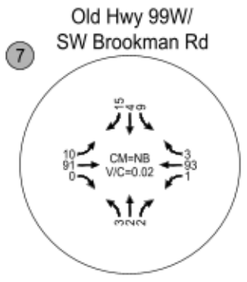


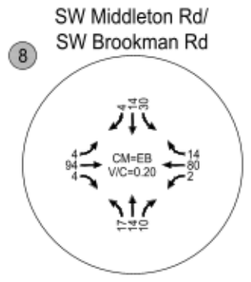


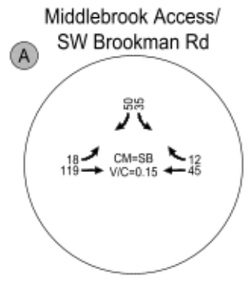


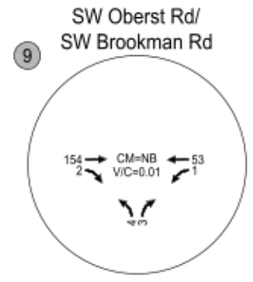


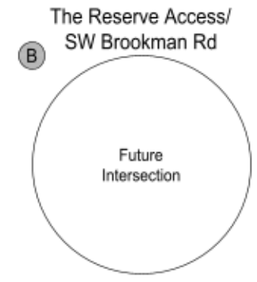


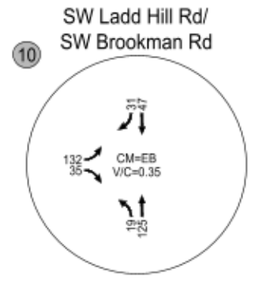












CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWSC = TWO-WAY STOP CONTROL
AWSC=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

Year 2024 Background Intersection Operations
Weekday AM Peak Hour
Sherwood, Oregon

Figure 7

KITTELSON & ASSOCIATES

Hwy 99W/SW Elwert Rd-SW Sunset Blvd (1)
46 1755 363 36
46 177 346 — V/C=1.04 — 154 154 190
19 264 1094 143

SW Woodhaven Dr/ SW Sunset Blvd (2)
68 41
129 480 32 — CM=SB V/C=0.59 — 79 491 6
124 1

SW Timbrel Ln/ SW Sunset Blvd (3)
337 186 — CM=NB V/C=0.68 — 467 67
108 40

SW Ladd Hill Rd-SW Main St/SW Sunset Blvd (4)
69 380 74
29 142 146 — CM=SBT/R V/C=1.11 — 56 110 55
118 249 42

SW Baker Rd-SW Murdock Rd/SW Sunset Blvd (5)
302 161 34
117 15 183 — CM=NB V/C=1.02 — 17 23 1
345 154 7

Hwy 99W/SW Brookman Rd-SW Chapman Rd (6)
60 2226
42 — CM=EB V/C=0.23 — 66
1451 66

Old Hwy 99W/ SW Brookman Rd (7)
52 21
9 54 0 — CM=NB V/C=0.01 — 2 60 1
1 2

SW Middleton Rd/ SW Brookman Rd (8)
6 18 57
9 45 10 — CM=WB V/C=0.14 — 12 133 13
12 11 9

Middlebrook Access/ SW Brookman Rd (A)
32 23
57 53 — CM=SB V/C=0.10 — 36 41

SW Oberst Rd/ SW Brookman Rd (9)
76 0 — CM=NB V/C=0.02 — 73 5
55

The Reserve Access/ SW Brookman Rd (B)
Future Intersection

SW Ladd Hill Rd/ SW Brookman Rd (10)
62 104
55 21 — CM=EB V/C=0.14
10 102

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

Year 2024 Background Intersection Operations
Weekday PM Peak Hour
Sherwood, Oregon

Figure 8

KITTELSON & ASSOCIATES

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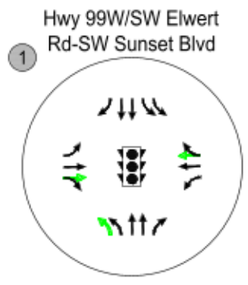
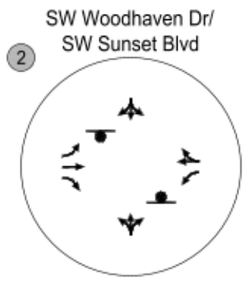
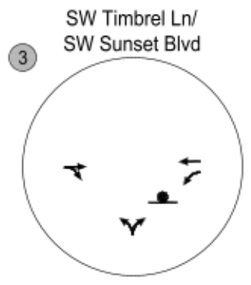
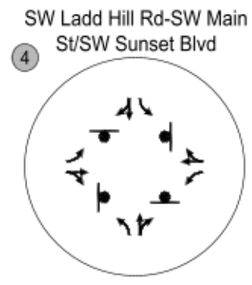
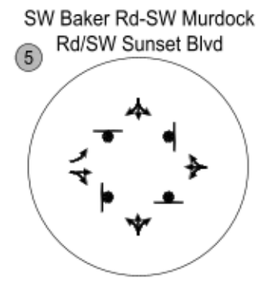
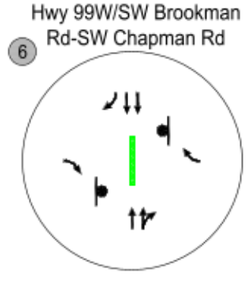


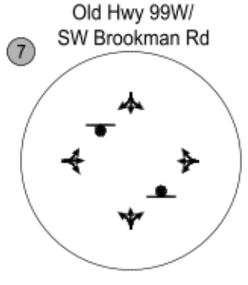


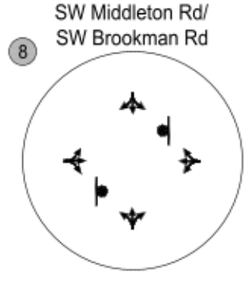


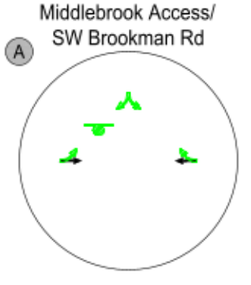


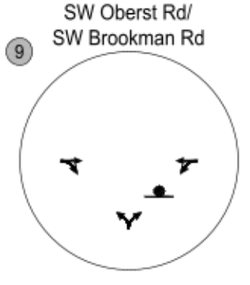


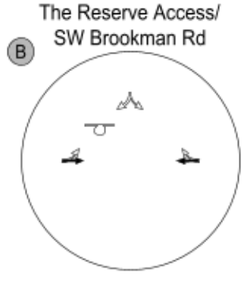


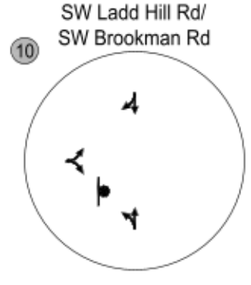








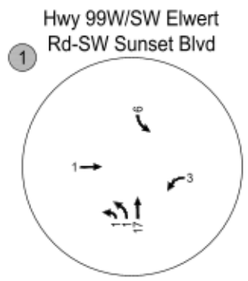


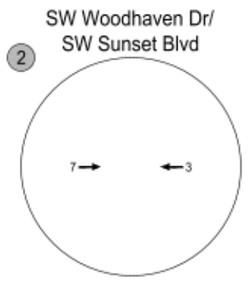


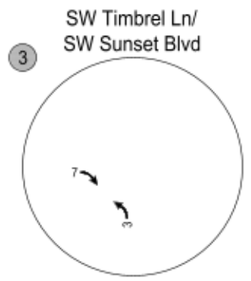
- STOP SIGN
- TRAFFIC SIGNAL
- RAISED MEDIAN
- EXISTING
- PLANNED IMPROVEMENT
- MOVEMENT ADDED WITH THE RESERVE DEVELOPMENT

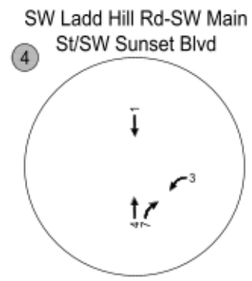
Year 2024 Background Assumed Lane Configurations and Traffic Control Devices
Sherwood, Oregon

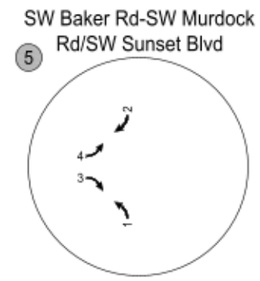
Figure 9

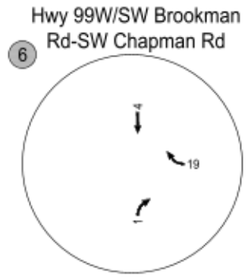


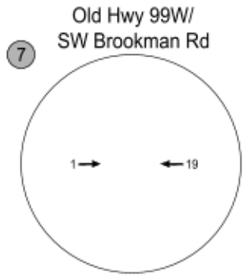


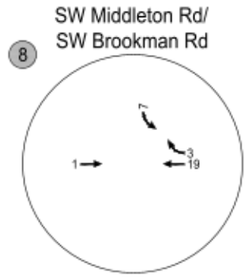


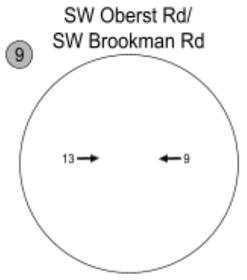


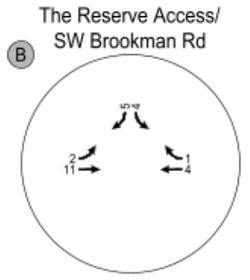


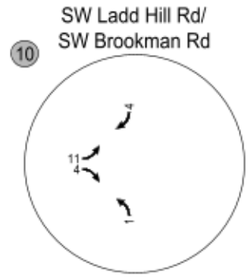








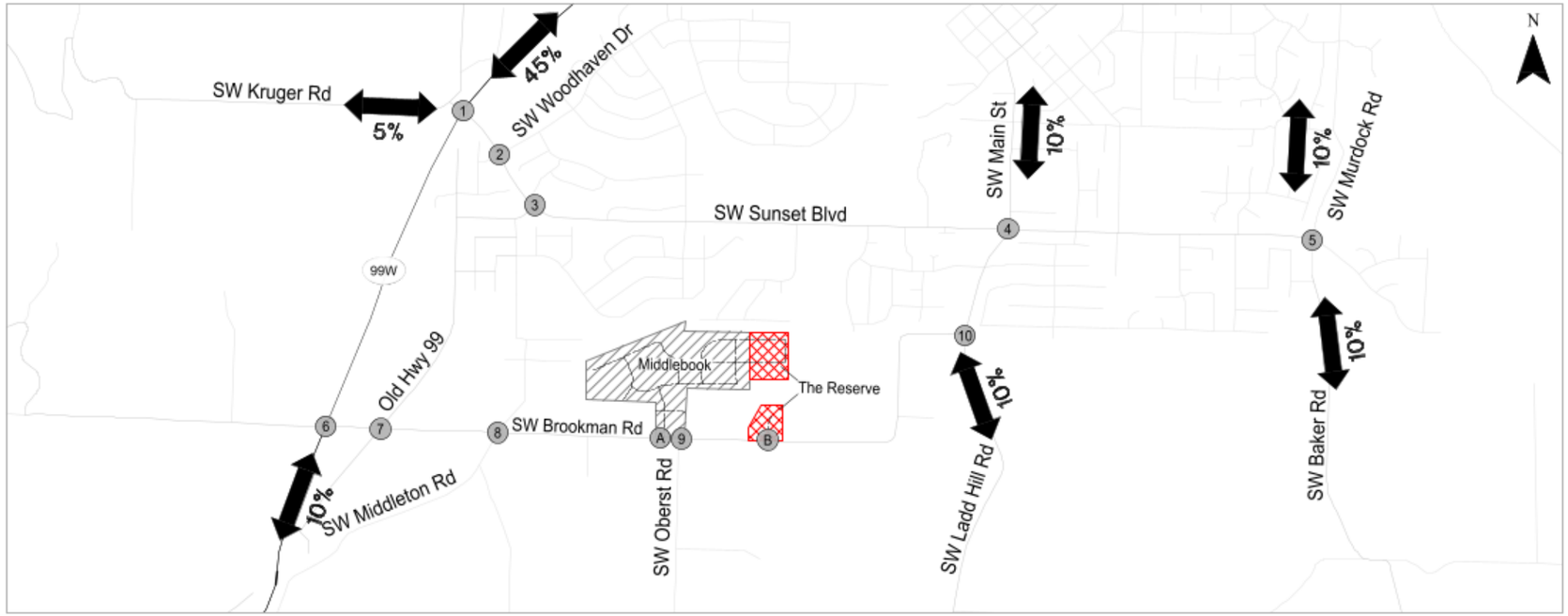


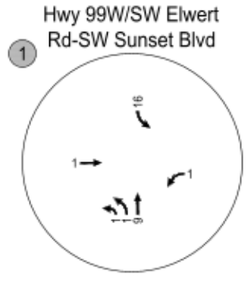


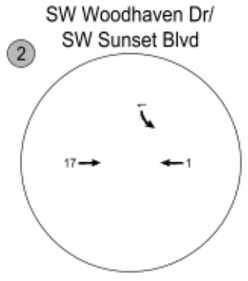
Assumed Trip Distribution and Assignment with RIRO at Highway 99W/SW Brookman Road-SW Chapman Road
Weekday AM Peak Hour
Sherwood, Oregon

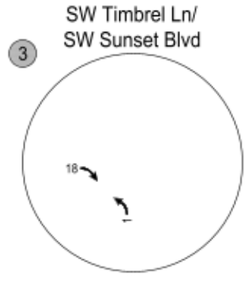
Figure 10

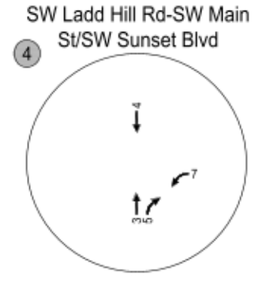
KITTELSON & ASSOCIATES

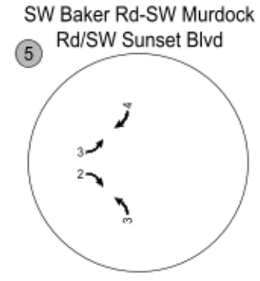


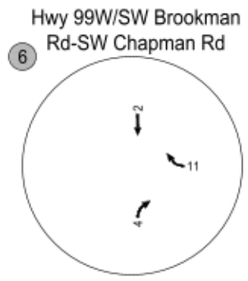


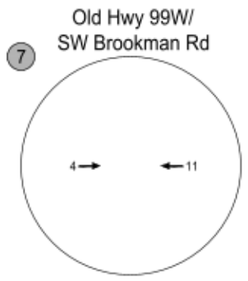


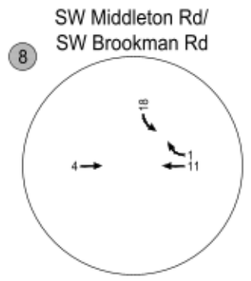


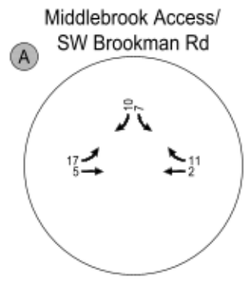


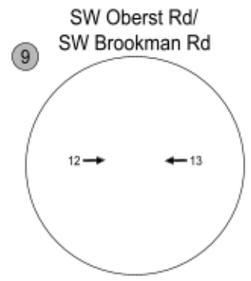


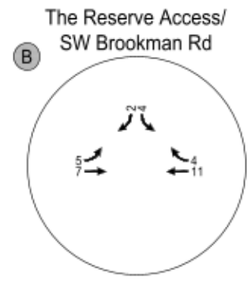






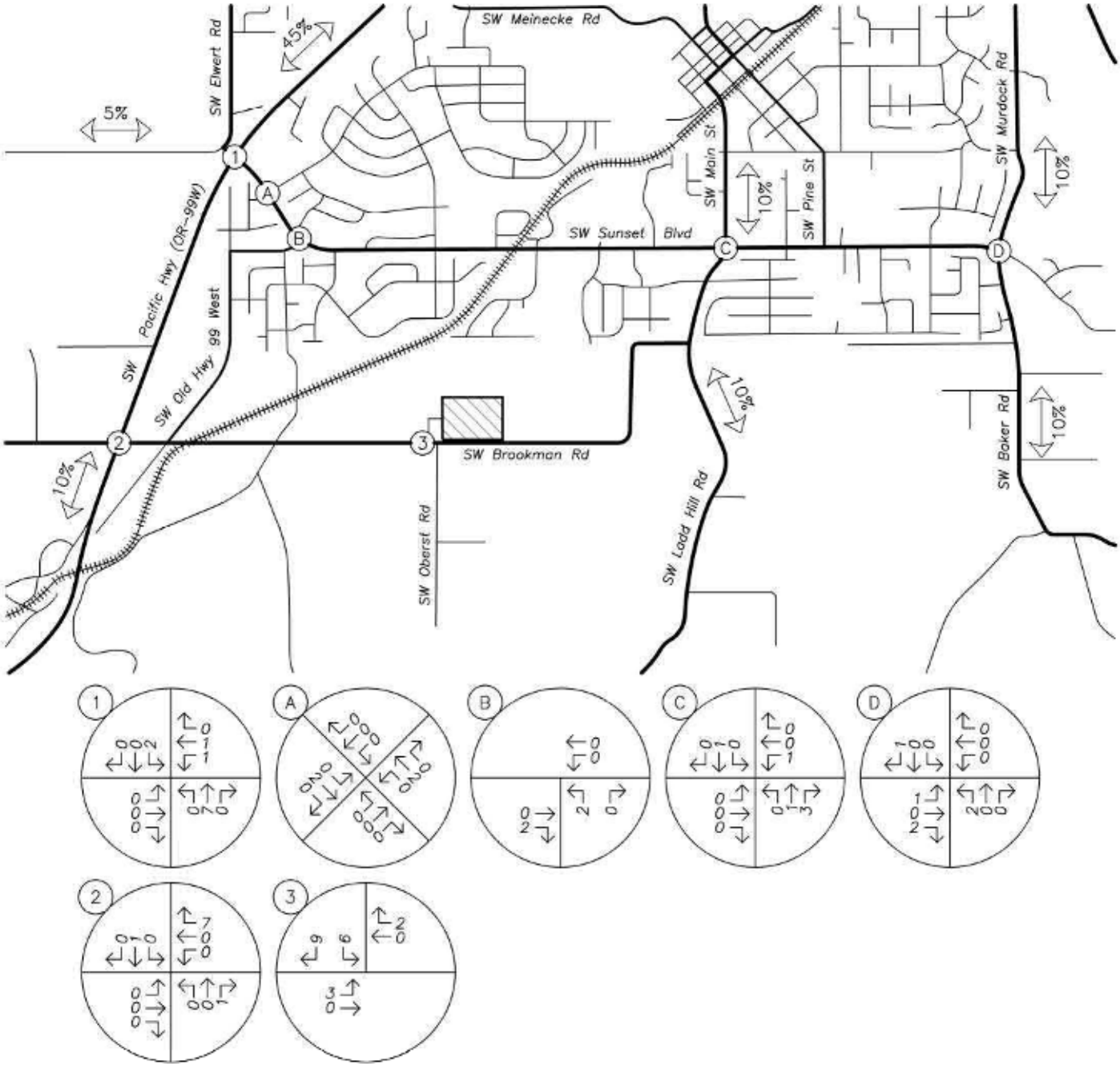






Assumed Trip Distribution and Assignment with RIRO at Highway 99W/SW Brookman Road-SW Chapman Road
Weekday PM Peak Hour
Sherwood, Oregon

Figure 11



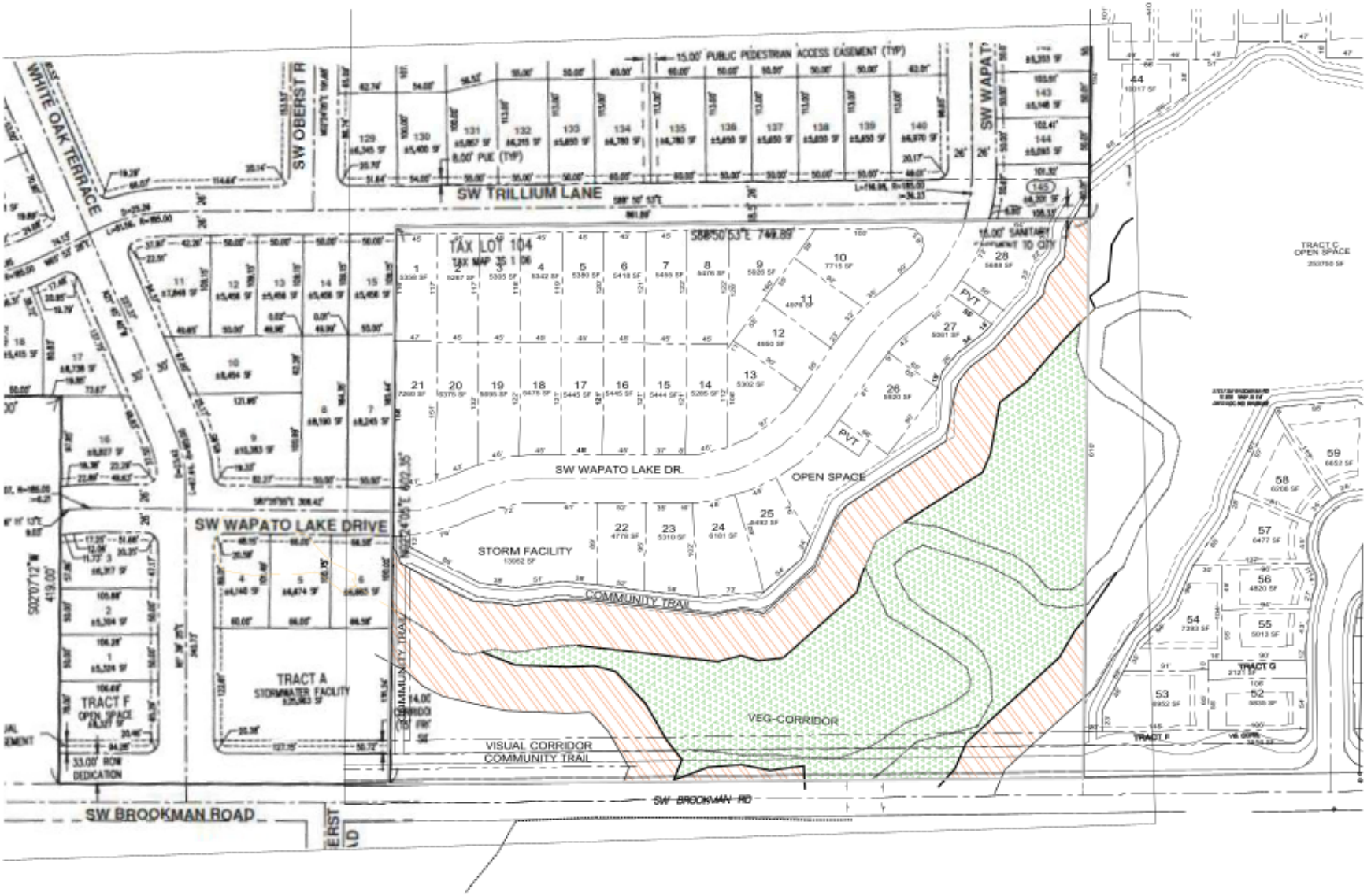
no scale

SITE TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Plan - Site Trips
AM Peak Hour

Figure 2
Cedar Creek Subdivision
3/31/2020

Exhibit B2



PIONEER DESIGN GROUP

PRELIMINARY SITE PLAN

SCOTT PROPERTY
CITY OF SHERWOOD, OREGON

Project: SCOTT PROPERTY
No: 131-089
Type: PLANNING
Sheet: P0.0

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A G	M J U N	S I V	C L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02154	N	N	N	N	N	N	05/01/2019	WASHINGTON	1 14			STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
CITY							WE	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	NONE	N	DRY	REAR		PRVTE	NE-SW								000		00
N							5P	PORTLAND UA	16.57		SW ELWERT RD	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	42	F	OR-Y		043	000		07
N							45 21 16.15	-122 51 59.28			009100100S00		(04)													OR<25					
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		01	DRVR	INJC	33	F	OR-Y		000	000		00
																										OR<25				
08211	N	N	N	N			11/30/2016	WASHINGTON	1 14			STRGHT		N	N	RAIN	S-1STOP	01	NONE 9	STRGHT										29
NONE							WE	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	WET	REAR		N/A	NE-SW								000		00
N							3P	PORTLAND UA	16.60		SW SUNSET BLVD	03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 14.96	-122 52 .91			009100100S00		(04)													UNK				
																		02	NONE 9	STOP										
																			N/A	NE-SW								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				
04096	N	N	N	N	N	N	08/12/2019	WASHINGTON	1 14			STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
CITY							MO	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	NE-SW								000		00
N							4P	PORTLAND UA	16.60		SW ELWERT RD	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y		043	000		07
N							45 21 14.96	-122 52 .91			009100100S00		(04)													OR>25				
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		01	DRVR	INJC	36	F	OR-Y		000	000		00
																										OR<25				
07960	N	N	N	N			12/22/2015	WASHINGTON	1 14			STRGHT		N	N	RAIN	S-1STOP	01	NONE 1	STRGHT										29
NO RPT							TU	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	NE-SW								000		00
N							4P	PORTLAND UA	16.61		SW ELWERT RD	04			N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	72	M	OR-Y		026	000		29
N							45 21 14.53	-122 52 1.4			009100100S00		(04)													OR<25				
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		01	DRVR	INJC	61	F	OR-Y		000	000		00
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		02	PSNG	INJC	65	M			000	000		00
03457	N	N	N	N			06/21/2015	WASHINGTON	1 14			STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										29
NONE							SU	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	NE-SW								000		00
N							6P	PORTLAND UA	16.64		SW SUNSET BLVD	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	23	M	OR-Y		042	000		29
N							45 21 13.21	-122 52 2.83			009100100S00		(04)													OR>25				

SER# / INVEST / RD DPT / UNLOC?	S P E D	E A L C	D R G S	M J U V	S I N L	C H H	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																			02	NONE 0 PRVTE PSNGR CAR	STRGHT NE-SW	01	DRVR	INJC	18	F	OR-Y OR<25		000	006 000		00 00
04458 NONE	N	N	N	N				08/06/2015 TH	WASHINGTON SHERWOOD	1 14 MN 0		SW PACIFIC HY 99W	STRGHT NE	(DIVMD)	N UNKNOWN	N N	CLR DRY	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT NE-SW								000		29 00
N N								6P 45 21 13.21	PORTLAND UA -122 52 2.83	16.64		SW SUNSET BLVD 009100100S00	04	(04)		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	F	UNK UNK		026	000		29
																			02	NONE 0 PRVTE PSNGR CAR	STOP NE-SW	01	DRVR	INJC	30	F	OR-Y OR<25		000	011 000		00 00
03929 NONE	N	N	N	N				06/15/2016 WE	WASHINGTON SHERWOOD	1 14 MN 0		SW PACIFIC HY 99W	STRGHT NE	(DIVMD)	N UNKNOWN	N N	CLR DRY	S-STRGHT SS-O	01	NONE 9 N/A	STRGHT NE-SW								000		13 00
N N								3P 45 21 13.21	PORTLAND UA -122 52 2.83	16.64		SW ELWERT RD 009100100S00	04	(04)		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK UNK		000	000		00
																			02	NONE 9 N/A PSNGR CAR	STRGHT NE-SW	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
03493 NONE	N	N	N	N				05/28/2016 SA	WASHINGTON SHERWOOD	1 14 MN 0		SW PACIFIC HY 99W	STRGHT NE	(DIVMD)	Y UNKNOWN	N N	CLR DRY	S-STRGHT REAR	01	NONE 9 N/A	STRGHT NE-SW								000		29 00
N N								11A 45 21 12.76	PORTLAND UA -122 52 3.29	16.65		SW SUNSET BLVD 009100100S00	03	(04)		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK UNK		000	000		00
																			02	NONE 9 N/A PSNGR CAR	STRGHT NE-SW	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
80504 NONE	N	N	N	N				05/17/2018 TH	WASHINGTON SHERWOOD	1 14 MN 0		SW PACIFIC HY 99W	STRGHT NE	(DIVMD)	Y UNKNOWN	N N	CLR DRY	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT NE-SW								006		29 00
N N								4P 45 21 12.75	PORTLAND UA -122 52 3.29	16.65		SW SUNSET BLVD 009100100S00	03	(04)		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	46	M	OR-Y OR<25		026	000		29
																			02	NONE 0 PRVTE PSNGR CAR	STOP NE-SW	01	DRVR	INJC	32	M	OR-Y OR<25		000	011 000		00 00
																			02	NONE 0 PRVTE PSNGR CAR	STOP NE-SW	02	PSNG	INJC	31	M			000	011 000		00 00

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	D R U G	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
80239	N	N	N	N			03/09/2015	WASHINGTON	1	14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE							MO	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	NE-SW								000		00
N							3P	PORTLAND UA	16.65		SW SUNSET BLVD	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		026	000		29
N							45 21 12.76	-122 52 3.29			009100100S00		(04)													OR<25					
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		01	DRVR	INJC	60	F	OR-Y		000	000		00
																										OR<25				
00684	N	N	N	N	N	N	02/08/2018	WASHINGTON	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
CITY							TH	SHERWOOD	MN 0		SW ELWERT RD	NE		TRF SIGNAL	N	DRY	REAR		UNKN	NE-SW								000		00
N							6P	PORTLAND UA	16.67		SW PACIFIC HY 99W	06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		026	000		29
N							45 21 11.85	-122 52 4.18			009100100S00															UNK					
																		02	NONE 0	STOP										
																			PRVTE	NE-SW								011		00
																			PSNGR CAR		01	DRVR	INJC	49	F	OR-Y		000	000		00
																										OR<25				
02155	N	N	N	N	N	N	04/30/2018	WASHINGTON	1	14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 9	STRGHT										07
CITY							MO	SHERWOOD	MN 0		SW ELWERT RD	NE		TRF SIGNAL	N	DRY	REAR		N/A	NE-SW								000		00
N							5P	PORTLAND UA	16.67		SW PACIFIC HY 99W	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 11.85	-122 52 4.18			009100100S00															UNK					
																		02	NONE 9	STOP										
																			N/A	NE-SW								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				
07290	N	N	N	N			12/19/2018	WASHINGTON	1	14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 9	STRGHT										07
CITY							WE	SHERWOOD	MN 0		SW ELWERT RD	NE		TRF SIGNAL	N	DRY	REAR		N/A	NE-SW								000		00
N							4P	PORTLAND UA	16.67		SW PACIFIC HY 99W	06	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 11.85	-122 52 4.18			009100100S00															UNK					
																		02	NONE 9	STOP										
																			N/A	NE-SW								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				
00764	N	N	N	N			02/13/2019	WASHINGTON	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
NONE							WE	SHERWOOD	MN 0		SW ELWERT RD	NE		TRF SIGNAL	N	DRY	REAR		N/A	NE-SW								000		00
N							2P	PORTLAND UA	16.67		SW PACIFIC HY 99W	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 11.85	-122 52 4.18			009100100S00															UNK					
																		02	NONE 9	STOP										
																			N/A	NE-SW								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				

SER# / INVEST / RD DPT / UNLOC?	S P E D C	A	D R L G S	M J N V	S I H L	C	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04035	N	N	N	N	N	N	N	08/08/2019	WASHINGTON	1 14			INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	TURN-L										29
CITY								TH	SHERWOOD	MN 0		SW ELWERT RD	NW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NW								000		00
N								3P	PORTLAND UA	16.67		SW PACIFIC HY 99W	05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		026	000		29
N								45 21 11.85	-122 52 4.18			009100100S00															OR<25					
																			02	NONE 0	STOP										
																				PRVTE	SW-NW								011		00
																				PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		000	000		00
																											OR<25					
																			02	NONE 0	STOP										
																				PRVTE	SW-NW								011		00
																				PSNGR CAR		02	PSNG	INJB	43	F			000	000		00
05867	N	N	N	N				10/28/2018	WASHINGTON	1 14			INTER	CROSS	N	N	RAIN	ANGL-STP	01	NONE 9	TURN-R										08
NONE								SU	SHERWOOD	MN 0		SW ELWERT RD	NW		TRF SIGNAL	N	WET	TURN		N/A	NE-NW								000		00
N								UNK	PORTLAND UA	16.67		SW PACIFIC HY 99W	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 21 11.85	-122 52 4.18			009100100S00															UNK					
																			02	NONE 9	STOP										
																				N/A	NW-SE								012		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
00404	N	N	N	N	N	N	N	01/23/2015	WASHINGTON	1 14			INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										04
COUNTY								FR		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S								000		00
N								6A	PORTLAND UA	16.67			01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	26	M	OR-Y	020	000		04
N								45 21 11.85	-122 52 4.18			009100100S00															OR<25					
																			02	NONE 0	TURN-L										
																				PRVTE	S -W								000		00
																				PSNGR CAR		01	DRVR	INJC	29	M	OR-Y	000	000		00
																											OR>25					
03342	N	N	N	N	N	N	N	06/06/2017	WASHINGTON	1 14			INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L										087	27,04
CITY								TU		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -W								000		00
N								2P	PORTLAND UA	16.67			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	21	M	OR-Y	016,004,020	038		27,04
N								45 21 11.85	-122 52 4.18			009100100S00															OR>25					
																			02	NONE 0	STRGHT										
																				PRVTE	N -S								000	087	00
																				PSNGR CAR		01	DRVR	INJC	25	F	OR-Y	000	000		00
																											OR<25					
																			02	NONE 0	STRGHT										
																				PRVTE	N -S								000	087	00
																				PSNGR CAR		02	PSNG	NO<5	01	F		000	000		00
																			02	NONE 0	STRGHT										
																				PRVTE	N -S								000	087	00
																				PSNGR CAR		03	PSNG	NO<5	02	F		000	000		00

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	D R U G	M J I N	S C S H	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02588	N	N	N	N	N	N	05/23/2018	WASHINGTON	1	14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										04
CITY							WE	SHERWOOD	MN 0		SW ELWERT RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NE-SW								000		00
N							5A	PORTLAND UA	16.67		SW PACIFIC HY 99W	01	0		N	DAWN	INJ		PSNGR CAR		01	DRVR	INJB	27	M	OR-Y		000	000		00
N							45 21 11.85	-122 52 4.18			009100100S00															OR<25					
																		02	NONE 0	TURN-L										
																			PRVTE	SW-NW								000		00
																			PSNGR CAR		01	DRVR	NONE	41	M	OR-Y	020	000		04
																										OR<25				
05940	N	N	N	N	N	N	11/03/2018	WASHINGTON	1	14		INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	STRGHT										013	02,29
CITY							SA	SHERWOOD	MN 0		SW ELWERT RD	CN		L-GRN-SIG	N	WET	TURN		PRVTE	NE-SW								022	013	00
N							8P	PORTLAND UA	16.67		SW PACIFIC HY 99W	01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	55	F	SUSP		000	000		00
N							45 21 11.84	-122 52 4.18			009100100S00															OR<25				
																		02	NONE 0	TURN-L										
																			PRVTE	SW-NW								022		00
																			TRUCK		01	DRVR	NONE	35	M	OR-Y	004,028	000		02
																										OR<25				
																		03	NONE 0	STRGHT										
																			PRVTE	NE-SW								000		00
																			PSNGR CAR		01	DRVR	NONE	24	F	SUSP	026	000		29
																										N-RES				
06954	N	N	N	N	N	N	12/18/2018	WASHINGTON	1	14		INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 0	TURN-L										04	
CITY							TU		MN 0			CN		L-GRN-SIG	N	WET	TURN		PRVTE	SW-NW								000		00
N							2P	PORTLAND UA	16.67			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	22	F	OR-Y	020,004	000		04	
N							45 21 11.85	-122 52 4.19			009100100S00															OR<25					
																		02	NONE 0	STRGHT											
																			PRVTE	NE-SW								000		00	
																			PSNGR CAR		01	DRVR	INJB	56	F	OR-Y	000	000		00	
																										OR<25					
05733	N	N	N	N	N	N	10/26/2018	WASHINGTON	1	14		INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 9	STRGHT										04	
CITY							FR	SHERWOOD	MN 0		SW ELWERT RD	CN		TRF SIGNAL	N	WET	TURN		N/A	NE-SW								000		00
N							1P	PORTLAND UA	16.67		SW PACIFIC HY 99W	01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000		00	
N							45 21 11.85	-122 52 4.18			009100100S00															UNK					
																		02	NONE 9	TURN-L											
																			N/A	SW-NW								000		00	
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000		00	
																										UNK					
03825	N	N	N	N			07/08/2015	WASHINGTON	1	14		INTER	CROSS	N	N	CLR	BIKE	01	NONE 0	TURN-L										02	
NONE							WE		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	SE-SW								000		00
N							7P	PORTLAND UA	16.67			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	25	F	OTH-Y	027	000		02	
N							45 21 11.85	-122 52 4.18			009100100S00															OR<25					
																				-										
																				STRGHT	01	BIKE	INJB	23	M		I INRD	000	035		00
																				NW SE										

SER# / INVEST / RD DPT / UNLOC?	S P E D C	A	D R L G S	M U N I V	J	S	W C H L	O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03238	N	N	N	N	N	N	N		06/25/2018	WASHINGTON	1	14			INTER		N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT										010	04
CITY				MO					SHERWOOD	MN 0			SW ELWERT RD		CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	NE-SW								000	010	00
N				2P					PORTLAND UA	16.67			SW PACIFIC HY 99W		03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	18	F	OR-Y		020	000		04
N				45 21 11.85					-122 52 4.18				009100100S00																OR<25					
																					02	NONE 0	STRGHT											
																						PRVTE	NW-SE									000		00
																						PSNGR CAR		01	DRVR	NONE	69	M	OR-Y		000	000		00
																													OR<25					
03471	Y	Y	N	N	N	N	N		06/22/2015	WASHINGTON	1	14			STRGHT		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										079,010	01
CITY				MO						MN 0			Not Related to Intersection		UN	(DIVMD)	UNKNOWN	N	DRY	FIX		PRVTE	NE-SW								000	079,010	00
Y				2A					PORTLAND UA	16.68					01			N	DARK	INJ		MTRCYCLE		01	DRVR	INJA	44	M	OR-Y		047,080,081	000		01
N				45 21 11.41					-122 52 4.6				009100100S00			(04)													OR<25					
03619	N	N	N	N					07/05/2018	WASHINGTON	1	14			STRGHT		N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											29
NONE				TH						MN 0					UN	(NONE)	UNKNOWN	N	DRY	REAR		N/A	NE-SW								000		00
N				6P					PORTLAND UA	16.73					03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N				45 21 9.15					-122 52 6.49				009100100S00			(02)													UNK					
																					02	NONE 9	STRGHT											
																						N/A	NE-SW								006		00
																						PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																													UNK					
05208	N	N	N	N					10/03/2018	WASHINGTON	2	14			STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											29
NONE				WE					SHERWOOD	MN 0			SW PACIFIC HY 99W		NE	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	SW-NE								000		00
N				6A					PORTLAND UA	16.55			SW SUNSET BLVD		00			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		026	000		29
N				45 21 15.95					-122 51 58.08				009100200S00			(04)													OR<25					
																					02	NONE 0	STOP											
																						PRVTE	SW-NE								011		00
																						PSNGR CAR		01	DRVR	INJB	36	F	OR-Y		000	000		00
																													OR<25					
01494	N	N	N	N					03/17/2017	WASHINGTON	2	14			STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE				FR					SHERWOOD	MN 0			SW PACIFIC HY 99W		NE	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	SW-NE								000		00
N				6A					PORTLAND UA	16.57			SW SUNSET BLVD		04			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	41	M	OR-Y		026	000		29
N				45 21 15.23					-122 51 59.17				009100200S00			(04)													OR<25					
																					02	NONE 0	STOP											
																						PRVTE	SW-NE								011		00
																						PSNGR CAR		01	DRVR	INJC	26	M	OR-Y		000	000		00
																													OR<25					
																					02	NONE 0	STOP											
																						PRVTE	SW-NE								011		00
																						PSNGR CAR		02	PSNG	INJC	24	F			000	000		00
																					02	NONE 0	STOP											
																						PRVTE	SW-NE								011		00
																						PSNGR CAR		03	PSNG	NO<5	03	M			000	000		00

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J U V	S I N L	W C H K	O R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04491	N	N	N	N				04/13/2016	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE								WE	SHERWOOD	MN 0		SW PACIFIC HY 99W	NE		TRF SIGNAL	N	DRY	REAR		N/A	NE-SW									000		00
N								5P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 21 11.45	-122 52 3.31			009100200S00															UNK					
																			02	NONE 9	STOP											
																				N/A	NE-SW									011		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
04670	N	N	N	N	N	N	N	07/31/2017	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											07
CITY								MO	SHERWOOD	MN 0		SW ELWERT RD	NE		UNKNOWN	N	DRY	REAR		PRVTE	NE-SW									000		00
N								4P	PORTLAND UA	16.66		SW PACIFIC HY 99W	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	M	OR-Y		043	000		07
N								45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																			01	NONE 0	STRGHT											
																				PRVTE	NE-SW									000		00
																				PSNGR CAR		02	PSNG	INJC	18	F			000	000		00
																			02	NONE 0	STRGHT											
																				PRVTE	NE-SW									006		00
																				PSNGR CAR		01	DRVR	INJC	18	F	OR-Y		000	000		00
																											OR<25					
04289	N	N	N	N				04/27/2017	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE								TH	SHERWOOD	MN 0		SW PACIFIC HY 99W	E		TRF SIGNAL	N	DRY	REAR		N/A	SE-NW									000		00
N								7A	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 21 11.45	-122 52 3.31			009100200S00															UNK					
																			02	NONE 9	STOP											
																				N/A	SE-NW									013		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
04990	N	N	N	N	N	N	N	07/21/2015	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY								TU	SHERWOOD	MN 0		SW ELWERT RD	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N								4P	PORTLAND UA	16.66		SW PACIFIC HY 99W	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	29	F	SUSP		043	000		07
N								45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																			02	NONE 0	STOP											
																				PRVTE	SW-NE									011		00
																				PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		000	000		00
																											OR<25					
05463	N	N	N	N				09/04/2015	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE								FR	SHERWOOD	MN 0		SW PACIFIC HY 99W	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N								11A	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	18	M	OR-Y		026	000		29
N								45 21 11.45	-122 52 3.31			009100200S00															OR<25					

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																	02	NONE 0	STOP										
																		PRVTE	SW-NE									011		00
																		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		000	000		00
																									OR<25					
01834	Y	Y	N	N	N	N	03/19/2016	WASHINGTON	2 14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											013	07,30
CITY							SA	SHERWOOD	MN 0	SW PACIFIC HY 99W	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE								000		00
N							6P	PORTLAND UA	16.66	SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	23	M	NONE		043,050	000		07,30
N							45 21 11.45	-122 52 3.31		009100200S00															OR<25					
																	02	NONE 0	STOP										
																		PRVTE	SW-NE									012	013	00
																		PSNGR CAR		01	DRVR	INJC	46	M	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	STOP										
																		PRVTE	SW-NE									012	013	00
																		PSNGR CAR		02	PSNG	INJC	28	F			000	000		00
																	03	NONE 0	STOP										
																		PRVTE	SW-NE									022		00
																		PSNGR CAR		01	DRVR	NONE	34	M	OR-Y		000	000		00
																									OR<25					
02965	N	N	N	N			05/06/2016	WASHINGTON	2 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT												29
NONE							FR	SHERWOOD	MN 0	SW PACIFIC HY 99W	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE								000		00
N							8A	PORTLAND UA	16.66	SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	32	M	OR-Y		026	000		29
N							45 21 11.45	-122 52 3.31		009100200S00															OR<25					
																	02	NONE 0	STOP										
																		PRVTE	SW-NE									011		00
																		PSNGR CAR		01	DRVR	INJC	40	M	OR-Y		000	000		00
																									OR<25					
06420	N	N	N	N	N	N	09/22/2016	WASHINGTON	2 14		INTER	CROSS	N	N	CLD	S-STRGHT	01	NONE 0	STRGHT											087	07
CITY							TH	SHERWOOD	MN 0	SW PACIFIC HY 99W	SW		TRF SIGNAL	N	SNO	REAR		PRVTE	SW-NE								000	087	00
N							5P	PORTLAND UA	16.66	SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y		043	000		07
N							45 21 11.45	-122 52 3.31		009100200S00															OR<25					
																	02	NONE 0	STRGHT										
																		PRVTE	SW-NE									006	087	00
																		PSNGR CAR		01	DRVR	INJC	28	F	OR-Y		000	000		00
																									OR<25					
08928	N	N	N	N			12/25/2016	WASHINGTON	2 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT												29
NONE							SU	SHERWOOD	MN 0	SW PACIFIC HY 99W	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE								000		00
N							12P	PORTLAND UA	16.66	SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	58	M	OR-Y		026	000		29
N							45 21 11.45	-122 52 3.31		009100200S00															OR<25					
																	02	NONE 0	STOP										
																		PRVTE	SW-NE									011		00
																		PSNGR CAR		01	DRVR	INJC	59	F	OR-Y		000	000		00
																									OR<25					

SER# / INVEST / RD DPT / UNLOC?	S P E D C	A	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	02	PSNG	INJC	40	M			000	011 000		00 00
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	03	PSNG	INJC	54	M			000	011 000		00 00
07321 CITY	N	N	N	N	N	N	11/18/2017 SA	WASHINGTON SHERWOOD	2 14 MN 0		SW PACIFIC HY 99W	INTER SW	CROSS	N TRF SIGNAL	N N	FOG DRY	S-STRGHT REAR	01	NONE 9 N/A	STRGHT SW-NE									000		07 00
N							8P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 11.45	-122 52 3.31			009100200S00															UNK					
																		02	NONE 9 N/A PSNGR CAR	STRGHT SW-NE	01	DRVR	NONE	00	Unk	UNK UNK		000	006 000		00 00
01690 CITY	N	N	N	N	N	N	04/04/2019 TH	WASHINGTON SHERWOOD	2 14 MN 0		SW PACIFIC HY 99W	INTER SW	CROSS	N TRF SIGNAL	N N	CLD WET	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT SW-NE									000		07 00
N							7A	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	23	F	OR-Y		043	000		07
N							45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	INJC	27	M	OR-Y OR<25		000	011 000		00 00
03081 CITY	N	N	N	N	N	N	06/16/2019 SU	WASHINGTON SHERWOOD	2 14 MN 0		SW PACIFIC HY 99W	INTER SW	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT SW-NE									000		29 00
N							3P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	28	F	OR-Y		026	000		29
N							45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	NONE	43	F	OR-Y OR>25		000	011 000		00 00
01913 NO RPT	N	N	N	N			04/16/2019 TU	WASHINGTON SHERWOOD	2 14 MN 0		SW PACIFIC HY 99W	INTER SW	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 0 UNKN	STRGHT SW-NE									000		29 00
N							4P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	F	UNK		026	000		29
N							45 21 11.45	-122 52 3.31			009100200S00															UNK					
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	INJC	28	M	OR-Y OR<25		000	011 000		00 00
																		02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	02	PSNG	INJC	29	M			000	011 000		00 00

SER# / INVEST / RD DPT / UNLOC?	S P E D C	A L G S	D R U N V	M J I H L	S C N	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02665	N	N	N	N	N	N	05/25/2019	WASHINGTON	2	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										27,29
CITY							SA	SHERWOOD	MN 0		SW PACIFIC HY 99W	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE								000		00
N							4P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	21	M	OR-Y		016,026	038		27,29
N							45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																		02	NONE 0	STOP									011		00
																			RENTL	SW-NE										
																			PSNGR CAR		01	DRVR	INJC	30	F	OTH-Y		000	000		00
																										N-RES					
																		02	NONE 0	STOP									011		00
																			RENTL	SW-NE										
																			PSNGR CAR		02	PSNG	INJC	36	M			000	000		00
																		02	NONE 0	STOP									011		00
																			RENTL	SW-NE										
																			PSNGR CAR		03	PSNG	INJC	21	M			000	000		00
06006	N	N	N	N		Y	11/15/2019	WASHINGTON	2	14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										10
CITY							FR	SHERWOOD	MN 0		SW PACIFIC HY 99W	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE								000		00
N							6A	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	38	M	OR-Y		000	000		00
N							45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011		00
																			PSNGR CAR		01	DRVR	INJC	27	M	OR-Y		009	000		10
																										OR<25					
06647	N	N	N	N		Y	12/14/2019	WASHINGTON	2	14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										27,07
CITY							SA	SHERWOOD	MN 0		SW PACIFIC HY 99W	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE								000		00
N							1P	PORTLAND UA	16.66		SW SUNSET BLVD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	32	F	SUSP		016,043	038		27,07
N							45 21 11.45	-122 52 3.31			009100200S00															UNK					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011		00
																			PSNGR CAR		01	DRVR	NONE	65	F	OR-Y		000	000		00
																										OR<25					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011		00
																			PSNGR CAR		02	PSNG	INJC	63	M			000	000		00
04827	N	N	N	N	N	N	08/24/2015	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
CITY							MO	SHERWOOD	MN 0		SW PACIFIC HY 99W	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	SW-NE								000		00
N							1P	PORTLAND UA	16.66		SW SUNSET BLVD	02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	93	F	OR-Y		020	000		04
N							45 21 11.45	-122 52 3.31			009100200S00															OR<25					
																		02	NONE 0	TURN-L											
																			PRVTE	SE-SW									000		00
																			PSNGR CAR		01	DRVR	INJB	35	F	OR-Y		000	000		00
																										OR<25					

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M U N V	J I H L	S C	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR / OWNER	QTY	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																			02	NONE PRVTE PSNGR CAR	0	TURN-L SE-SW								000 000		00 00
05220	N	N	N	N	N	N	N	10/03/2018	WASHINGTON	2 14			INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT										04,27
CITY								WE	SHERWOOD	MN 0		SW PACIFIC HY 99W	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE		SE-NW								000		00
N								11A	PORTLAND UA	16.66		SW SUNSET BLVD	02	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	24	M	OR-Y		000	000		00
N								45 21 11.45	-122 52 3.31			009100200S00																OR<25					
																			01	NONE PRVTE PSNGR CAR	0	STRGHT SE-NW	02	PSNG	INJC	24	F			000	000		00 00
																			02	NONE PRVTE PSNGR CAR	0	STRGHT SW-NE	01	DRVR	INJC	55	M	OTH-Y N-RES		020,016	000 038		00 04,27
06861	N	N	N	N	N	N	N	10/30/2017	WASHINGTON	2 14			INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE	9	TURN-L										04
CITY								WE	SHERWOOD	MN 0		SW ELWERT RD	CN		TRF SIGNAL	N	DRY	TURN		N/A		SE-SW								000		00
N								6A	PORTLAND UA	16.66		SW PACIFIC HY 99W	03	0		N	DLIT	PDO		PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 21 11.45	-122 52 3.31			009100200S00																UNK					
																			02	NONE N/A PSNGR CAR	9	STRGHT NW-SE	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
05152	N	N	N	N	N	N	N	08/23/2017	WASHINGTON	2 14			INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT										04
CITY								WE	SHERWOOD	MN 0		SW PACIFIC HY 99W	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE		SW-NE								000		00
N								12P	PORTLAND UA	16.66		SW SUNSET BLVD	04	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	59	M	EXP		020	000		04
N								45 21 11.45	-122 52 3.31			009100200S00																OR<25					
																			02	NONE PRVTE PSNGR CAR	0	STRGHT NW-SE	01	DRVR	INJC	36	F	OR-Y OR<25		000	000 000		00 00
																			03	NONE PRVTE PSNGR CAR	0	TURN-R SE-NE	01	DRVR	INJC	19	F	OR-Y OR<25		000	022 000		00 00
02603	N	N	N	N	N	N	N	05/13/2015	WASHINGTON	2 14			STRGHT		N	N	RAIN	S-1STOP	01	NONE	0	STRGHT										07
CITY								WE		MN 0			UN	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE		S -N								000		00
N								7A	PORTLAND UA	16.68			03			N	DAY	INJ		PSNGR CAR			01	DRVR	INJC	48	F	OR-Y		043	000		07
N								45 21 10.55	-122 52 4.06			009100200S00		(04)														OR<25					
																			02	NONE PRVTE PSNGR CAR	0	STOP S -N	01	DRVR	INJC	45	F	OR-Y OR<25		000	011 000		00 00

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R E A	M J U G	S I N V	W C H L	O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
06998	N	Y	N	N	N	N	12/20/2018	WASHINGTON	2 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											07
CITY							TH		MN 0		UN	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	S -N									000		00
N							5P	PORTLAND UA	16.68		04			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	46	M	OR-Y		043	000		07
N							45 21 10.56	-122 52 4.05		009100200S00		(04)													OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S -N									011		00
																		PSNGR CAR		01	DRVR	INJC	30	M	OTH-Y		000	000		00
																									N-RES					
04365	N	N	N	N	N	N	08/02/2015	WASHINGTON	2 14		STRGHT		N	N	CLD	S-1STOP	01	NONE 0	STRGHT											33
CITY							SU		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	S -N									000		00
N							9P	PORTLAND UA	16.69		03			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	38	F	SUSP		051,026	000		33
N							45 21 10.11	-122 52 4.43		009100200S00		(04)													OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S -N									011		00
																		PSNGR CAR		01	DRVR	INJB	60	F	OTH-Y		000	000		00
																									N-RES					
06659	N	N	N	N	N	N	11/06/2015	WASHINGTON	2 14		STRGHT		Y	N	FOG	S-1STOP	01	NONE 0	STRGHT											07
CITY							FR		MN 0		UN	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	S -N									000		00
N							7A	PORTLAND UA	16.69		03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		043,026	000		07
N							45 21 10.11	-122 52 4.43		009100200S00		(02)													OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S -N									011		00
																		PSNGR CAR		01	DRVR	NONE	31	F	OR-Y		000	000		00
																									OR<25					
08008	N	N	N	N	N	N	12/14/2017	WASHINGTON	2 14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										087	29
CITY							TH		MN 0		UN	(DIVMD)	TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000	087	00
N							1P	PORTLAND UA	16.69		03			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	68	M	OR-Y		042	000		29
N							45 21 10.11	-122 52 4.43		009100200S00		(04)													OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	S -N									006	087	00
																		PSNGR CAR		01	DRVR	NONE	68	F	OR-Y		000	000		00
																									OR<25					
04297	N	Y	N	N	N	N	08/24/2019	WASHINGTON	2 14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											07
CITY							SA		MN 0		UN	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	S -N									000		00
N							3P	PORTLAND UA	16.69		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	29	M	OTH-Y		043	000		07
N							45 21 10.11	-122 52 4.44		009100200S00		(04)													OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	S -N									006		00
																		PSNGR CAR		01	DRVR	INJC	26	F	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	S -N									006		00
																		PSNGR CAR		02	PSNG	INJA	26	M			000	000		00
06116	N	N	N	N	N	N	10/02/2017	WASHINGTON	2 14		STRGHT		N	N	CLD	S-STRGHT	01	NONE 9	STRGHT											27,07
CITY							MO		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	REAR		N/A	S -N									000		00
N							5A	PORTLAND UA	16.69		04			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 21 10.11	-122 52 4.43		009100200S00		(04)													UNK					

SER# / INVEST / RD DPT / UNLOC?	S P E D	E A L C	D R G S	M J U V	S I N L	C H H	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																		02	NONE 9	STRGHT									006		00
																			N/A	S -N									000		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000		
																										UNK				
05060	N	N	N	N				09/03/2015	WASHINGTON	2 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	07
CITY								TH		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	SW-NE								000		00
N								5P	PORTLAND UA	16.70		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	26	F	OR-Y		043	000		07
N								45 21 9.65	-122 52 4.79		009100200S00		(04)													OR<25					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011	013	00
																			PSNGR CAR		01	DRVR	INJC	27	F	OR-Y		000	000		00
																										OR<25					
																		03	NONE 0	STOP											
																			PRVTE	SW-NE									022		00
																			PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		000	000		00
																										OR<25					
07488	N	N	N	N	N	N	N	12/08/2015	WASHINGTON	2 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											07
CITY								TU		MN 0		UN	(DIVMD)	L-GRN-SIG	N	WET	REAR		PRVTE	SW-NE								000		00
N								12P	PORTLAND UA	16.70		03			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	25	F	OR-Y		043	000		07
N								45 21 9.65	-122 52 4.79		009100200S00		(05)													OR<25					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011		00
																			PSNGR CAR		01	DRVR	NONE	57	F	OR-Y		000	000		00
																										OR<25					
07584	N	N	N	N				12/11/2015	WASHINGTON	2 14		STRGHT		N	N	UNK	S-1STOP	01	NONE 0	STRGHT											29
NONE								FR		MN 0		UN	(DIVMD)	UNKNOWN	N	UNK	REAR		PRVTE	SW-NE								000		00
N								7A	PORTLAND UA	16.70		03			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	32	F	OR-Y		026	000		29
N								45 21 9.65	-122 52 4.79		009100200S00		(04)													UNK					
																		02	NONE 0	STOP											
																			PRVTE	SW-NE									011		00
																			PSNGR CAR		01	DRVR	INJC	40	F	OR-Y		000	000		00
																										OR<25					
04867	N	N	N	N	N	N	N	09/21/2019	WASHINGTON	2 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
COUNTY								SA		MN 0		UN	(DIVMD)	NONE	N	DRY	REAR		PRVTE	S -N								000		00
N								10A	PORTLAND UA	16.70		04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	31	M	OTH-Y		043	000		07
N								45 21 9.65	-122 52 4.77		009100200S00		(04)													OR<25					
																		02	NONE 0	STOP											
																			PRVTE	S -N									011		00
																			PSNGR CAR		01	DRVR	INJC	23	F	OR-Y		000	000		00
																										OR<25					
																		02	NONE 0	STOP											
																			PRVTE	S -N									011		00
																			PSNGR CAR		02	PSNG	INJC	22	F			000	000		00
																		02	NONE 0	STOP											
																			PRVTE	S -N									011		00
																			PSNGR CAR		03	PSNG	INJC	17	M			000	000		00

SER# / INVEST / RD DPT / UNLOC?	S P / E A / L G / U N / I H / C R / O K / S W	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
06414	N N N N N N	09/22/2016	WASHINGTON	2 14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											29
CITY		TH		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	REAR		N/A	S -N									000		00
N		1P	PORTLAND UA	16.71		04			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 21 9.19	-122 52 5.13		009100200S00		(04)													UNK					
												02	NONE 9	STRGHT											
													N/A	S -N									000		00
													TRUCK		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
01275	N N N N N N	03/05/2017	WASHINGTON	2 14		STRGHT		N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07,32
CITY		SU		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	S -N									000		00
N		11A	PORTLAND UA	16.71		04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	81	M	OR-Y		043,052	000		07,32
N		45 21 9.19	-122 52 5.13		009100200S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	S -N									011	013	00
													PSNGR CAR		01	DRVR	INJC	69	M	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STOP											
													PRVTE	S -N									011	013	00
													PSNGR CAR		02	PSNG	INJC	63	F			000	000		00
												03	NONE 0	STOP											
													PRVTE	S -N									022		00
													PSNGR CAR		01	DRVR	INJC	71	M	OR-Y		000	000		00
																				OR<25					
05618	N N N N N N	09/20/2017	WASHINGTON	2 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013	07
CITY		WE		MN 0		UN	(DIVMD)	TRF SIGNAL	N	WET	REAR		PRVTE	S -N									000		00
N		3P	PORTLAND UA	16.71		04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	24	F	OR-Y		043	000		07
N		45 21 9.19	-122 52 5.13		009100200S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	S -N									011	013	00
													PSNGR CAR		01	DRVR	INJB	52	M	OR-Y		000	000		00
																				OR<25					
												03	NONE 0	STOP											
													PRVTE	S -N									022		00
													PSNGR CAR		01	DRVR	INJC	61	F	OR-Y		000	000		00
																				OR<25					
01240	N N N N N N	03/12/2019	WASHINGTON	2 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											07
COUNTY		TU		MN 0		UN	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	S -N									000		00
N		7A	PORTLAND UA	16.71		04			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	23	M	OR-Y		043	000		07
N		45 21 9.18	-122 52 5.13		009100200S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	S -N									011		00
													PSNGR CAR		01	DRVR	INJC	43	M	OR-Y		000	000		00
																				OR<25					

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 17.41 to 17.51 01/01/2015 to 12/31/2019, Both Add and Non-Add mileage

1 - 7 of 30 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P / E D	A	D R / U G / I S	M J / N H / S V	S / C L	W / O R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03760	N	N	N	N			07/24/2019	WASHINGTON	1 14	Not Related to Intersection	STRGHT		N	N	CLR	ANIMAL	01	NONE 9	STRGHT										035	12
NONE							WE		MN 0		UN	(DIVMD)	UNKNOWN	N	DRY	OTH		N/A	N -S									000		00
N							9P	PORTLAND UA	17.42		03			N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 35.36	-122 52 24.81		009100100S00		(04)													UNK					
06064	N	N	N	N			09/29/2017	WASHINGTON	1 14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 9	STRGHT											29
NONE							FR		MN 0		N		STOP SIGN	N	WET	REAR		N/A	N -S									000		00
N							2P	PORTLAND UA	17.47		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
04243	N	N	N	N			08/16/2018	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											29
NONE							TH		MN 0		E		STOP SIGN	N	DRY	REAR		PRVTE	E -W									000		00
N							4P	PORTLAND UA	17.47		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	48	F	OR-Y		026	000		29
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	STOP											
																		PRVTE	E -W									012		00
																		PSNGR CAR		01	DRVR	INJC	53	F	OR-Y		000	000		00
																									OR<25					
01401	N	N	N	N	N	N	03/20/2018	WASHINGTON	1 14		INTER	CROSS	N	Y	CLD	FIX OBJ	01	NONE 9	STRGHT										058	26
COUNTY							TU		MN 0		S		STOP SIGN	N	DRY	FIX		N/A	N -S									000		00
N							2P	PORTLAND UA	17.47		05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															UNK					
00236	N	N	N	N			01/15/2015	WASHINGTON	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY							TH		MN 0		CN		STOP SIGN	N	WET	TURN		PRVTE	N -S									000		00
N							5P	PORTLAND UA	17.47		01	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	E -S									015		00
																		PSNGR CAR		01	DRVR	NONE	25	F	OR-Y		028	000		02
																									OR<25					
08443	N	N	N	N	N	N	12/09/2016	WASHINGTON	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT											03
COUNTY							FR		MN 0		CN		STOP SIGN	N	WET	ANGL		N/A	N -S									000		00
N							3P	PORTLAND UA	17.47		01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	E -W									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
07975	N	N	N	N			12/13/2017	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03
COUNTY							WE		MN 0		CN		STOP SIGN	N	DRY	ANGL		PRVTE	E -W									000		00
N							7P	PORTLAND UA	17.47		01	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		021	000		03
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	N -S									000		00
																		PSNGR CAR		01	DRVR	INJC	56	F	OR-Y		000	000		00
																									OR<25					

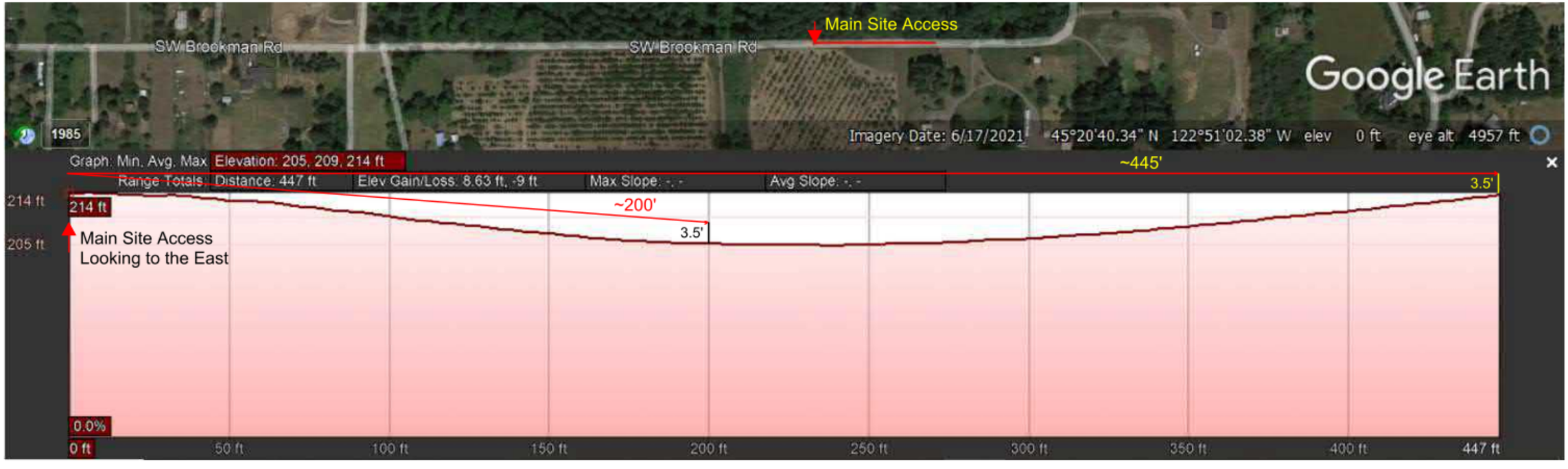
SER# / INVEST / RD DPT / UNLOC?	S P E D C	A L G S	D R U N V	M J I N L	S C H	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01598	N	N	N	N			03/21/2017	WASHINGTON	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT										02
NO RPT							TU		MN 0		CN		STOP SIGN	N	WET	ANGL		N/A	E -W									000		00
N							7A	PORTLAND UA	17.47		01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
02701	N	N	N	N			05/18/2015	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										02
NO RPT							MO		MN 0		CN		STOP SIGN	N	DRY	TURN		PRVTE	W -E									000		00
N							5P	PORTLAND UA	17.47		03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	40	F	OR-Y		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	E -S									000		00
																		PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		004,028	000		02
																									OR<25					
01335	N	N	N	N	N	N	03/08/2017	WASHINGTON	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT										058	02
COUNTY							WE		MN 0		CN		STOP SIGN	N	WET	ANGL		PRVTE	W -E									000	053	00
N							5P	PORTLAND UA	17.47		03	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	INJB	27	M	OR-Y		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	18	F	OR-Y		028	000		02
																									OR<25					
05249	N	N	N	N			08/27/2017	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-L										02
NONE							SU		MN 0		CN		STOP SIGN	N	DRY	TURN		N/A	E -S									000		00
N							12P	PORTLAND UA	17.47		03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	W -E									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
03053	N	N	N	N	N	N	06/15/2019	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY							SA		MN 0		CN		STOP SIGN	N	DRY	ANGL		PRVTE	N -S									000		00
N							2P	PORTLAND UA	17.47		03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	24	M	OR-Y		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									015		00
																		PSNGR CAR		01	DRVR	NONE	26	M	OR-Y		028	000		02
																									OR<25					
05515	N	N	N	N	N	N	10/24/2019	WASHINGTON	1 14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											02
COUNTY							TH		MN 0		CN		STOP SIGN	N	DRY	TURN		PRVTE	E -S									000		00
N							11A	PORTLAND UA	17.47		03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		000	000		00
N							45 20 32.89	-122 52 26.13		009100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		PSNGR CAR		01	DRVR	INJC	47	F	OR-Y		028	000		02
																									OR<25					

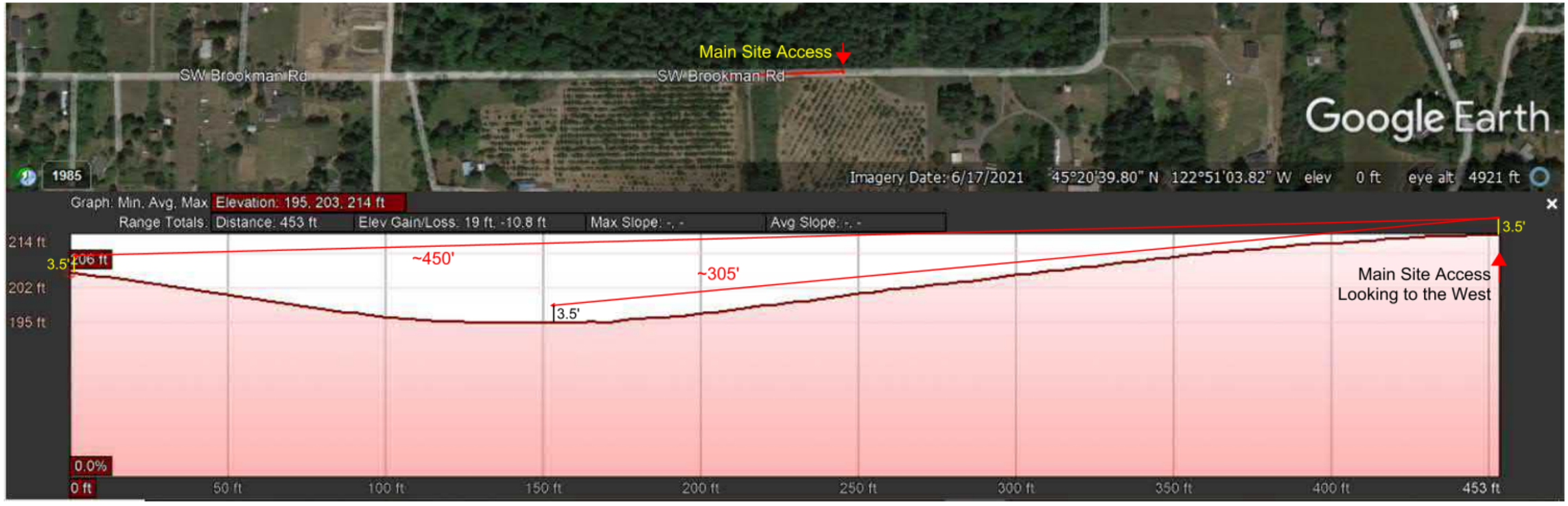
SER# / INVEST / RD DPT / UNLOC?	S P E D C	A L G S	D R U C	M J N V	S I H L	W C O R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
06735	N	N	N	N	N	N	12/19/2019	WASHINGTON	1	14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT											02
COUNTY							TH		MN 0			CN		STOP SIGN	N	WET	ANGL		N/A	N -E									000		00
N							4P	PORTLAND UA	17.47			03	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.89	-122 52 26.13			009100100S00															UNK					
																		02	NONE 9	STRGHT											
																			N/A	N -S									000		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
03675	N	N	N	N	N	N	07/20/2019	WASHINGTON	1	14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										010	13
COUNTY							SA		MN 0			UN	(DIVMD)	UNKNOWN	N	DRY	SS-O		PRVTE	N -S								000	010	00
N							9P	PORTLAND UA	17.50			04			N	DUSK	INJ		PSNGR CAR		01	DRVR	INJB	21	M	UNK		045	000		13
N							45 20 31.43	-122 52 26.93			009100100S00		(04)													OR>25					
																		01	NONE 0	STRGHT											
																			PRVTE	N -S								000	010	00
																			PSNGR CAR		02	PSNG	INJB	00	M			000	000		00
																		02	NONE 0	STRGHT											
																			PRVTE	N -S								000	010	00
																			PSNGR CAR		01	DRVR	INJB	42	M	OR-Y		000	000		00
																										OR>25					
																		02	NONE 0	STRGHT											
																			PRVTE	N -S								000	010	00
																			PSNGR CAR		02	PSNG	INJB	13	F			000	000		00
																		02	NONE 0	STRGHT											
																			PRVTE	N -S								000	010	00
																			PSNGR CAR		03	PSNG	INJB	15	F			000	000		00
																		02	NONE 0	STRGHT											
																			PRVTE	N -S								000	010	00
																			PSNGR CAR		04	PSNG	INJB	12	F			000	000		00
00536	Y	N	N	N	N	N	01/28/2017	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 9	TURN-R											01,08
COUNTY							SA		MN 0			E		STOP SIGN	N	DRY	TURN		N/A	S -E								000		00
N							4P	PORTLAND UA	17.46			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.9	-122 52 24.87			009100200S00															UNK					
																		02	NONE 9	STOP											
																			N/A	E -W								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
05762	N	N	N	N	N	N	09/18/2017	WASHINGTON	2	14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT											27,02
COUNTY							MO		MN 0			S		STOP SIGN	N	WET	TURN		N/A	N -S								000		00
N							10A	PORTLAND UA	17.46			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 20 32.9	-122 52 24.87			009100200S00															UNK					
																		02	NONE 9	TURN-R											
																			N/A	W -S								000		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					

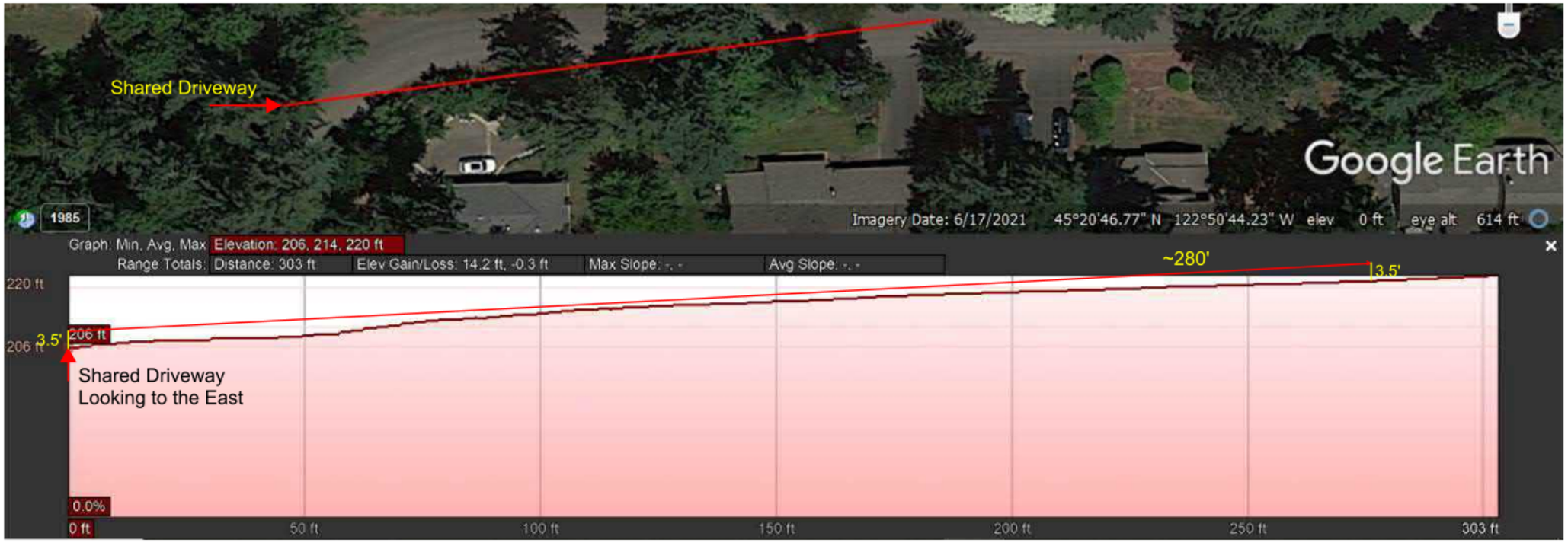
SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U G	S I N V	W C H L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
05017	N	N	N	N	N	09/29/2019	WASHINGTON	2	14		INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	TURN-L										08
COUNTY						SU		MN 0			W		STOP SIGN	N	DRY	TURN		PRVTE	E -S									000		00
N						2P	PORTLAND UA	17.46			05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		002	000		08
N						45 20 32.9	-122 52 24.87			009100200S00															OR<25					
																	02	NONE 0	STOP											
																		PRVTE	W -E									011		00
																		PSNGR CAR		01	DRVR	INJC	42	F	OR-Y		000	000		00
																									OR<25					
02243	N	N	N	N	N	04/27/2015	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						MO		MN 0			CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N									000		00
N						2P	PORTLAND UA	17.46			01	0		N	DAY	INJ		MTRCYCLE		01	DRVR	INJA	68	M	OTH-Y		000	000		00
N						45 20 32.9	-122 52 24.87			009100200S00															N-RES					
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									015		00
																		PSNGR CAR		01	DRVR	NONE	74	F	OR-Y		028	000		02
																									OR<25					
03254	N	N	N	N		05/18/2016	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-L											02
NO RPT						WE		MN 0			CN		STOP SIGN	N	DRY	TURN		N/A	W -N									000		00
N						6A	PORTLAND UA	17.46			02	0		N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 20 32.9	-122 52 24.87			009100200S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	E -W									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
05465	N	N	N	N		10/15/2018	WASHINGTON	2	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						MO		MN 0			CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N									000		00
N						6A	PORTLAND UA	17.46			02	0		N	DAWN	INJ		PSNGR CAR		01	DRVR	INJC	39	M	OTH-Y		000	000		00
N						45 20 32.91	-122 52 24.87			009100200S00															N-RES					
																	01	NONE 0	STRGHT											
																		PRVTE	S -N									000		00
																		PSNGR CAR		02	PSNG	INJC	52	F			000	000		00
																	01	NONE 0	STRGHT											
																		PRVTE	S -N									000		00
																		PSNGR CAR		03	PSNG	INJC	32	F			000	000		00
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									000		00
																		PSNGR CAR		01	DRVR	INJB	60	M	OR-Y		028	000		02
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									000		00
																		PSNGR CAR		02	PSNG	INJB	55	M			000	000		00
07013	N	N	N	N	N	12/20/2018	WASHINGTON	2	14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT											02
COUNTY						TH		MN 0			CN		STOP SIGN	N	WET	ANGL		N/A	E -W									000		00
N						6P	PORTLAND UA	17.46			02	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 20 32.9	-122 52 24.87			009100200S00															UNK					

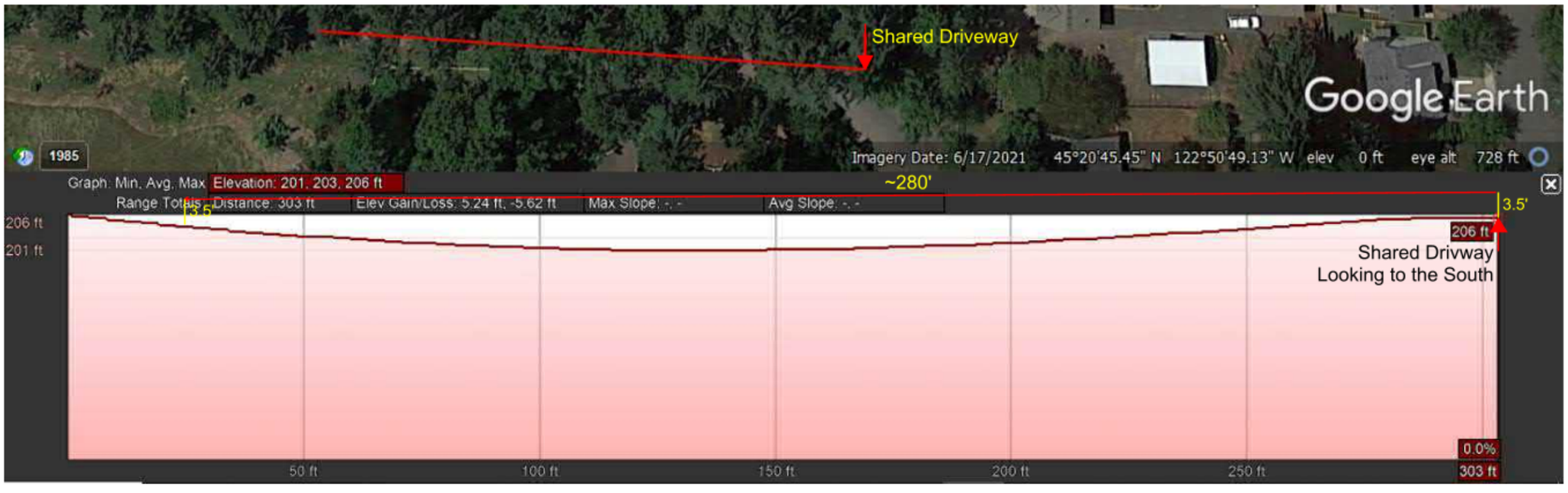
SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																		02	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
05536 COUNTY N N	N N N N N N						10/17/2018 WE 4P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46		009100200S00	INTER CN 02	CROSS 0	N STOP SIGN	N N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		02 00 00
																		02	NONE 9 N/A PSNGR CAR	STRGHT E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	015 000		00 00
00282 COUNTY N N	N N N N N N						01/16/2019 WE 7P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46		009100200S00	INTER CN 02	CROSS 0	N STOP SIGN	N N N	RAIN WET DARK	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	INJB	53	F	OR-Y OR<25		000	000		02 00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJC	30	M	OR-Y OR<25		028	015 000		00 02
01141 COUNTY N N	N N N N N N						03/05/2019 TU 5P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46		009100200S00	INTER CN 02	CROSS 0	N STOP SIGN	N N N	CLD DRY DUSK	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	NONE	65	M	OR-Y OR<25		000	000		02 00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJB	63	M	OR-Y OR<25		028	015 000		00 02
00125 COUNTY N N	N N N N						01/08/2019 TU 8A 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46		009100200S00	INTER CN 02	CROSS 0	N STOP SIGN	N N N	CLD WET DAY	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	INJC	42	F	OR-Y OR<25		000	000		02 00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	NONE	36	M	OR-Y OR<25		028	015 000		00 02
06521 COUNTY N N	N N N N N N						12/10/2019 TU 5P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46		009100200S00	INTER CN 02	CROSS 0	N STOP SIGN	N N N	RAIN WET DARK	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	NONE	51	F	OR-Y OR<25		021	079 000		03 03
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	INJB	23	M	OR-Y OR<25		000	000		00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	02	PSNG	INJC	22	F			000	000		00 00

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG TYP / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																		03	NONE 0 PRVTE PSNGR CAR	STRGHT S -N								022 000	079	00 00
06925 COUNTY N N	N	N	N	N	N	N	12/27/2019 FR 7P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46 009100200S00			INTER CN 02	CROSS 0	N STOP SIGN	N N N	CLR DRY DLIT	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	INJC	32	F	OR-Y OR<25		000	000	079	27,02,32 00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJC	42	M	OR-Y OR<25		016,028,052	000 038	079	00 27,02,32
07481 COUNTY N N	N	N	N	N	N	N	11/25/2017 SA 8P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46 009100200S00			INTER CN 04	CROSS 0	N STOP SIGN	N N N	CLD WET DARK	ANGL-OTH ANGL PDO	01	NONE 9 N/A PSNGR CAR	STRGHT W -E	01	DRVR	NONE	00	Unk	UNK UNK		000	000		02,32 00 00
																		02	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
02527 COUNTY N N	N	N	N	N	N	N	05/19/2018 SA 2P 45 20 32.9	WASHINGTON PORTLAND UA -122 52 24.87	2 14 MN 0 17.46 009100200S00			INTER CN 04	CROSS 0	N STOP SIGN	N N N	CLR DRY DAY	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT W -E	01	DRVR	NONE	16	F	OR-Y OR<25		028,052	000 015 000		02,32 00 02,32
																		01	NONE 0 PRVTE PSNGR CAR	STRGHT W -E	02	PSNG	INJB	16	M			000	015 000		00 00
																		02	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	NONE	53	M	OTH-Y N-RES		000	000 000		00 00


Main Site Access
SW Brookman Rd
SW Brookman Rd
Google Earth
1985
Imagery Date: 6/17/2021 45°20'40.34" N 122°51'02.38" W elev 0 ft eye alt 4957 ft
Graph: Min, Avg, Max Elevation: 205, 209, 214 ft
Range Totals: Distance: 447 ft Elev Gain/Loss: 8.63 ft, -9 ft Max Slope: -, - Avg Slope: -, -
~445'
~200'
3.5'
3.5'
214 ft
205 ft
214 ft
Main Site Access
Looking to the East
0.0%
0 ft
50 ft
100 ft
150 ft
200 ft
250 ft
300 ft
350 ft
400 ft
447 ft


Main Site Access
SW Brookman Rd
SW Brookman Rd
Google Earth
1985
Imagery Date: 6/17/2021 45°20'39.80" N 122°51'03.82" W elev 0 ft eye alt 4921 ft
Graph: Min, Avg, Max Elevation: 195, 203, 214 ft
Range Totals: Distance: 453 ft Elev Gain/Loss: 19 ft, -10.8 ft Max Slope: -, - Avg Slope: -, -
~450'
~305'
3.5'
3.5'
3.5'
214 ft
206 ft
202 ft
195 ft
Main Site Access
Looking to the West
0.0%
0 ft
50 ft
100 ft
150 ft
200 ft
250 ft
300 ft
350 ft
400 ft
453 ft


Shared Driveway
Google Earth
1985
Imagery Date: 6/17/2021 45°20'46.77" N 122°50'44.23" W elev 0 ft eye alt 614 ft
Graph: Min, Avg, Max Elevation: 206, 214, 220 ft
Range Totals: Distance: 303 ft Elev Gain/Loss: 14.2 ft, -0.3 ft Max Slope: -, - Avg Slope: -, -
~280'
220 ft
206 ft
3.5'
206 ft
3.5'
Shared Driveway
Looking to the East
0.0%
0 ft
50 ft
100 ft
150 ft
200 ft
250 ft
303 ft


Shared Driveway
Google Earth
1985
Imagery Date: 6/17/2021 45°20'45.45" N 122°50'49.13" W elev 0 ft eye alt 728 ft
Graph: Min, Avg, Max Elevation: 201, 203, 206 ft
Range Totals: Distance: 303 ft Elev Gain/Loss: 5.24 ft, -5.62 ft Max Slope: -, - Avg Slope: -, -
~280'
3.5'
206 ft
201 ft
3.5'
206 ft
Shared Drivway
Looking to the South
0.0%
50 ft
100 ft
150 ft
200 ft
250 ft
303 ft

Left-Turn Lane Warrant Analysis

Project: Cedar Creek Gardens
Intersection: Main Access
Date: 11/4/2021
Scenario: Year 2024 Buildout Conditions - AM Peak Hour

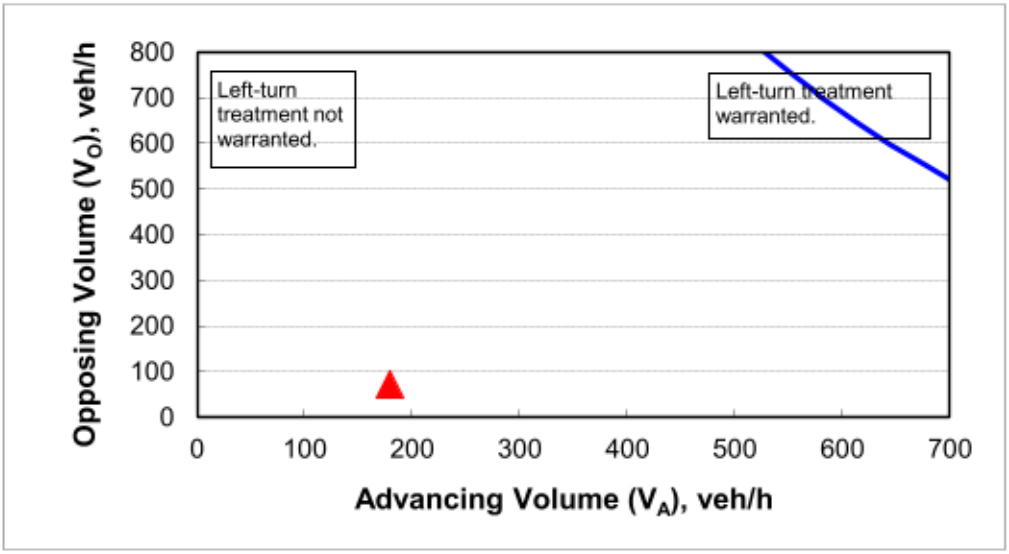
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Left-turns in advancing volume (V_A), veh/hr:	4
Advancing volume (V_A), veh/h:	179
Opposing volume (V_O), veh/h:	71

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1145
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: Cedar Creek Gardens
Intersection: Main Access
Date: 11/4/2021
Scenario: Year 2024 Buildout Conditions - PM Peak Hour

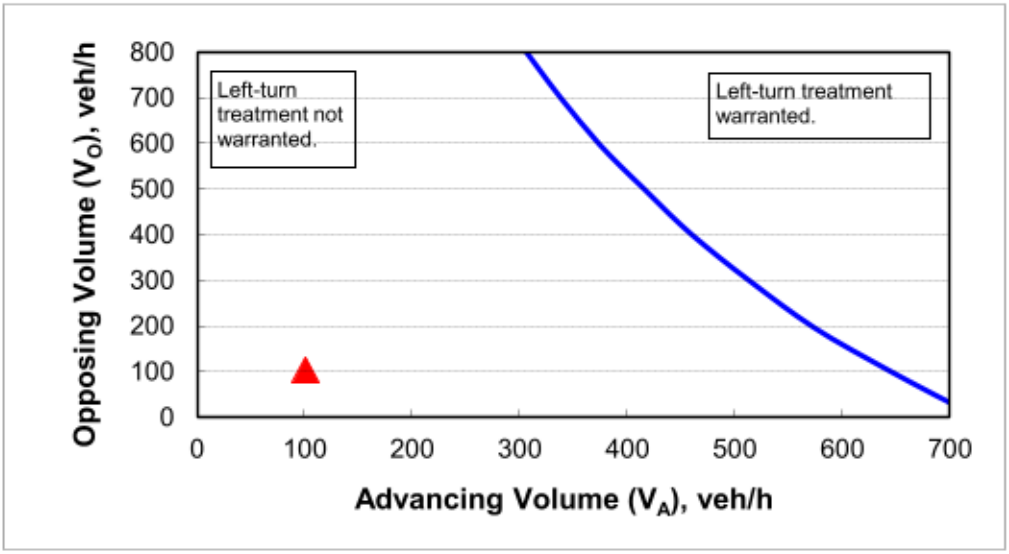
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Left-turns in advancing volume (V_A), veh/hr:	7
Advancing volume (V_A), veh/h:	101
Opposing volume (V_O), veh/h:	103

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	641
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Level of Service Definitions

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

- *Level of service A:* Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.
- *Level of service B:* Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.
- *Level of service C:* Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.
- *Level of service D:* Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.
- *Level of service E:* Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.
- *Level of service F:* Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

Level of Service Criteria
For Signalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

Level of Service Criteria
For Unsignalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

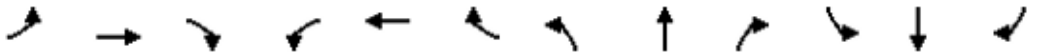
11/10/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	114	244	147	195	244	269	1644	114	141	800	16
Future Volume (vph)	22	114	244	147	195	244	269	1644	114	141	800	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	3212		3367	3471	1553	3213	3312	1482
Flt Permitted	0.29	1.00	1.00	0.51	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	537	1845	1568	933	3212		3367	3471	1553	3213	3312	1482
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	23	120	257	155	205	257	283	1731	120	148	842	17
RTOR Reduction (vph)	0	0	216	0	153	0	0	0	49	0	0	8
Lane Group Flow (vph)	23	120	41	155	309	0	283	1731	71	148	842	9
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	9%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	21.5	18.2	18.2	27.1	21.0		13.5	62.4	62.4	8.2	57.1	57.1
Effective Green, g (s)	23.5	19.2	18.2	29.1	22.0		14.5	63.4	63.4	9.2	58.1	58.1
Actuated g/C Ratio	0.20	0.17	0.16	0.25	0.19		0.13	0.55	0.55	0.08	0.51	0.51
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	308	248	286	615		424	1915	856	257	1674	749
v/s Ratio Prot	0.01	0.07		c0.03	0.10		c0.08	c0.50		0.05	0.25	
v/s Ratio Perm	0.02		0.03	c0.10					0.05			0.01
v/c Ratio	0.15	0.39	0.16	0.54	0.50		0.67	0.90	0.08	0.58	0.50	0.01
Uniform Delay, d1	37.1	42.6	41.8	36.0	41.6		47.9	23.0	12.1	51.0	18.8	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.8	0.3	2.1	0.6		4.0	6.5	0.0	3.1	0.2	0.0
Delay (s)	37.5	43.4	42.1	38.1	42.2		51.9	29.5	12.1	54.1	19.1	14.1
Level of Service	D	D	D	D	D		D	C	B	D	B	B
Approach Delay (s)		42.2			41.2			31.5			24.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	114.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/10/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	114	244	147	195	244	269	1644	114	141	800	16
Future Volume (veh/h)	22	114	244	147	195	244	269	1644	114	141	800	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1841	1841	1841	1767	1767	1767
Adj Flow Rate, veh/h	23	120	46	155	205	99	283	1731	67	148	842	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	9	9	9
Cap, veh/h	190	198	153	245	320	149	386	2041	910	282	1868	833
Arrive On Green	0.04	0.11	0.10	0.07	0.14	0.13	0.11	0.58	0.58	0.09	0.56	0.56
Sat Flow, veh/h	1767	1856	1572	1767	2337	1086	3401	3497	1560	3264	3357	1497
Grp Volume(v), veh/h	23	120	46	155	153	151	283	1731	67	148	842	12
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	1660	1700	1749	1560	1632	1678	1497
Q Serve(g_s), s	1.2	6.4	2.8	7.0	8.4	8.9	8.3	42.0	1.9	4.5	15.3	0.4
Cycle Q Clear(g_c), s	1.2	6.4	2.8	7.0	8.4	8.9	8.3	42.0	1.9	4.5	15.3	0.4
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	198	153	245	241	227	386	2041	910	282	1868	833
V/C Ratio(X)	0.12	0.61	0.30	0.63	0.63	0.67	0.73	0.85	0.07	0.53	0.45	0.01
Avail Cap(c_a), veh/h	244	306	244	245	291	274	528	2411	1075	285	2086	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	43.9	43.2	38.7	42.0	42.5	44.1	17.7	9.3	45.0	13.5	10.2
Incr Delay (d2), s/veh	0.3	3.0	1.1	5.3	3.2	4.6	3.4	2.6	0.0	1.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.0	1.1	3.8	3.8	3.9	3.5	15.1	0.6	1.8	5.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	46.9	44.3	44.0	45.2	47.1	47.5	20.3	9.4	46.8	13.7	10.2
LnGrp LOS	D	D	D	D	D	D	D	C	A	D	B	B
Approach Vol, veh/h		189			459			2081			1002	
Approach Delay, s/veh		45.3			45.4			23.7			18.5	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	64.1	11.0	15.0	15.7	61.3	7.9	18.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	70.0	6.0	16.0	15.0	63.0	6.0	16.0
Max Q Clear Time (g_c+I1), s	6.5	44.0	9.0	8.4	10.3	17.3	3.2	10.9
Green Ext Time (p_c), s	0.1	15.1	0.0	0.4	0.4	6.4	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	5	5	0	0	47	11	1925	92	22	1151	21
Future Vol, veh/h	27	5	5	0	0	47	11	1925	92	22	1151	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	275	-	-	260	-	240
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	9	9	9	4	4	4	7	7	7
Mvmt Flow	28	5	5	0	0	49	11	2005	96	23	1199	22

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	2270	3368	600	-	-	1051	1221	0	0	2101	0	0
Stage 1	1245	1245	-	-	-	-	-	-	-	-	-	-
Stage 2	1025	2123	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.68	6.68	7.08	-	-	7.08	4.18	-	-	4.24	-	-
Critical Hdwy Stg 1	6.68	5.68	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.68	5.68	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	-	-	3.39	2.24	-	-	2.27	-	-
Pot Cap-1 Maneuver	~ 20	7	427	0	0	212	556	-	-	241	-	-
Stage 1	174	231	-	0	0	-	-	-	-	-	-	-
Stage 2	239	82	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 14	6	427	-	-	212	556	-	-	241	-	-
Mov Cap-2 Maneuver	108	52	-	-	-	-	-	-	-	-	-	-
Stage 1	171	209	-	-	-	-	-	-	-	-	-	-
Stage 2	180	80	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.5	27	0.1	0.4
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	556	-	-	103	212	241	-	-
HCM Lane V/C Ratio	0.021	-	-	0.374	0.231	0.095	-	-
HCM Control Delay (s)	11.6	-	-	59.5	27	21.5	-	-
HCM Lane LOS	B	-	-	F	D	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0.9	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

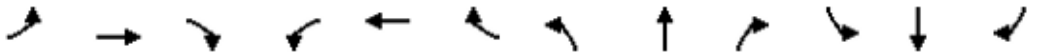
11/10/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	130	319	178	114	146	243	1051	135	281	1743	16
Future Volume (vph)	16	130	319	178	114	146	243	1051	135	281	1743	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1736	3179		3400	3505	1568	3433	3539	1583
Flt Permitted	0.57	1.00	1.00	0.48	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1057	1863	1583	870	3179		3400	3505	1568	3433	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	17	138	339	189	121	155	259	1118	144	299	1854	17
RTOR Reduction (vph)	0	0	126	0	120	0	0	0	73	0	0	8
Lane Group Flow (vph)	17	138	213	189	156	0	259	1118	71	299	1854	9
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	24.8	22.5	22.5	32.2	26.2		9.0	59.2	59.2	13.9	64.1	64.1
Effective Green, g (s)	26.8	23.5	22.5	34.2	27.2		10.0	60.2	60.2	14.9	65.1	65.1
Actuated g/C Ratio	0.22	0.19	0.19	0.28	0.22		0.08	0.50	0.50	0.12	0.54	0.54
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	360	292	294	711		279	1735	776	420	1894	847
v/s Ratio Prot	0.00	0.07		c0.04	0.05		c0.08	0.32		c0.09	c0.52	
v/s Ratio Perm	0.01		0.13	c0.14					0.05			0.01
v/c Ratio	0.07	0.38	0.73	0.64	0.22		0.93	0.64	0.09	0.71	0.98	0.01
Uniform Delay, d1	37.3	42.7	46.7	38.1	38.5		55.4	22.8	16.2	51.3	27.6	13.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	8.8	4.8	0.2		35.0	0.8	0.1	5.6	15.8	0.0
Delay (s)	37.4	43.4	55.4	42.8	38.7		90.4	23.6	16.3	56.9	43.3	13.2
Level of Service	D	D	E	D	D		F	C	B	E	D	B
Approach Delay (s)		51.5			40.4			34.3			45.0	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	121.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/10/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	130	319	178	114	146	243	1051	135	281	1743	16
Future Volume (veh/h)	16	130	319	178	114	146	243	1051	135	281	1743	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	17	138	190	189	121	27	259	1118	85	299	1854	12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	291	276	220	252	508	110	298	1902	848	390	2009	896
Arrive On Green	0.03	0.15	0.14	0.06	0.18	0.17	0.09	0.54	0.54	0.11	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1753	2857	621	3428	3526	1572	3456	3554	1585
Grp Volume(v), veh/h	17	138	190	189	73	75	259	1118	85	299	1854	12
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1753	1749	1729	1714	1763	1572	1728	1777	1585
Q Serve(g_s), s	0.9	7.8	13.5	7.0	4.1	4.3	8.6	24.6	3.0	9.7	54.5	0.4
Cycle Q Clear(g_c), s	0.9	7.8	13.5	7.0	4.1	4.3	8.6	24.6	3.0	9.7	54.5	0.4
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	276	220	252	311	307	298	1902	848	390	2009	896
V/C Ratio(X)	0.06	0.50	0.86	0.75	0.23	0.24	0.87	0.59	0.10	0.77	0.92	0.01
Avail Cap(c_a), veh/h	345	326	262	252	311	307	298	1902	848	481	2072	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	45.1	48.4	43.1	40.5	40.8	51.8	17.8	12.9	49.5	22.7	10.9
Incr Delay (d2), s/veh	0.1	1.4	21.8	11.9	0.4	0.4	22.8	0.5	0.1	5.8	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.7	6.6	2.7	1.8	1.9	4.5	9.2	1.1	4.4	22.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	46.5	70.3	54.9	40.9	41.2	74.6	18.3	12.9	55.3	30.1	10.9
LnGrp LOS	D	D	E	D	D	D	E	B	B	E	C	B
Approach Vol, veh/h		345			337			1462			2165	
Approach Delay, s/veh		59.2			48.8			28.0			33.4	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	66.0	11.0	20.9	14.0	69.0	7.5	24.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	15.0	60.0	6.0	19.0	9.0	66.0	6.0	19.0
Max Q Clear Time (g_c+I1), s	11.7	26.6	9.0	15.5	10.6	56.5	2.9	6.3
Green Ext Time (p_c), s	0.3	9.3	0.0	0.5	0.0	7.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	5	11	0	0	32	16	1379	49	27	2155	48
Future Vol, veh/h	22	5	11	0	0	32	16	1379	49	27	2155	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	275	-	-	260	-	240
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	1	1	1	3	3	3	2	2	2
Mvmt Flow	23	5	11	0	0	33	17	1436	51	28	2245	50

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	3053	3822	1123	-	-	744	2295	0	0	1487	0	0
Stage 1	2301	2301	-	-	-	-	-	-	-	-	-	-
Stage 2	752	1521	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	-	-	6.92	4.16	-	-	4.14	-	-
Critical Hdwy Stg 1	6.56	5.56	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	-	-	3.31	2.23	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 5	~ 4	198	0	0	359	213	-	-	448	-	-
Stage 1	39	71	-	0	0	-	-	-	-	-	-	-
Stage 2	366	178	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 4	~ 3	198	-	-	359	213	-	-	448	-	-
Mov Cap-2 Maneuver	34	55	-	-	-	-	-	-	-	-	-	-
Stage 1	36	67	-	-	-	-	-	-	-	-	-	-
Stage 2	306	164	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	212	16.1	0.3	0.2
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	213	-	-	48	359	448	-	-
HCM Lane V/C Ratio	0.078	-	-	0.825	0.093	0.063	-	-
HCM Control Delay (s)	23.3	-	-	212	16.1	13.6	-	-
HCM Lane LOS	C	-	-	F	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.4	0.3	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	255	290	162	402	237	383	1697	121	192	764	195
Future Volume (vph)	133	255	290	162	402	237	383	1697	121	192	764	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	3310		3367	3471	1553	3213	3312	1482
Flt Permitted	0.18	1.00	1.00	0.24	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	325	1845	1568	441	3310		3367	3471	1553	3213	3312	1482
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	140	268	305	171	423	249	403	1786	127	202	804	205
RTOR Reduction (vph)	0	0	168	0	70	0	0	0	50	0	0	110
Lane Group Flow (vph)	140	268	137	171	602	0	403	1786	77	202	804	95
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	9%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	27.7	21.7	21.7	29.7	22.7		18.2	64.1	64.1	8.0	53.9	53.9
Effective Green, g (s)	29.7	22.7	21.7	31.7	23.7		19.2	65.1	65.1	9.0	54.9	54.9
Actuated g/C Ratio	0.25	0.19	0.18	0.26	0.20		0.16	0.54	0.54	0.07	0.45	0.45
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	162	346	281	202	649		535	1870	836	239	1505	673
v/s Ratio Prot	0.05	0.15		c0.06	c0.18		c0.12	c0.51		0.06	0.24	
v/s Ratio Perm	0.16		0.09	0.17					0.05			0.06
v/c Ratio	0.86	0.77	0.49	0.85	0.93		0.75	0.96	0.09	0.85	0.53	0.14
Uniform Delay, d1	40.7	46.6	44.5	39.6	47.7		48.5	26.5	13.5	55.2	23.7	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.9	10.3	1.3	26.4	19.4		5.9	11.9	0.0	23.0	0.4	0.1
Delay (s)	75.6	57.0	45.9	66.0	67.1		54.5	38.3	13.6	78.2	24.1	19.3
Level of Service	E	E	D	E	E		D	D	B	E	C	B
Approach Delay (s)		55.9			66.9			39.8			32.3	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	255	290	162	402	237	383	1697	121	192	764	195
Future Volume (veh/h)	133	255	290	162	402	237	383	1697	121	192	764	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1841	1841	1841	1767	1767	1767
Adj Flow Rate, veh/h	140	268	94	171	423	91	403	1786	74	202	804	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	9	9	9
Cap, veh/h	197	313	252	211	512	109	496	1922	857	251	1614	720
Arrive On Green	0.06	0.17	0.16	0.07	0.18	0.17	0.15	0.55	0.55	0.08	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	2890	617	3401	3497	1560	3264	3357	1497
Grp Volume(v), veh/h	140	268	94	171	257	257	403	1786	74	202	804	200
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	1745	1700	1749	1560	1632	1678	1497
Q Serve(g_s), s	7.0	16.4	6.3	8.0	16.4	16.7	13.4	55.0	2.6	7.1	19.2	9.4
Cycle Q Clear(g_c), s	7.0	16.4	6.3	8.0	16.4	16.7	13.4	55.0	2.6	7.1	19.2	9.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	313	252	211	312	309	496	1922	857	251	1614	720
V/C Ratio(X)	0.71	0.86	0.37	0.81	0.82	0.83	0.81	0.93	0.09	0.81	0.50	0.28
Avail Cap(c_a), veh/h	197	333	269	211	331	328	610	1971	879	251	1614	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	47.3	43.9	41.5	46.4	46.7	48.5	24.3	12.5	53.2	20.8	18.2
Incr Delay (d2), s/veh	11.1	18.6	0.9	20.8	14.6	15.9	6.8	8.3	0.0	17.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	9.1	2.5	2.3	8.4	8.5	6.0	22.5	0.9	3.4	7.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	65.9	44.9	62.4	61.0	62.6	55.3	32.6	12.5	70.4	21.0	18.4
LnGrp LOS	D	E	D	E	E	E	E	C	B	E	C	B
Approach Vol, veh/h		502			685			2263			1206	
Approach Delay, s/veh		58.0			62.0			36.0			28.8	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	68.4	12.0	23.7	21.1	60.3	11.0	24.7
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	65.0	7.0	20.0	20.0	53.0	6.0	21.0
Max Q Clear Time (g_c+I1), s	9.1	57.0	10.0	18.4	15.4	21.2	9.0	18.7
Green Ext Time (p_c), s	0.0	6.3	0.0	0.3	0.6	6.6	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↳			↑↑	↱
Traffic Vol, veh/h	0	0	37	0	0	135	0	2030	104	0	1206	30
Future Vol, veh/h	0	0	37	0	0	135	0	2030	104	0	1206	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	240
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	9	9	9	4	4	4	7	7	7
Mvmt Flow	0	0	39	0	0	141	0	2115	108	0	1256	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	628	-	-	1112	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.08	-	-	7.08	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.39	-	-	3.39	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	409	0	0	192	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	409	-	-	192	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	62.6	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	409	192	-	-
HCM Lane V/C Ratio	-	-	0.094	0.732	-	-
HCM Control Delay (s)	-	-	14.7	62.6	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.3	4.7	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	121	50	18	52	77
Future Vol, veh/h	27	121	50	18	52	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	1	1	8	8	0	0
Mvmt Flow	40	178	74	26	76	113

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	345	87
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1499	-	-	-	656	977
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1499	-	-	-	636	977
Mov Cap-2 Maneuver	-	-	-	-	636	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	790	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	803
HCM Lane V/C Ratio	0.026	-	-	-	0.236
HCM Control Delay (s)	7.5	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

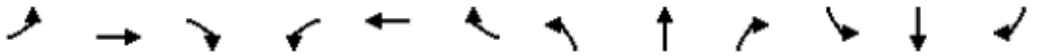
11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	177	346	192	155	154	285	1107	143	423	1755	46
Future Volume (vph)	46	177	346	192	155	154	285	1107	143	423	1755	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1736	3212		3400	3505	1568	3433	3539	1583
Flt Permitted	0.45	1.00	1.00	0.36	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	831	1863	1583	655	3212		3400	3505	1568	3433	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	49	188	368	204	165	164	303	1178	152	450	1867	49
RTOR Reduction (vph)	0	0	138	0	132	0	0	0	84	0	0	23
Lane Group Flow (vph)	49	188	230	204	197	0	303	1178	68	450	1867	26
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	26.7	20.2	20.2	31.7	22.7		10.0	54.2	54.2	19.9	64.1	64.1
Effective Green, g (s)	28.7	21.2	20.2	33.7	23.7		11.0	55.2	55.2	20.9	65.1	65.1
Actuated g/C Ratio	0.23	0.17	0.16	0.27	0.19		0.09	0.45	0.45	0.17	0.53	0.53
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	250	320	259	266	617		303	1569	701	581	1868	835
v/s Ratio Prot	0.01	0.10		c0.06	0.06		c0.09	0.34		0.13	c0.53	
v/s Ratio Perm	0.03		0.15	c0.15					0.04			0.02
v/c Ratio	0.20	0.59	0.89	0.77	0.32		1.00	0.75	0.10	0.77	1.00	0.03
Uniform Delay, d1	37.4	47.0	50.4	39.0	42.9		56.1	28.3	19.7	48.9	29.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.7	28.5	12.4	0.3		51.7	2.1	0.1	6.4	20.5	0.0
Delay (s)	37.8	49.8	78.9	51.4	43.2		107.9	30.4	19.7	55.3	49.6	14.0
Level of Service	D	D	E	D	D		F	C	B	E	D	B
Approach Delay (s)		66.5			46.3			43.8			50.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	123.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	177	346	192	155	154	285	1107	143	423	1755	46
Future Volume (veh/h)	46	177	346	192	155	154	285	1107	143	423	1755	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	49	188	219	204	165	36	303	1178	93	450	1867	44
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	305	281	225	259	530	113	315	1677	748	544	1923	858
Arrive On Green	0.05	0.15	0.14	0.08	0.18	0.18	0.09	0.48	0.48	0.16	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1753	2868	611	3428	3526	1572	3456	3554	1585
Grp Volume(v), veh/h	49	188	219	204	99	102	303	1178	93	450	1867	44
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1753	1749	1731	1714	1763	1572	1728	1777	1585
Q Serve(g_s), s	2.7	11.4	16.5	10.0	5.9	6.1	10.6	31.5	4.0	15.1	60.9	1.6
Cycle Q Clear(g_c), s	2.7	11.4	16.5	10.0	5.9	6.1	10.6	31.5	4.0	15.1	60.9	1.6
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	281	225	259	323	320	315	1677	748	544	1923	858
V/C Ratio(X)	0.16	0.67	0.97	0.79	0.31	0.32	0.96	0.70	0.12	0.83	0.97	0.05
Avail Cap(c_a), veh/h	367	281	225	259	323	320	315	1677	748	663	1927	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	48.1	51.2	41.2	42.2	42.5	54.2	24.8	17.5	48.9	26.6	13.0
Incr Delay (d2), s/veh	0.2	6.0	52.6	14.7	0.5	0.6	40.8	1.3	0.1	7.2	14.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.7	9.7	2.2	2.6	2.7	6.2	12.6	1.4	6.9	26.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	54.1	103.8	55.9	42.7	43.0	95.0	26.1	17.6	56.1	40.8	13.0
LnGrp LOS	D	D	F	E	D	D	F	C	B	E	D	B
Approach Vol, veh/h		456			405			1574			2361	
Approach Delay, s/veh		76.5			49.4			38.9			43.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.9	61.0	14.0	22.0	15.0	68.9	9.8	26.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	52.0	9.0	17.0	10.0	64.0	9.0	17.0
Max Q Clear Time (g_c+I1), s	17.1	33.5	12.0	18.5	12.6	62.9	4.7	8.1
Green Ext Time (p_c), s	0.7	8.0	0.0	0.0	0.0	1.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	45.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↳			↑↑	↱
Traffic Vol, veh/h	0	0	42	0	0	81	0	1451	72	0	2229	60
Future Vol, veh/h	0	0	42	0	0	81	0	1451	72	0	2229	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	240
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	1	1	1	3	3	3	2	2	2
Mvmt Flow	0	0	44	0	0	84	0	1511	75	0	2322	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1161	-	-	793	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.92	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.31	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	187	0	0	334	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	187	-	-	334	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30	19.4	0	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	187	334	-	-
HCM Lane V/C Ratio	-	-	0.234	0.253	-	-
HCM Control Delay (s)	-	-	30	19.4	-	-
HCM Lane LOS	-	-	D	C	-	-
HCM 95th %tile Q(veh)	-	-	0.9	1	-	-

Intersection						
Int Delay, s/veh	4.8					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	59	43	54	34	48
Future Vol, veh/h	85	59	43	54	34	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	123	86	62	78	49	70

Major/Minor	Major1			Major2		
Conflicting Flow All	140	0	-	0	433	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	332	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1443	-	-	-	584	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	731	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	532	960
Mov Cap-2 Maneuver	-	-	-	-	532	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	731	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	720
HCM Lane V/C Ratio	0.085	-	-	-	0.165
HCM Control Delay (s)	7.7	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	255	290	165	403	239	383	1707	121	196	764	195
Future Volume (vph)	133	255	290	165	403	239	383	1707	121	196	764	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	3309		3367	3471	1553	3213	3312	1482
Flt Permitted	0.18	1.00	1.00	0.22	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	337	1845	1568	413	3309		3367	3471	1553	3213	3312	1482
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	140	268	305	174	424	252	403	1797	127	206	804	205
RTOR Reduction (vph)	0	0	168	0	71	0	0	0	50	0	0	109
Lane Group Flow (vph)	140	268	137	174	605	0	403	1797	77	206	804	96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	9%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	26.9	20.9	20.9	28.9	21.9		18.2	64.7	64.7	8.0	54.5	54.5
Effective Green, g (s)	28.9	21.9	20.9	30.9	22.9		19.2	65.7	65.7	9.0	55.5	55.5
Actuated g/C Ratio	0.24	0.18	0.17	0.26	0.19		0.16	0.54	0.54	0.07	0.46	0.46
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	162	335	271	194	628		536	1890	846	239	1524	682
v/s Ratio Prot	0.05	0.15		c0.06	c0.18		c0.12	c0.52		0.06	0.24	
v/s Ratio Perm	0.16		0.09	0.17					0.05			0.06
v/c Ratio	0.86	0.80	0.51	0.90	0.96		0.75	0.95	0.09	0.86	0.53	0.14
Uniform Delay, d1	41.1	47.3	45.2	40.5	48.4		48.4	25.9	13.2	55.2	23.2	18.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.9	12.8	1.5	37.0	26.8		5.9	11.2	0.0	25.8	0.3	0.1
Delay (s)	76.0	60.0	46.7	77.5	75.2		54.3	37.2	13.2	81.0	23.5	18.9
Level of Service	E	E	D	E	E		D	D	B	F	C	B
Approach Delay (s)		57.5			75.7			38.8			32.5	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	255	290	165	403	239	383	1707	121	196	764	195
Future Volume (veh/h)	133	255	290	165	403	239	383	1707	121	196	764	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1841	1841	1841	1767	1767	1767
Adj Flow Rate, veh/h	140	268	94	174	424	94	403	1797	74	206	804	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	9	9	9
Cap, veh/h	193	309	249	207	504	111	495	1936	863	249	1625	725
Arrive On Green	0.06	0.17	0.16	0.07	0.18	0.17	0.15	0.55	0.55	0.08	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	2873	632	3401	3497	1560	3264	3357	1497
Grp Volume(v), veh/h	140	268	94	174	259	259	403	1797	74	206	804	200
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	1742	1700	1749	1560	1632	1678	1497
Q Serve(g_s), s	7.0	16.6	6.3	8.0	16.7	17.0	13.5	55.7	2.6	7.3	19.2	9.4
Cycle Q Clear(g_c), s	7.0	16.6	6.3	8.0	16.7	17.0	13.5	55.7	2.6	7.3	19.2	9.4
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	309	249	207	309	305	495	1936	863	249	1625	725
V/C Ratio(X)	0.73	0.87	0.38	0.84	0.84	0.85	0.81	0.93	0.09	0.83	0.49	0.28
Avail Cap(c_a), veh/h	193	315	253	207	314	310	605	1987	886	249	1625	725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	47.9	44.4	42.4	47.0	47.3	48.9	24.2	12.3	53.7	20.6	18.1
Incr Delay (d2), s/veh	12.7	21.3	0.9	25.2	17.6	19.2	7.0	8.2	0.0	20.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	9.4	0.1	2.7	8.8	8.9	6.1	22.6	0.9	3.6	7.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	69.2	45.4	67.6	64.6	66.5	55.9	32.4	12.4	73.8	20.9	18.3
LnGrp LOS	D	E	D	E	E	E	E	C	B	E	C	B
Approach Vol, veh/h		502			692			2274			1210	
Approach Delay, s/veh		60.5			66.1			35.9			29.4	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	69.3	12.0	23.7	21.2	61.1	11.0	24.7
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	66.0	7.0	19.0	20.0	54.0	6.0	20.0
Max Q Clear Time (g_c+I1), s	9.3	57.7	10.0	18.6	15.5	21.2	9.0	19.0
Green Ext Time (p_c), s	0.0	6.6	0.0	0.1	0.6	6.6	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	41.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↳			↑↑	↱
Traffic Vol, veh/h	0	0	37	0	0	145	0	2030	105	0	1206	30
Future Vol, veh/h	0	0	37	0	0	145	0	2030	105	0	1206	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	240
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	9	9	9	9	9	9	4	4	4	7	7	7
Mvmt Flow	0	0	39	0	0	151	0	2115	109	0	1256	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	628	-	-	1112	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.08	-	-	7.08	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.39	-	-	3.39	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	409	0	0	192	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	409	-	-	192	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	70.3	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	409	192	-	-
HCM Lane V/C Ratio	-	-	0.094	0.787	-	-
HCM Control Delay (s)	-	-	14.7	70.3	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.3	5.4	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	125	61	19	54	80
Future Vol, veh/h	28	125	61	19	54	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	1	1	8	8	0	0
Mvmt Flow	41	184	90	28	79	118

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	118	0	-	0	370	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	266	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1476	-	-	-	634	956
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1476	-	-	-	614	956
Mov Cap-2 Maneuver	-	-	-	-	614	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1476	-	-	-	781
HCM Lane V/C Ratio	0.028	-	-	-	0.252
HCM Control Delay (s)	7.5	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	175	69	2	6	11
Future Vol, veh/h	4	175	69	2	6	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	1	1	8	8	0	0
Mvmt Flow	6	257	101	3	9	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	372	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1494	-	-	-	633	957
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	781	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1494	-	-	-	630	957
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	781	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1494	-	-	-	809
HCM Lane V/C Ratio	0.004	-	-	-	0.031
HCM Control Delay (s)	7.4	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	0	0	181	71	0
Future Vol, veh/h	2	0	0	181	71	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	2	2	1	1	8	8
Mvmt Flow	3	0	0	266	104	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	370	104	104	0	-	0
Stage 1	104	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	630	951	1494	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	630	951	1494	-	-	-
Mov Cap-2 Maneuver	630	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	630	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM Signalized Intersection Capacity Analysis
1: Highway 99W & SW Elwert/SW Sunset

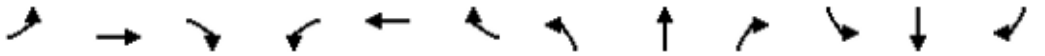
11/03/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	178	346	193	156	155	285	1114	143	429	1755	46
Future Volume (vph)	46	178	346	193	156	155	285	1114	143	429	1755	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1736	3212		3400	3505	1568	3433	3539	1583
Flt Permitted	0.44	1.00	1.00	0.36	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	826	1863	1583	651	3212		3400	3505	1568	3433	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	49	189	368	205	166	165	303	1185	152	456	1867	49
RTOR Reduction (vph)	0	0	138	0	133	0	0	0	84	0	0	23
Lane Group Flow (vph)	49	189	230	205	198	0	303	1185	68	456	1867	26
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)	26.7	20.2	20.2	31.7	22.7		10.0	54.1	54.1	20.0	64.1	64.1
Effective Green, g (s)	28.7	21.2	20.2	33.7	23.7		11.0	55.1	55.1	21.0	65.1	65.1
Actuated g/C Ratio	0.23	0.17	0.16	0.27	0.19		0.09	0.45	0.45	0.17	0.53	0.53
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	249	320	259	265	617		303	1566	700	584	1868	835
v/s Ratio Prot	0.01	0.10		c0.06	0.06		c0.09	0.34		0.13	c0.53	
v/s Ratio Perm	0.03		0.15	c0.15					0.04			0.02
v/c Ratio	0.20	0.59	0.89	0.77	0.32		1.00	0.76	0.10	0.78	1.00	0.03
Uniform Delay, d1	37.4	47.1	50.4	39.1	42.9		56.1	28.5	19.7	48.9	29.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.9	28.5	13.1	0.3		51.7	2.1	0.1	6.7	20.5	0.0
Delay (s)	37.8	50.0	78.9	52.2	43.2		107.9	30.6	19.8	55.7	49.6	14.0
Level of Service	D	D	E	D	D		F	C	B	E	D	B
Approach Delay (s)		66.6			46.6			43.9			50.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	123.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: Highway 99W & SW Elwert/SW Sunset

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	178	346	193	156	155	285	1114	143	429	1755	46
Future Volume (veh/h)	46	178	346	193	156	155	285	1114	143	429	1755	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	49	189	219	205	166	37	303	1185	93	456	1867	44
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	304	281	225	259	528	115	315	1671	745	549	1923	858
Arrive On Green	0.05	0.15	0.14	0.08	0.18	0.18	0.09	0.47	0.47	0.16	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1753	2856	622	3428	3526	1572	3456	3554	1585
Grp Volume(v), veh/h	49	189	219	205	100	103	303	1185	93	456	1867	44
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1753	1749	1729	1714	1763	1572	1728	1777	1585
Q Serve(g_s), s	2.7	11.5	16.5	10.0	5.9	6.2	10.6	31.9	4.0	15.3	60.9	1.6
Cycle Q Clear(g_c), s	2.7	11.5	16.5	10.0	5.9	6.2	10.6	31.9	4.0	15.3	60.9	1.6
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	304	281	225	259	323	320	315	1671	745	549	1923	858
V/C Ratio(X)	0.16	0.67	0.97	0.79	0.31	0.32	0.96	0.71	0.12	0.83	0.97	0.05
Avail Cap(c_a), veh/h	366	281	225	259	323	320	315	1671	745	663	1927	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	48.2	51.2	41.3	42.2	42.5	54.2	25.0	17.6	48.8	26.6	13.0
Incr Delay (d2), s/veh	0.2	6.2	52.6	15.3	0.5	0.6	40.8	1.4	0.1	7.4	14.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.8	9.7	2.3	2.6	2.7	6.2	12.8	1.4	7.0	26.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	54.3	103.8	56.6	42.8	43.1	95.0	26.4	17.7	56.3	40.8	13.0
LnGrp LOS	D	D	F	E	D	D	F	C	B	E	D	B
Approach Vol, veh/h		457			408			1581			2367	
Approach Delay, s/veh		76.5			49.8			39.0			43.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.1	60.8	14.0	22.0	15.0	68.9	9.8	26.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	52.0	9.0	17.0	10.0	64.0	9.0	17.0
Max Q Clear Time (g_c+I1), s	17.3	33.9	12.0	18.5	12.6	62.9	4.7	8.2
Green Ext Time (p_c), s	0.7	7.9	0.0	0.0	0.0	1.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↳			↑↑	↱
Traffic Vol, veh/h	0	0	42	0	0	88	0	1451	74	0	2229	60
Future Vol, veh/h	0	0	42	0	0	88	0	1451	74	0	2229	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	240
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	1	1	1	3	3	3	2	2	2
Mvmt Flow	0	0	44	0	0	92	0	1511	77	0	2322	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1161	-	-	794	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.92	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.31	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	187	0	0	333	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	187	-	-	333	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30	19.9	0	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	187	333	-	-
HCM Lane V/C Ratio	-	-	0.234	0.275	-	-
HCM Control Delay (s)	-	-	30	19.9	-	-
HCM Lane LOS	-	-	D	C	-	-
HCM 95th %tile Q(veh)	-	-	0.9	1.1	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	66	50	55	35	50
Future Vol, veh/h	87	66	50	55	35	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	126	96	72	80	51	72

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	152	0	-	0	460	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1429	-	-	-	563	947
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1429	-	-	-	511	947
Mov Cap-2 Maneuver	-	-	-	-	511	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	719	-

Approach	EB	WB	SB
HCM Control Delay, s	4.4	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1429	-	-	-	701
HCM Lane V/C Ratio	0.088	-	-	-	0.176
HCM Control Delay (s)	7.8	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	94	98	5	4	7
Future Vol, veh/h	7	94	98	5	4	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	10	136	142	7	6	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	149	0	-	0	302	146
Stage 1	-	-	-	-	146	-
Stage 2	-	-	-	-	156	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1432	-	-	-	694	906
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1432	-	-	-	688	906
Mov Cap-2 Maneuver	-	-	-	-	688	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	877	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1432	-	-	-	812
HCM Lane V/C Ratio	0.007	-	-	-	0.02
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	0	98	103	1
Future Vol, veh/h	1	0	0	98	103	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	2	2	1	1	8	8
Mvmt Flow	1	0	0	144	151	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	296	152	152	0	-	0
Stage 1	152	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	695	894	1435	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	695	894	1435	-	-	-
Mov Cap-2 Maneuver	695	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1435	-	695	-	-
HCM Lane V/C Ratio	-	-	0.002	-	-
HCM Control Delay (s)	0	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

WASHINGTON COUNTY
OREGON

June 30, 2022

To: **Eric Rutledge – Associate Planner**

From: **Naomi Vogel – Associate Planner**

RE: **Cedar Creek Gardens Subdivision**
City File Number: LU 2021-023 SUB
County File Number: CP 22-910
Tax Map and Lot Number(s): 3S1060000102 and 3S1060000107
Location: SW Brookman Road

Washington County Department of Land Use and Transportation has reviewed this development application to subdivide a 19.99-acre site for a 41-lot residential subdivision development site comprised of two lots. The northwest part of the site will support 8 lots and will be accessed from the west via public streets within the Reserve at Cedar Creek Subdivision (currently under construction). Two lots at the northeast corner of the site are proposed to take access via a new shared private driveway with the remaining lots accessing a new public street on SW Brookman Road, a County-maintained Arterial.

The proposed shared private driveway and the new public street (Street 'A') to SW Brookman Road do not meet the County's access standards required for access to an Arterial because access to an Arterial shall be from another Arterial or Collector Street. Pursuant to the County Road Design & Construction standards, an access that does not meet the access standards shall submit a Design Exception in compliance with Section 220 of the Road Standards and Section 501-8.5 of the County Development Code. The applicant has submitted a Design Exception(s) to the County Engineer dated January 22, 2022. The Design Exception requests for access to SW Brookman Road have been approved by the County Engineer (subject to final signature). A Traffic Impact Analysis (TIA) dated November 10, 2021, and supplemental sight distance analysis for the shared driveway dated June 23, 2022 (Lancaster/Mobley) were submitted in accordance with Washington County R&O 86-95, "Determining Traffic Safety Improvements" for developments that impact County-maintained roads. County Traffic Engineering concurs with the findings in the TIA and supplemental sight distance analysis.

Department of Land Use & Transportation
Operations and Maintenance
1400 SW Walnut Street, MS 51, Hillsboro, OR 97123-5625
phone: 503-846-7623 • fax: 503-846-7620
www.co.washington.or.us/lut • lutops@co.washington.or.us

I. PRIOR TO ISSUANCE OF A SITE DEVELOPMENT PERMIT FOR PHASE II BY THE CITY OF SHERWOOD, THE APPLICANT SHALL OBTAIN A WASHINGTON COUNTY FACILITY PERMIT FOR CONSTRUCTION OF THE FOLLOWING PUBLIC IMPROVEMENTS ON SW BROOKMAN ROAD:

A. Submit the following to **Washington County** Public Assurance Staff (503-846-3843):

1. Submit to Washington County Public Assurance Staff: A completed "Design Option" form (original copy), City's Notice of Decision (NOD) and County's Letter dated June 13, 2022.

2. **$20,000.00** Administration Deposit.

   NOTE: The Administration Deposit is a cost-recovery account used to pay for County services provided to the developer, including plan review and approval, field inspections, as-built approval, and project administration. The Administration Deposit amount noted above is an estimate of what it will cost to provide these services. If, during the project, the Administration Deposit account is falls below County approved level, additional funds will be requested to cover the estimated time left on the project (at then-current rates per the adopted Washington County Fee Schedule). If there are any unspent funds at project close out, they will be refunded to the applicant. Any point of contact with County staff can be a chargeable cost. If project plans are not complete or do not comply with County standards and codes, costs will be higher. There is a charge to cover the cost of every field inspection. Costs for enforcement actions will also be charged to the applicant.

3. Electronic submittal of engineering plans, geotech/pavement report, engineer's estimate, preliminary sight distance certification and the "Engineer's Checklist" (Appendix 'E' of County Road Standards) for construction of the following public improvements:

   Note: Improvements within the ROW may be required to be relocated or modified to permit the construction of public improvements. All public improvements and modifications shall meet current County and ADA standards. Public improvements that do not meet County standards shall submit a design exception to the County Engineer for approval.

   a. Public street connection to SW Brookman Road. The access shall include curb returns with ADA ramps, including adequate street lighting at the street connection to SW Brookman Road. The access shall be constructed per the County Engineer's Design Exception approval.

b. Private access, including adequate street lighting, on SW Brookman Road per the County Engineer's design exception approval and preliminary sight distance certification.

c. Construction of a minimum of 22 feet of pavement with 4-foot shoulders and roadside ditching along the frontage of SW Brookman Road. Pavement width less than 22 feet subject to approval by the County Engineer.

d. Preliminary certification of adequate sight distance for the public street connection and shared private access to SW Brookman Road, including for construction access (if proposed).

e. Closure of all existing access from the subject tax lots to SW Brookman Road.

f. Construction access and traffic circulation/control plan for access to SW Brookman Road.

II. PRIOR TO APPROVAL OF THE PLAT RECORDATION BY THE CITY OF SHERWOOD AND WASHINGTON COUNTY:

A. The following shall be shown on the plat and recorded with Washington County Survey Division (503.846.8723):

1. Dedication of additional right-of-way to provide 53 feet from the centerline of SW Brookman Road.

2. Adequate corner radius at the intersection of SW Brookman Road and the new public street.

3. Dedication of an 8-foot PUE along the frontage of SW Brookman Road.

4. Provision of a non-access restriction along the subject frontage of SW Brookman Road.

III. PRIOR TO OCCUPANCY OF A DWELLING:

A. The road improvements required in condition **I.A.3.** above shall be completed and approved by Washington County.

B. Pay a fee in-lieu of constructing 5 lanes (half-width) on SW Brookman Road to the City. The engineer's estimate shall include the following items:

1. Asphalt (known standards for materials, width and thickness),
2. Standard base rock (known standards for materials and thickness),
3. Sidewalks (known standards for material, thickness and width),
4. Curb and gutter,

5. Striping,
6. Street trees,
7. Street light (including lights and conduits),
8. Planter strip plantings,
9. Irrigation system,
10. Stormwater drainage collection, conveyance, and treatment.

If you have any questions, please contact me at 503-846-7639.

Cc: Road Engineering Services
Traffic Engineering Services
Assurances Section
Transportation File

From: Bryan Robb
To: Eric Rutledge
Subject: RE: [EXTERNAL] LU 2021-023 SUB Cedar Creek Gardens - Opportunity to Comment
Date: Thursday, June 2, 2022 12:14:13 PM
Attachments: image001.png

Hi Eric, thanks for the notice. I wanted to check in on this land use application. Since this property was annexed to Sherwood in 2017 it was before the city started processing simultaneous annexations to CWS. I have been having some mapping issues lately in this area and I'm not showing a recent county processed CWS annexation. I also checked this against the CWS resource web map tool and did not see this property as being within their boundary. Assuming these layers are correct, will this be a condition?

Bryan Robb | **Associate Planner** *(he/him)*
Washington County Department of Land Use & Transportation
Planning & Development Services | Long Range Planning
155 N First Avenue, Suite 350 MS14 | Hillsboro, OR 97124
(503) 846-3717 direct | (503) 846-4412 fax
bryan_robb@co.washington.or.us | www.co.washington.or.us/lut

Plan Responsibly. **Build** Safely. **Live** Well.

In an effort to mitigate the spread of COVID-19, I am working from home in accordance with County policy.

From: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Sent: Thursday, June 2, 2022 9:52 AM
To: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Subject: [EXTERNAL] LU 2021-023 SUB Cedar Creek Gardens - Opportunity to Comment

Hi Agency Partners:

The City of Sherwood Planning Department is requesting agency comments on the following land use application:

- **Proposal:** The applicant is proposing a 41-lot residential subdivision on a 19.99-acre site zoned Medium Density Residential Low (MDRL). The development site is comprised of two lots (Tax Lots 3S1060000102 and 3S1060000107 and is mostly forested with the exception of two existing homes and various outbuildings. The northwest part of the site will support 8 lots, which will be accessed from the west via public streets within the Reserve at Cedar Creek Subdivision which is currently under construction. Two lots at the northeast corner of the site are proposed to take access from SW Brookman Road via a new shared driveway. The remainder of the 31 lots will obtain access SW Brookman Road to the south via a new interior

public street system.

- **Location:** 17033 SW Brookman Rd. and 16871 SW Brookman Rd.

- **Comment Deadline:** Thursday June 16, 2022 for consideration in the staff report

- **Hearing Date**: Hybrid In-Person / Virtual Hearing before the Sherwood Hearings Officer on Thursday June 30, 2022 at 7pm. Agencies impacted by the proposal are welcome to participate.

- **Applicable code criteria:** SZCDC Chapter 16.31 Industrial Land Use Districts Chapter 16.58 Clear Vision and Fence Standards; Chapter 16.72 Procedures for Processing Development Permits; Chapter 16.90 Site Planning; Chapter 16.92 Landscaping; Chapter 16.94 Off-Street Parking and Loading; Chapter 16.96 On-Site Circulation; Chapter 16.98 On-Site Storage; Chapter 16.106 Transportation Facilities; Chapter 16.108 Improvement Plan Review, Chapter 16.110 Sanitary Sewers; Chapter 16.112 Water Supply; Chapter 16.114 Storm Water; Chapter 16.116 Fire Protection; Chapter 16.118 Public and Private Utilities; Chapter 16.142 Parks, Trees, and Open Spaces; Chapter 16.146 Noise; Chapter 16.148 Vibrations; Chapter 16.150 Air Quality; Chapter 16.152 Odors; Chapter 15.154 Heat and Glare; Chapter 16.156 Energy Conservation

- **Application materials (City website):** https://www.sherwoodoregon.gov/planning/project/lu-2021-023-sub-cedar-creek-gardens

Eric Rutledge
City of Sherwood
Associate Planner
rutledgee@sherwoodoregon.gov
Desk 503.625.4242
Work Cell 971.979.2315

City of Sherwood Oregon
Home of the Tualatin River National Wildlife Refuge

From:	Joy Chang
To:	Wayne Hayson
Cc:	Erika Palmer; Matt Sprague; Eric Rutledge; Ted Foster; BRUCH Elise A * DOR; Samantha Wright
Subject:	Brookman Area Annexation, WA 2917
Date:	Monday, November 8, 2021 2:30:25 PM
Attachments:	RE EXTERNAL FW City of Sherwood --WA2917 - Clarifying Question on mislabel.msg

All,

I've checked with the County, Department of Revenue, and Metro on this matter.

The City is comfortable with the Washington County Cartography determination that the "original description has very specific points of call that supersede any errors in bearing or distance". See attached email.

Let me know if you have further questions.

Joy L Chang
Senior Planner
City of Sherwood
22560 SW Pine St. Sherwood, OR 97140
O:503.625.4214 F:503-625-0629 M:971-979-5369
www.sherwoodoregon.gov
changj@sherwoodoregon.gov

The Community Development Department is located on the 2nd floor of the City Hall/Library building and is currently open Monday – Friday 8am to 5pm

---

From: Wayne Hayson
Sent: Wednesday, October 13, 2021 4:55 PM
To: Ted Foster <Ted_Foster@co.washington.or.us>; Joy Chang <ChangJ@SherwoodOregon.gov>
Cc: Erika Palmer <PalmerE@SherwoodOregon.gov>; Bryan Robb <Bryan_Robb@co.washington.or.us>; Matt Sprague <MSprague@pd-grp.com>
Subject: RE: [EXTERNAL] Brookman Road Annexation

Thanks Ted. I believe that is exactly what Mike Harris (PDG Surveyor) thought as well. I appreciate you looking into it.

Joy, would it be possible to get a quick email to the extent that the City considers this matter closed (as long as you do)?

Wayne Hayson I PLANNING MANAGER I D 971.708.6274
PIONEER DESIGN GROUP, INC.
CIVIL ENGINEERING I LAND USE PLANNING I LAND SURVEYING I LANDSCAPE ARCHITECTURE

From: Ted Foster <Ted_Foster@co.washington.or.us>

Sent: Wednesday, October 13, 2021 4:28 PM
To: Joy Chang <ChangJ@SherwoodOregon.gov>; Wayne Hayson <whayson@pd-grp.com>
Cc: Erika Palmer <PalmerE@SherwoodOregon.gov>; Bryan Robb <Bryan_Robb@co.washington.or.us>
Subject: RE: [EXTERNAL] Brookman Road Annexation

Joy and Wayne, the second course of the description includes the point of call reference "to the easterly extension of the north line of Deed Book 1182 Page 951; thence along said easterly extension and the north line of said Deed….". The reference to the point of call controls over the distance given. In this case due to the point of call, the entirety of taxlot 107 is within the districts. I expect your surveyor would agree with this interpretation. Thanks,

Ted Foster
Senior Cartographer
Washington County
503-846-3924

From: Joy Chang <ChangJ@SherwoodOregon.gov>
Sent: Wednesday, October 13, 2021 3:55 PM
To: Ted Foster <Ted_Foster@co.washington.or.us>
Cc: Erika Palmer <PalmerE@SherwoodOregon.gov>; Bryan Robb <Bryan_Robb@co.washington.or.us>
Subject: FW: [EXTERNAL] Brookman Road Annexation

Ted,

Can you help us with the issue? I'm not sure what may have happened since the County would have certified the legal along with DOR and Metro.

Thanks for your help.

Joy L. Chang
Senior Planner

DURING THIS TIME OF HEALTH EMERGENCY WE ARE ENCOURAGING THE USE OF EMAIL AND MAKING APPOINTMENTS WITH STAFF. THANK YOU FOR UNDERSTANDING

From: Bryan Robb <Bryan_Robb@co.washington.or.us>
Sent: Tuesday, October 12, 2021 10:12 AM
To: Wayne Hayson <whayson@pd-grp.com>
Cc: Joy Chang <ChangJ@SherwoodOregon.gov>
Subject: RE: [EXTERNAL] Brookman Road Annexation

Hi Wayne – I'm copying Joy Chang from Sherwood.

This was a city annexation so I would not have the original state approvals. DOR usually goes over these for preliminary approval and they have the local jurisdiction make correction to them if they find any discrepancies or inaccuracies. It could be the case that Sherwood included an incorrect exhibit in the final packet but had a correct version on file.

Joy – are you able to assist on this? If you are not the right point of contact, could you please let me know who is?

Thank you,

Bryan Robb | **Associate Planner**
503-846-3717 direct | 503-846-4412 fax
Plan Responsibly. **Build** Safely. **Live** Well.

From: Wayne Hayson <whayson@pd-grp.com>
Sent: Monday, October 11, 2021 5:35 PM
To: Bryan Robb <Bryan_Robb@co.washington.or.us>
Subject: [EXTERNAL] Brookman Road Annexation

Hi Bryan,

It has been brought to our attention that when the Brookman Road area was annexed into the City of Sherwood, the survey included as Exhibit B of WA2917 http://library.oregonmetro.gov/annexation/WA2917.pdf (Sheet 3 of 6) appears to have incorrectly labelled the width of the narrow strip of Tax Lot 3S1060000107 as being 50 feet in width, when it should actually be approximately 60 feet in width. I have attached Survey No's 23506 and 33327, from before and after the annexation, showing the strip at approximately 60 feet. Our survey shows the strip as being 59.89 feet, which is within 0.02 feet of Survey 23506. Our surveyors believe that the call of 50' is not correct based on deed calls to adjoiners and surveyed monuments. The remaining documents in the annexation all include the entire parcel, and for example the entire parcel now has City Zoning and has been withdrawn from County service districts. This one exhibit, however, has thrown some doubt on the status of the southern 10 feet.

Could you please confirm that the entire parcel is included in the annexation, or let me know what needs to be done to correct/verify the width.

Thanks

Wayne Hayson I PLANNING MANAGER I D 971.708.6274
PIONEER DESIGN GROUP, INC. CIVIL ENGINEERING I LAND USE PLANNING I LAND SURVEYING I LANDSCAPE ARCHITECTURE

OREGON: 9020 SW Washington Square Rd. Suite 170 Portland, OR 97223 P 503.643.8286 ext. 1019
HAWAII: PO Box 283304, Honolulu, HI 96828 P 808.753.2376
pd-grp.com

M E M O R A N D U M

Date: June 17, 2022

To: Eric Rutledge, Associate Planner, City of Sherwood

From: Jackie Sue Humphreys, Clean Water Services (CWS)

Subject: Cedar Creek Gardens 41-Lot Subdivision, LU 2021-023 SUB 3S1060000102, 00107

Please include the following comments when writing your conditions of approval:

PRIOR TO ANY WORK ON THE SITE AND PLAT RECORDING

A Clean Water Services (CWS) Storm Water Connection Permit Authorization must be obtained prior to plat approval and recordation. Application for CWS Permit Authorization must be in accordance with the requirements of the Design and Construction Standards, Resolution and Order No. 19-5 as amended by R&O 19-22, or prior standards as meeting the implementation policy of R&O 18-28, and is to include:

a. Detailed plans prepared in accordance with Chapter 2, Section 2.04.

b. Detailed grading and erosion control plan. An Erosion Control Permit will be required. Area of Disturbance must be clearly identified on submitted construction plans. If site area and any offsite improvements required for this development exceed one-acre of disturbance, project will require a 1200-CN Erosion Control Permit. If site area and any offsite improvements required for this development exceed five-acres of disturbance, project will require a 1200-C Erosion Control Permit.

c. Detailed plans showing each lot within the development having direct access by gravity to public storm and sanitary sewer.

d. Provisions for water quality in accordance with the requirements of the above named design standards. Water Quality is required for all new development and redevelopment areas per R&O 19-5, Section 4.04. Access shall be provided for maintenance of facility per R&O 19-5, Section 4.07.6.

e. If use of an existing offsite or regional Water Quality Facility is proposed, it must be clearly identified on plans, showing its location, condition, capacity to treat this site and, any additional improvements and/or upgrades that may be needed to utilize that facility.

f. If private lot LIDA systems proposed, must comply with the current CWS Design and Construction Standards. A private maintenance agreement, for the proposed private lot LIDA systems, needs to be provided to the City for review and acceptance.

g. Show all existing and proposed easements on plans. Any required storm sewer, sanitary sewer, and water quality related easements must be granted to the City.

h. Applicant shall comply with the conditions as set forth in the Service Provider Letter No. 21-002919, dated April 20, 2022.

i. Developer may be required to preserve a corridor separating the sensitive area from the impact of development. The corridor must be set aside in a separate tract, not part of any buildable lot and, shall be subject to a "Storm Sewer, Surface Water, Drainage and Detention Easement over its entirety", or its equivalent.

j. Detailed plans showing the sensitive area and corridor delineated, along with restoration and enhancement of the corridor.

k. If there is any activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits.

l. Any proposed offsite construction activities will require an update or amendment to the current Service Provider Letter for this project.

CONCLUSION

This Land Use Review does not constitute CWS approval of storm or sanitary sewer compliance to the NPDES permit held by CWS. CWS, prior to issuance of any connection permits, must approve final construction plans and drainage calculations.

From: Darby, Ty M.
To: Eric Rutledge; Arn, Jason S.
Subject: RE: Follow up on Cedar Creek Gardens access (LU 2021-023)
Date: Friday, June 17, 2022 7:30:21 AM
Attachments: image001.png

Hi Eric,

Per our conversation, a fire apparatus turn-a-round will not be required for the two lots served off of Brookman. Jason and I have both looked at the plans and have no further comments to provide.

Thank you,

Ty

Ty Darby | Deputy Fire Marshal
Tualatin Valley Fire & Rescue
Direct: 503-259-1409
www.tvfr.com

From: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Sent: Thursday, June 16, 2022 11:04 AM
To: Darby, Ty M. <Ty.Darby@tvfr.com>; Arn, Jason S. <Jason.Arn@tvfr.com>
Subject: Follow up on Cedar Creek Gardens access (LU 2021-023)

Hi Ty and Jason,

We discussed this subdivision and SPL while you were in the office a few weeks ago. I wanted to get confirmation in writing that a turnaround is not required to serve two lots via the private driveway off Brookman Rd. After issuance of the SPL the plans were updated to remove one of the lots to be served by this driveway (3 lots were originally proposed). The updated plans also address your comment regarding the location of the hydrant off Brookman Rd.

Thank you!

Eric Rutledge
City of Sherwood
Associate Planner
rutledgee@sherwoodoregon.gov
Desk 503.625.4242

Work Cell 971.979.2315

City of Sherwood Oregon
Home of the Tualatin River National Wildlife Refuge

Wetland Land Use Notice Response

Response Page

Department of State Lands (DSL) WN# *

WN2022-0562

Responsible Jurisdiction

Staff Contact	Jurisdiction Type	Municipality
Eric Rutledge	City	Sherwood

Local case file #	County
LU 2021-023 SUB	Washington

Activity Location

Township	Range	Section	QQ section	Tax Lot(s)
03S	01W	06		102,107

Street Address

17033 SW Brookman Rd

Address Line 2

City	State / Province / Region
Sherwood	OR

Postal / Zip Code	Country
97140	Washington

Latitude	Longitude
45.344646	-122.849969

Wetland/Waterway/Other Water Features

- [x] There are/may be wetlands, waterways or other water features on the property that are subject to the State Removal-Fill Law based upon a review of wetland maps, the county soil survey and other available information.
- [x] The National Wetlands Inventory shows wetland, waterway or other water features on the property
- [x] The county soil survey shows hydric (wet) soils on the property. Hydric soils indicate that there may be wetlands.

Applicable Oregon Removal-Fill Permit Requirement(s)

- [x] A state permit is required for 50 cubic yards or more of fill removal or other ground alteration in wetlands, below ordinary high water of waterways, within other waters of the state, or below highest measured tide.

Closing Information

Additional Comments

Based on a review of best available information, the proposed project (41-lot subdivision) is configured to largely avoid the wetlands delineated and concurred with by DSL as WD2022-0005. There appear to be three wetland/water crossing areas, The SS Easement and Community Trail, 'B' Street, and the Vactor truck turnaround road. It is beyond the capacity of a Wetland Land Use Notice Response to determine if these impacts require <50 cy of combined wetland/waters removal+fill+disturbance. If >50 cy are required, a Joint Permit Application will be required. If <50 cy, DSL can confirm that No State Permit is required via an expedited (30 day and free submission) review which contains plan and profile documentation. Please contact DSL Aquatic Resource Coordinator Mike De Blasi to discuss permitting (503-986-5226)

This is a preliminary jurisdictional determination and is advisory only.

This report is for the State Removal-Fill law only. City or County permits may be required for the proposed activity.

☑ A Federal permit may be required by The Army Corps of Engineers: (503)808-4373

Contact Information

- For information on permitting, use of a state-owned water, wetland determination or delineation report requirements please contact the respective DSL Aquatic Resource, Proprietary or Jurisdiction Coordinator for the site county. The current list is found at: http://www.oregon.gov/dsl/ww/pages/wwstaff.aspx
- The current Removal-Fill permit and/or Wetland Delineation report fee schedule is found at: https://www.oregon.gov/dsl/WW/Documents/Removal-FillFees.pdf

Response Date

6/9/2022

Response by:

Daniel Evans

Response Phone:

503-986-5271

Oregon
Kate Brown, Governor

Department of Transportation
Region 1 Headquarters
123 NW Flanders Street
Portland, Oregon 97209
(503) 731.8200
FAX (503) 731.8259

July 11, 2022 ODOT #12625

ODOT Response

Project Name: Cedar Creek Gardens Subdivision	**Applicant:** Westwood Homes, LLC
Jurisdiction: City of Sherwood	**State Highway:** OR 99W
Site Address: 17033 SW Brookman Rd, 16871 SW Brookman Rd., Sherwood, OR	

The site of this proposed land use action is in the vicinity of the Brookman Rd/OR 99W intersection. ODOT has permitting authority for this facility and an interest in ensuring that this proposed land use is compatible with its safe and efficient operation.

COMMENTS/FINDINGS

The proposal is to construct a 41 lot subdivision within the vicinity of the Brookman Rd/OR 99W intersection. Given the proximity to this highway intersection, it is reasonable to expect that traffic generated from this housing development will use this intersection. The Brookman Rd/OR 99W intersection is located within the ODOT Region 2 boundary. Region 2 has been monitoring the safety and operations at the intersection and has been working with the Middlebrook subdivision to install features restricting turning movements at the intersection to improve operations.

ODOT has not identified improvements at the Brookman Rd/OR 99W intersection that are feasible or proportional for this development. The City of Sherwood TSP has a project to install a signal at this intersection. Therefore, ODOT recommends the City condition the developer to contribute their proportionate share of this TSP project. To be collected by the City of Sherwood towards the future project.

Please send the Land Use Decision to:

ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

ODOT_R1_DevRev@odot.oregon.gov

Development Review Planner: Marah Danielson	503.731.8258, marah.b.danielson@odot.oregon.gov
Traffic Contact: Avi Tayar, P.E.	503.731.8221 Abraham.tayar@odot.oregon.gov
Region 2 Contact: Scott Nelson	Scott.NELSON@odot.oregon.gov

From: NELSON Scott
To: DANIELSON Marah B; Eric Rutledge
Cc: TAYAR Abraham; RUSSELL John
Subject: RE: Cedar Creek Gardens Subdivision
Date: Wednesday, June 29, 2022 7:54:37 AM

FYI, the Brookman/Chapman intersection at OR-99W has seen its SPIS score referenced in the comments for *The Reserve at Cedar Creek* drop out of the top 15% in the past two annual reports. Of course we will continue to monitor the performance, but our safety program will not consider funding any projects unless the SPIS score jumps back up.

The recommendation for a proportional share contribution to the planned relocation and improvement of Brookman Rd is still appropriate for proposed development consistent with the comp plan.

Thanks

B Scott Nelson, P.E.
Region 2 Access Management Engineer

Oregon Department of Transportation
455 Airport Rd SE, Bldg. B
Salem, OR 97301
Office 503.986.2882
Cell 503.602.0703

From: DANIELSON Marah B <Marah.B.DANIELSON@odot.oregon.gov>
Sent: Tuesday, June 28, 2022 11:25 AM
To: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Cc: NELSON Scott <Scott.NELSON@odot.oregon.gov>; TAYAR Abraham <Abraham.TAYAR@odot.oregon.gov>; RUSSELL John <John.RUSSELL@odot.oregon.gov>
Subject: Cedar Creek Gardens Subdivision

Hi Eric,
Sorry for the delay in responding to the new 41 lot subdivision proposal in the vicinity of the OR 99W/Brookman Rd intersection in Sherwood. ODOT has determined that this development is similar in nature to the Riverside at Cedar Creek development that ODOT Region 2 previously submitted comments on. I have attached these comments which address that this development is likely to have an impact at the highway intersection and the ODOT recommendation that they be responsible for contributing their proportionate share contribution to the signalized intersection project in the city's TSP.

Please let me know if you have any questions.

Thanks!
Marah