TRAFFIC IMPACT ANALYS

WILLAMETTE FORKS

Traffic Impact Analysis

COBURG, OREGON

November 17, 2021

Revised December 27, 2022

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SANDOW
ENGINEERING

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project # 5905

EXECUTIVE SUMMARY

This report provides the Traffic Impact Analysis and findings prepared for the proposed Willamette Forks Restaurant in Coburg, Oregon. The subject site is located at 91032 South Willamette St across from E Delaney St, more specifically, Assessor's Map 33-16S-3W-4200. The site is currently occupied with a building previously used for commercial purposes. The proposal is to remodel the existing building for use as a restaurant and to add an 853-sf brewing facility on site.

The applicant is proposing:

1. 2,371 sf restaurant with 100 seats
2. 853 sf brewing facility

The site currently has two access connections to Willamette St. The proposal is to keep the existing accesses as two full-movement accesses.

The analysis evaluates the transportation impacts per the City of Coburg and Lane County criteria, evaluating adjacent roadway and intersection operations with the addition of development traffic for the year of completion and a 5-year future analysis.

FINDINGS

The following report recommendations are based on the information and analysis documented in this report.

- The study area intersections will meet the mobility standards with the development in place.
- The addition of development trips does not increase queuing conditions and study area intersections.
- The site accesses will operate safely and efficiently for all modes of travel.
- The site will have safe and adequate access for pedestrians and bicycles to and within the site.

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LIST OF APPENDICES

1.0 BACKGROUND

1.1 SITE INFORMATION

This report provides the analysis and findings prepared for the proposed Willamette Forks Restaurant in Coburg, Oregon. The application is for the 0.62-acre site located at 91032 S Willamette Street at Tax Lot 4200 of Assessor's Map 33-13-16S-3W. Figure 1 contains the site location and vicinity map.

The site currently contains a building previously used for commercial businesses. The site has two access connections to Willamette St. The northern access is located approximately 100 feet north of Delaney St. The southern access is aligned with Delaney Street.

1.2 DEVELOPMENT PROPOSAL

The applicant is proposing to remodel the existing building on site to a 2,371-sf restaurant with 100 seats (indoor and outdoor seating). Additionally, the applicant will be constructing an 853-sf ancillary building that will serve as a brewing facility.

The applicant is proposing to maintain the existing access connections as two full-movement accesses.

Appendix A contains the site plan.

1.3 ANALYSIS SCOPE

As per City of Coburg Development Code X-I(1)(C), a TIA is required for this project as the site will generate more than 200 ADT. Table 3 provides the trip generation estimate. The city of Coburg and Lane County have roadways within the study area. Sandow Engineering coordinated Scopes of Work with the City of Coburg and Lane County, provided in Appendix B.

The analysis includes:

- Site access points
- Intersection evaluation
- Circulation and safety evaluation for the accesses
- Safety and circulation for pedestrians, bicyclists, and transit at the project entrance

The evaluation is prepared for the PM Peak Period (4:00-6:00 PM) for the following locations:

- Willamette St at Delaney St
- Willamette St at Pearl St

The analysis is performed for:

- Existing conditions, year 2022
- Estimated year of completion, year 2023, with and without the proposed development
- Five-year planning horizon year, year 2028, with and without the proposed development

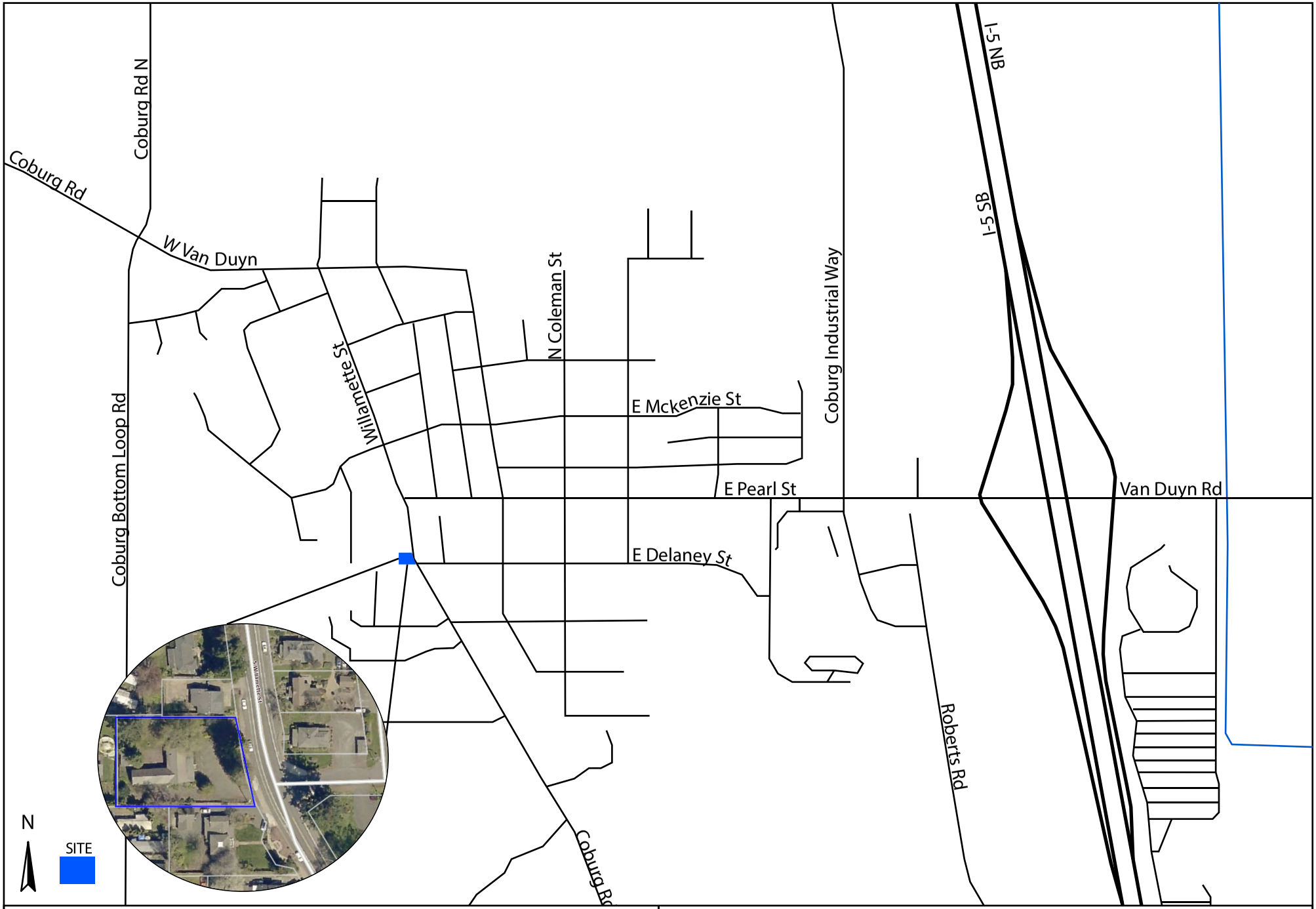

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Figure 1: Site Location and Vicinity Map

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2.0 EXISTING ROADWAY CONDITIONS

2.1 STREET NETWORK

The streets included within the study area are Willamette St, Delaney St, and Pearl St. The roadway characteristics within the study area are included in Table 1.

TABLE 1: ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Characteristic	Willamette Street	Delaney Street	Pearl Street
Jurisdiction	Lane County	City of Coburg	Lane County
Classification	Minor Arterial	Local	Minor Arterial
Lanes per Direction	1	1	1
Center Left-Turn Lane	No	No	Yes
Restrictions in the Median	None	None	None
Bikes Lanes Present	Yes	No	Yes
Sidewalks Present	Yes	No	Yes
Transit Route	Yes	No	Yes
On-Street Parking	Yes	Yes	No

2.2 STUDY INTERSECTIONS

Intersections included in this study are Willamette St at Delaney St and Willamette St at Pearl St.

Willamette St at Delaney St

This intersection is a T-intersection where the stop control is on Delaney St. The intersection is one lane in each direction with bike lanes on Willamette St. There are no striped crosswalks. However, there are updated ADA ramps for all crossings.

Willamette St at Pearl St

This is a 4-way signalized intersection. There are bike lanes on Willamette St and Pearl St and marked crosswalks at all four approaches.

Figure 2 illustrates the study area intersection geometry and control.

2.3 TRANSIT

Lane Transit District

Lane Transit District provides transit operations to and within the City of Coburg. Route 96 serves the city via Willamette St, Pearl Street, and Coburg Industrial Way. Buses serve the city once in the AM and once in the PM, Monday through Saturday. The nearest transit stop is located 160 feet to the south (east side of Coburg Road). Figure 3 illustrates the transit route

and stop locations. There are sidewalks, bike lanes, and ADA crossings between the site and the transit stop. The existing sidewalks, pedestrian crossings, and bike lanes provide safe access between the site and the transit stop.

2.4 PEDESTRIAN AND BICYCLE ACCESS

Sidewalks and bike lanes are provided along Willamette Street and Pearl Street for the entire length within the City limits. There are ADA ramps located at the adjacent intersections of Willamette St at Delaney St, Willamette St at Pearl St, and Willamette St at Dixon St. The traffic signal at Willamette St and Pearl St has marked crosswalks with ped signals at all crossings. Figure 4 illustrates the pedestrian and bicycle infrastructure. There is safe and efficient pedestrian and bicycle access to/from the site.

2.5 CRASH ANALYSIS

A crash estimation was performed for the study area intersections. The analysis investigates crash data available for the most recent 5 years, 1/1/2016-12/31/2020, to determine the crash rate in crashes per million entering vehicles and the type of crashes that occurred. The crash analysis follows the HCM Critical Crash Rate methodology. The calculated intersection crash rates are compared to the critical crash rate. If the calculated crash rate exceeds the critical crash rate, the location is considered for further mitigation measures. Crash data was provided by ODOT for the study area and is included in Appendix C. The results of the crash analysis are provided in Table 2.

TABLE 2: INTERSECTION CRASH RATES

Location	Intersection Type	Number of Crashes	ADT	MEV	Crash Rate	Critical Crash Rate	
Willamette at Delaney	Stop	0	6,930	0	0.00	0.00	Under
Willamette at Pearl	Signal	3	10,100	18.43	0.16	0.34	Under

***(crashes/million entering vehicles)**

As illustrated within Table 2, the intersection crash rate does not exceed the critical crash rate. Therefore, mitigation is not triggered.

There were 3 reported crashes at the Willamette St at Pearl St intersection. One crash involved a pedestrian. This crash was a southbound left-turn vehicle colliding with a pedestrian in the crosswalk. The error was assigned to the driver of the vehicle. One of the crashes was a single vehicle traveling westbound through the intersection and colliding with a fixed object. The crash occurred at 2 PM. Therefore, intersection lighting was not a factor. The third crash was a rear end collision involving southbound vehicles. There are no geometric or design issues to be modified at this intersection.

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Figure 2: Lane Geometry and Traffic Control

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Figure 3: Bus Stops and Routes.

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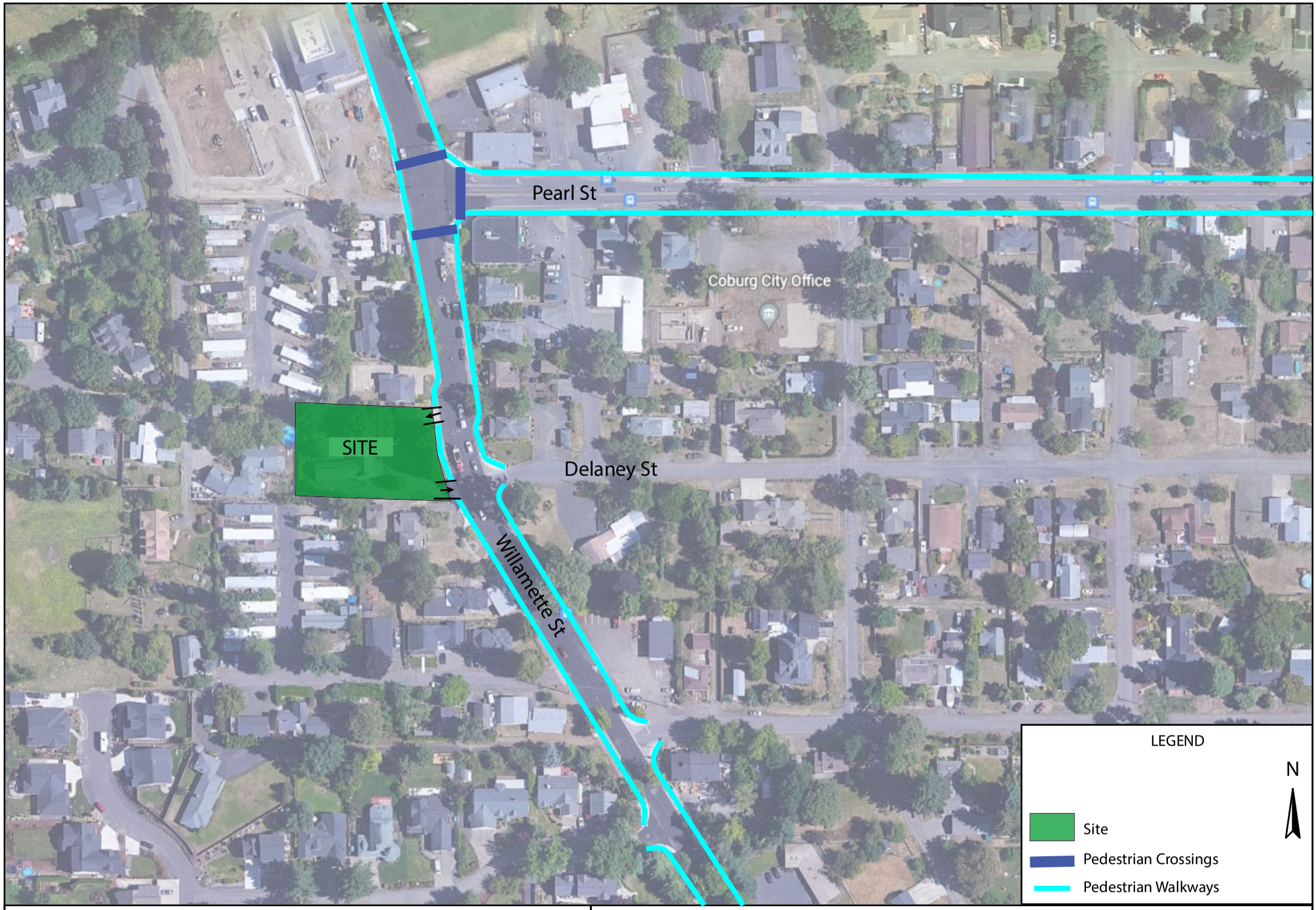

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Figure 4: Pedestrian Crossings and Walkways

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3.0 DEVELOPMENT TRIP GENERATION AND DISTRIBUTION

3.1 DEVELOPMENT TRIP GENERATION

The PM peak hour trips generated by the site are estimated using the ITE Trip Generation Manual 11th Edition. The land uses that most closely match the proposed use are:

- **932- High Turnover Sit-Down Restaurant:** This land use most closely matches the proposed restaurant use. Trip rates are provided using both the building square footage and the number of seats as the independent variable. The proposal includes a substantial amount of outdoor seating. Therefore, the trip rate for the number of seats (indoor and outdoor) was used.

- **971- Brewery Tap Room:** The proposal includes an 853-sf ancillary building to be used as a brewery tap room. This use is described as a tasting and sales area for beer produced on-site. This land use was determined to be the most appropriate for this use on site.

Table 3 provides the trip generation estimate for the PM Peak Hour, and Table 4 for the daily trips.

TABLE 3: PEAK HOUR TRIP GENERATION

Land Use Code	Size	Rate	Trips	IN	Out
932- High Turnover Restaurant	100 seats	0.39	39	(61%) 22	(39%) 17
970- Brewery Tap Room	0.853 Ksf	9.83	8	(59%) 5	(41%) 3
		TOTAL	**47**	**27**	**20**

TABLE 4: DAILY TIP GENERATION

Land Use Code	Size	Rate	Trips
932- High Turnover Restaurant	100 seats	4.37	437
970- Brewery Tap Room	0.853 Ksf	61.69	53
		TOTAL	**490**

3.2 DEVELOPMENT TRIP DISTRIBUTION

The existing travel patterns from the traffic counts are used to estimate how the development trips will use the surrounding transportation system to access the site with modifications for reasonable origins and destinations. The trip origins/destinations are assumed at 60% to/from the City of Coburg and 40% to/from Eugene.

- 40% to/from the south on Willamette St/Coburg Rd
- 20 % to/from Pearl St
- 40% to/from the north on Willamette St

Figure 5 illustrates the development trip distribution.

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Figure 5: Development Trip Distribution

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4.0 BACKGROUND TRAFFIC VOLUMES

4.1 INTERSECTION COUNTS

Turning movement counts were collected at the intersection of Willamette Street at Pearl Street on Tuesday, April 13, 2021, and at Willamette Street at Delaney Street on Tuesday, August 17, 2021.

Covid Adjustment

Counts taken after April 2020 are potentially affected by the Covid-19 shutdowns. Therefore, counts after this time need to be monitored to determine if adjustments are needed to reflect conditions consistent with pre-COVID-19 traffic volumes. ODOT has been monitoring the traffic volume fluctuations on state highways and comparing the current volumes to pre Covid-19 volumes (2019). ODOT data illustrates that the April 13, 2021, count is approximately 3% lower than the 2019 volumes. Therefore, a 1.03 factor is applied to this intersection. The traffic volumes in August were at normal levels. Therefore, no factor was applied to the August count.

Seasonal Adjustment Factor

Traffic volumes are also adjusted to reflect peak season conditions. The City of Coburg experiences a seasonal fluctuation associated with commuter trends. This is reasonable as most residents work outside of Coburg, and there are no significant recreational destinations that influence typical travel patterns. In general, counts taken during typical business days (outside of Holidays) will reflect the commuter trend. To be conservative, the evaluation has been prepared using ODOT seasonal adjustment trend tables data for commuter trends. Using ODOT seasonal trend tables, the SAF for City intersections are:

- April= 1.04
- August= 1.01

Figure 6 illustrates the 2022 adjusted traffic volumes. The traffic volumes are included in Appendix D.

4.2 FUTURE YEAR BACKGROUND VOLUMES

The proposed site development is projected to be completed by the year 2023. Consistent with the traffic impact analysis criteria, the intersections were evaluated for the year of completion and 5-year planning horizon, year 2028. To account for naturally occurring traffic increases between the count year and the future analysis year, an annual growth rate was applied. The growth rate was estimated using the City of Coburg TAZ Map data. It was determined that an average growth rate of 2.5 % per year is anticipated for this area.

4.3 FINAL TRAFFIC VOLUMES

The existing traffic volumes were adjusted according to the methodology described above. Appendix D provides the traffic volume calculations. The development trips are added to the background traffic to volume to represent the build conditions. The traffic volumes are illustrated in the following figures:

- Figure 6- Year 2022 volumes
- Figure 7- Year 2023 volumes
- Figure 8- Year 2028 volumes

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Figure 6: Year 2021 Background Peak Hour Traffic Volumes

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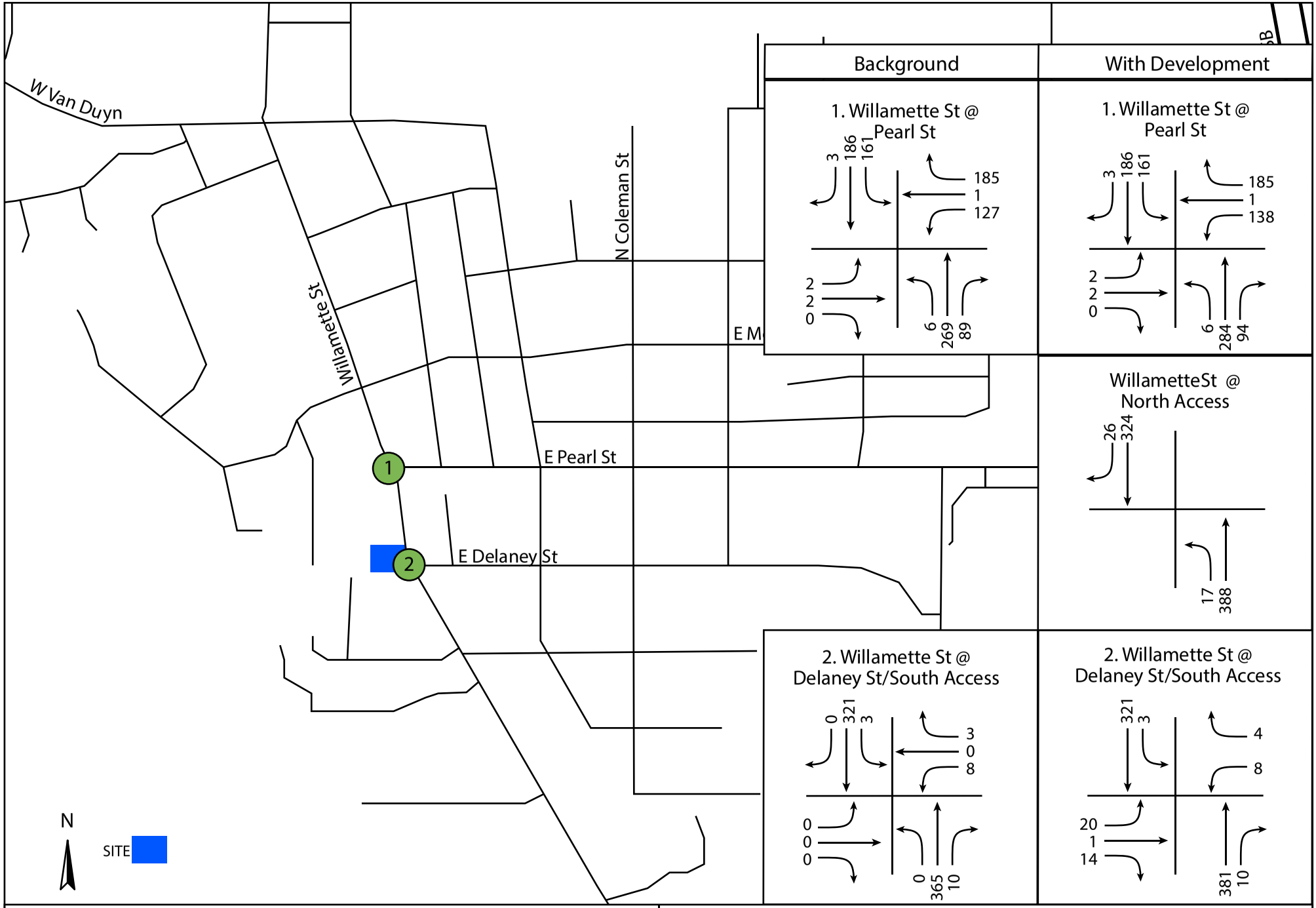

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Figure 7: Year 2022 Peak Hour Traffic Volumes

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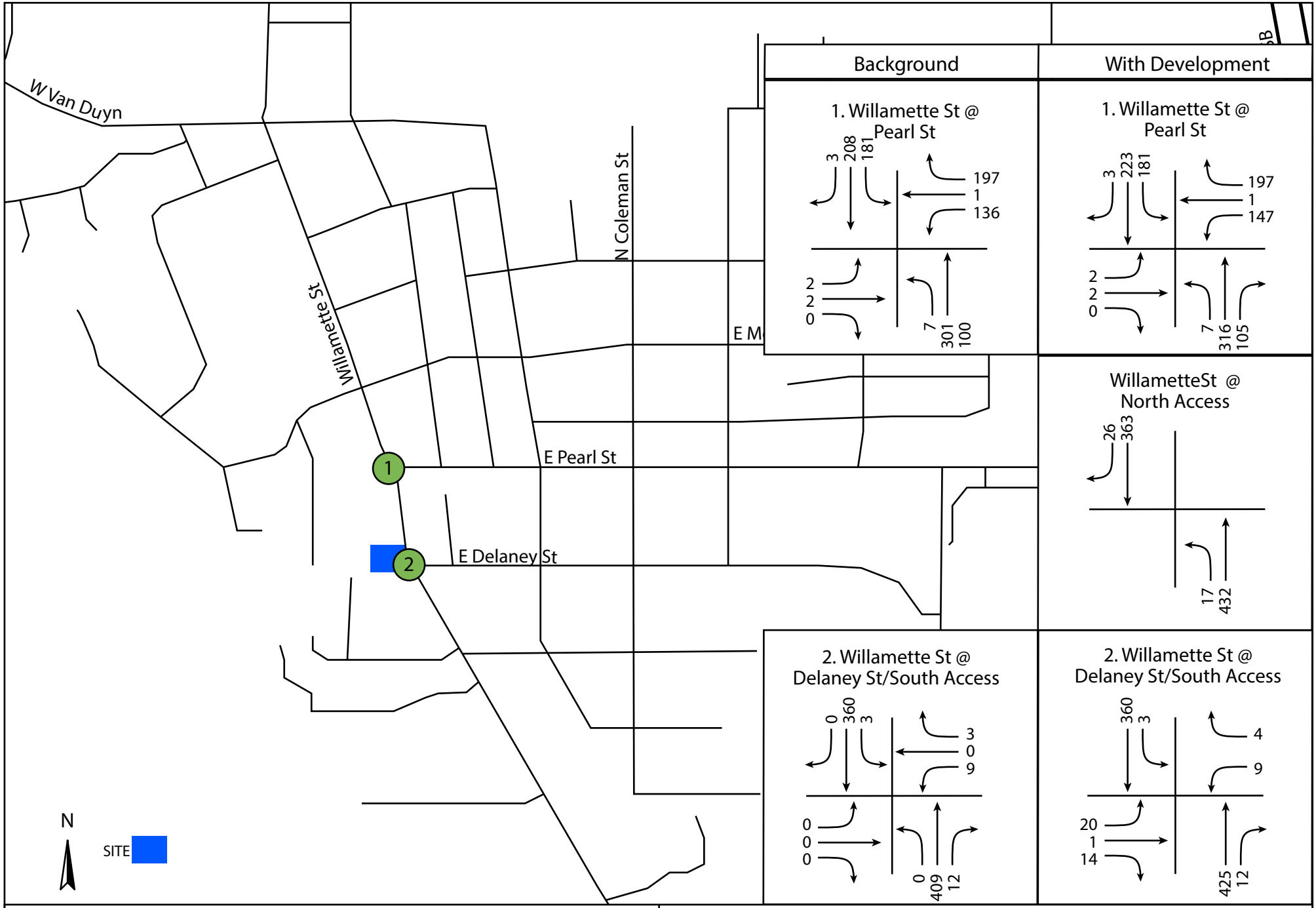

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Figure 8: Year 2027 Peak Hour Traffic Volumes

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5.0 INTERSECTION ANALYSIS

5.1 PERFORMANCE MEASURES

The measure of performance for the site access and intersections is the volume-to-capacity ratio (v/c) and Level of Service (LOS).

The volume-to-capacity ratio (v/c) describes the capability of an intersection to meet volume demand based on the maximum number of vehicles that could be served in an hour.

LOS is a measure of performance for intersections in this analysis. LOS is based on the Highway Capacity Manual (HCM). LOS is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or along a roadway segment. It was developed to quantify the quality of service of transportation facilities.

LOS is based on average delay, defined as the average total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. The average delay is measured in seconds per vehicle per hour and then translated into a grade or "level of service" for each intersection. LOS ranges from A to F, with A indicating the most desirable condition and F indicating the most unsatisfactory condition.

The LOS criteria, as defined by the Highway Capacity Manual for signalized intersections, are provided in Table 5.

TABLE 5: HCM LEVEL OF SERVICE FOR INTERSECTIONS

	Stopped Delay Per Vehicle (Seconds per Vehicle)	
	Unsignalized Intersections	**Signalized Intersections**
A	≤ 10.0	≤ 10
B	> 10.0 and ≤ 15.0	> 10 and ≤ 20
C	> 15.0 and ≤ 25.0	> 20 and ≤ 35
D	> 25.0 and ≤ 35.0	> 35 and ≤ 55
E	> 35.0 and ≤ 50.0	> 55 and ≤ 80
F	> 50.0	> 80

The City of Coburg has a mobility standard of LOS D for intersections within their jurisdiction.

Lane County uses a LOS and v/c standard. The standard for signalized intersections is LOS E and v/c 0.85. Two-way stop-controlled intersections have a standard of LOS E and v/c 0.95. Additionally, as per LC 15.696(b), approaches serving less than 20 vehicles during the peak hour do not have a LOS or v/c standard applied.

5.2 INTERSECTION ANALYSIS RESULTS

A performance analysis was conducted for the studied intersections for the years 2022, 2023, and 2028 conditions during the PM peak hour. The intersection evaluation was performed using Synchro 10 following HCM 6 critical movement methodology outlined in ODOT's analysis Procedures Manual. The results are shown in Table 6. The SYNCHRO outputs are provided in Appendix E.

TABLE 6: INTERSECTION PERFORMANCE: WEEKDAY AM AND PM PEAK HOUR

Time Period		Mobility Standard	Willamette at Delaney*	Willamette at Pearl	Willamette at Access
2022		**E, 0.95/0.85**	C, 0.04	B, 0.56	N/A
2023	**Background**	**E, 0.95/0.85**	C, 0.04	B, 0.61	N/A
	Build		C, 0.04	B, 0.62	B, 0.03
2028	**Background**	**E, 0.95/0.85**	C, 0.05	B, 0.68	N/A
	Build		C, 0.05	B, 0.69	C, 0.04

*Results reported for highest movement

As illustrated in Table 6, all of the study area intersections meet the applicable mobility standards.

5.3 QUEUE ANALYSIS

A queuing analysis was conducted for the studied intersections. The analysis was performed using SimTraffic, a microsimulation software tool that uses the HCM-defined criteria to estimate the queuing of vehicles within the study area. The average and 95th percentile queuing results are illustrated in Table 7. All results are rounded to 25 feet to represent the total number of vehicles in the queue, as one vehicle typically occupies 25 feet of space. The SimTraffic outputs are provided in Appendix F.

TABLE 7: INTERSECTION QUEUING: WEEKDAY PM PEAK HOUR

Intersection			Available Storage (Feet)	2022 Background (Feet)		2023 Background (Feet)		2023 Build (Feet)		2028 Background (Feet)		2028 Build (Feet)	
				Average	95th Percentile	Average	95th Percentile	Average	95th Percentile	Average	95th Percentile	Average	95th Percentile
Willamette @ Delaney	EB	LTR	50	25	25	25	25	25	25	25	25	25	25
	WB	LTR	100	25	25	25	25	25	25	25	25	25	25
	NB	LTR	250	25	25	0	25	25	25	0	25	25	50
	SB	LTR	300	0	0	25	25	25	25	25	25	25	25
Willamette @ Pearl	EB	LTR	50	25	25	25	25	25	25	25	25	25	25
	WB	LT	125	50	100	50	100	50	100	75	100	50	100
		R	125	50	100	50	100	50	75	50	100	50	100
	NB	LTR	300	100	200	100	200	125	200	125	225	150	150
	SB	L	125	50	100	50	100	50	100	75	100	75	125
		TR	275	50	100	50	100	50	125	50	125	75	125
Willamette St @ North Side Access	EB	LR	50	0	0	0	0	25	50	0	0	25	50
	NB	LT	100	0	0	0	0	0	25	0	0	25	50

As demonstrated in Table 7, the addition of development traffic does not substantially increase the queuing conditions at the studied intersections.

6.0 SITE ACCESS SAFETY ANALYSIS

The proposal is to maintain the existing access connections to Willamette Street. The following provides an analysis of the access connections.

6.1 TURN CONFLICTS

The north access point is offset approximately 100 feet north of Delaney St. The south access point aligns with Delaney St. Turning movements between the access connections, and Delaney St were evaluated for safety.

North Site Access

This access is proposed as full movement. The right turns into the site have no conflicts with any turns from Delaney St. Left turns into the site are offset from the left turns into Delaney St by approximately 100 feet. The left turns do not share a lane (no center left turn lane), and the queue length from each movement will not interfere with the safe turn movements. There is no turn conflict for these left turns.

South Site Access

This access will align with and serve as full movement. There are no turn conflicts between the site access and Delaney St that will cause any safety issues.

Figure 9 provides an illustration of the turn conflicts.

6.2 LEVEL OF SERVICE AND DELAY

As demonstrated in Table 6, the study area intersections meet the City LOS and v/c standards. Therefore, the delay for movements through the intersection is not substantial enough to cause significant safety concerns.

6.3 QUEUING

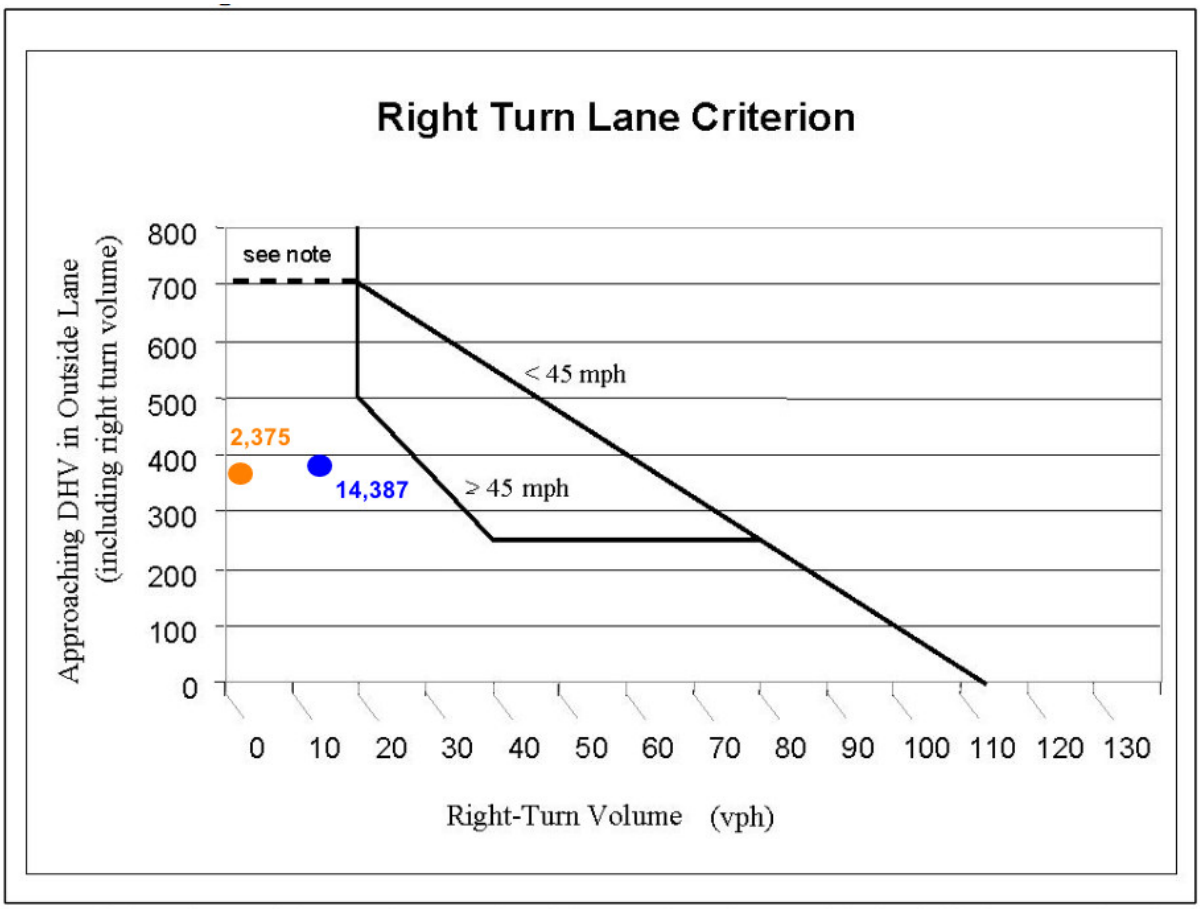
As shown in Table 7, the queuing at the site access will not cause any safety or operational concerns.

6.4 TURN LANE WARRANTS

Turn lane warrants were performed for the access connections. The turn lane evaluation follows the warrants provided in the ODOT Analysis Procedures Manual.

RIGHT TURN LANE

The Analysis Procedures Manual has three criteria for determining when a separate right-turn pocket should be installed. Criterion 1 is the comparison of right-turn traffic volumes to approaching traffic volumes. As illustrated in Figure 8, during the year 2028 PM peak hour, there are 14 right turns, 387 approaching volumes at the north access, and the speed of Willamette Street is 25 mph. There are 2 right turns and 375 approaching volumes at the south access. The illustration below shows the right turn lane criterion.



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

As shown in the illustration, a right turn lane is not warranted for the southbound right-turn movement at the site access.

The other two criteria are “crash history” and “special cases.” The site access does not fall within the criteria for either case.

Left Turn Lane

The site access connections were evaluated for the need for a left turn lane on Willamette Street at the driveways. The left turn evaluation follows the Analysis Procedures Manual (APM). As illustrated in Figure 8, during the year 2028 PM Peak Hour there are 2 left turns, and the opposing plus advancing volumes are 811 for the north access. There are 8 left turns, and the opposing advancing volumes are 812 for the south access. The speed is 25 mph. As per the APM, the left-turn warrants are not met for left-turn volumes lower than 10. Therefore, left turn pockets are not warranted for the site access.

6.5 SIGHT DISTANCE

Sight distances are classified by the stopping sight distance (SSD) for the major roadway and departure/intersection sight distance (ISD) for the site accesses. The SSD is the length of roadway needed for a vehicle traveling at the design speed to safely stop for a stationary object in the roadway. The required sight distance allows a driver to perceive and react to an object 2 feet high on the roadway visible from a driver's eye height of 3.5 feet above the ground. The (ISD) is a measure of the length of visibility of the roadway given to a stopped driver on a minor road approach. The distance provides time to perceive and react to gaps in traffic to allow a driver to safely turn into the roadway. For this calculation, it is assumed that the driver's eye is 3.5 feet above the ground and that the object to be seen is 3.5 feet above the ground of the intersecting road.

The standards for evaluating SSD and ISD follow the methodology in the AASHTO's *A Policy on Geometric Design of Highways and Streets* (2011). As per the AASHTO methodology, intersections and driveways should, at a minimum, meet the SSD requirements. However, it is desirable to achieve the ISD whenever possible.

NORTH ACCESS

Stopping Sight Distance

Stopping sight distance is based on the speed of the major roadway. Willamette Street has a posted speed of 25 mph within 500 feet of the access. As per AASHTO, the SSD is 155 feet. The available stopping sight distance exceeds this distance. See Figure 9 for an illustration of the stopping sight distance.

Intersection Sight Distance

The recommended intersection sight distance is calculated for a vehicle turning from the access onto Willamette Street for both left and right turn maneuvers. Therefore, the intersection site distance calculations are based on Case B1 of the AASHTO manual. Again, the speed used was 25 mph, resulting in an ISD of 280 feet for this approach. The available ISD exceeds this distance. See Figure 9 for an illustration of the stopping sight distance.

SOUTH ACCESS

Stopping Sight Distance

Stopping sight distance is based on the speed of the major roadway. Willamette Street has a posted speed of 25 mph. As per AASHTO, the SSD is 155 feet. The available stopping sight distance exceeds this distance. See Figure 9 for an illustration of the stopping sight distance.

Intersection Sight Distance

The recommended intersection sight distance is calculated for a vehicle turning from the access onto Willamette Street for both left and right turn maneuvers. Therefore, the intersection site distance calculations are based on Case B1 of the AASHTO manual. Again, the speed used was 25

mph, resulting in an ISD of 280 feet for this approach. The available ISD exceeds this distance. See Figure 9 for an illustration of the stopping sight distance.

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Figure 9: Turn Conflicts, Intersection and Stopping Sight Distance

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7.0 BICYCLE AND PEDESTRIAN DEMAND

As requested by Lane County, a bicycle and pedestrian crossing evaluation is performed for the intersection of Willamette Street at Delaney Street. PM peak hour traffic counts illustrated that during the 4-6 PM peak hours, there are very few bicycles and pedestrians that currently utilize this intersection. The pedestrian and bicycle volumes at his location are provided in Table 8 below.

TABLE 8: PEDESTRIAN AND BICYCLE VOLUMES

Time Period	Pedestrian Volume	Bicycle Volume
4:00-5:00 PM	0	1-SB Through
5:00-6:00 PM	1-Crossing Coburg on North leg 1-Crossing Delaney on East leg	1-NB Through

Currently, there was only 1 pedestrian crossing Coburg Road during the PM peak hour. The level of pedestrian volumes between the proposed development and the adjacent residential neighborhood is estimated using the ITE Trip Generation Handbook 3rd edition methodology for estimating person trips and trips between the restaurant and residential land uses. The estimated PM peak hour pedestrian trips are estimated at 7% or 4 total trips. The pedestrian trips are estimated on the system as follows:

- 1 to/from the north on the west side of Coburg Road
- 1 to/from the south on the west side of Coburg Road
- 2 to/from the east crossing Willamette St at Delaney Street

The total number of pedestrians crossing during the PM peak hour is 3 (1 existing and 2 new). The level of trips is below the typical threshold of 20 crossings for warranting a marked crosswalk.

Recently, the ramps at the intersection have been updated to meet ADA standards. No additional pedestrian improvements are recommended.

8.0 CONCLUSION

The report provides a Traffic Impact Analysis and findings prepared for the proposed Willamette Forks restaurant located at 91032 South Willamette St in Coburg, Oregon.

FINDINGS

- The study area intersections will meet the mobility standards with the development in place.
- The addition of development trips does not increase queuing conditions and study area intersections.
- The site accesses will operate safely and efficiently for all modes of travel.

- The site will have safe and adequate access for pedestrians and bicycles to and within the site.

WILLAMETTE FORKS

APPENDIX A: SITE PLAN

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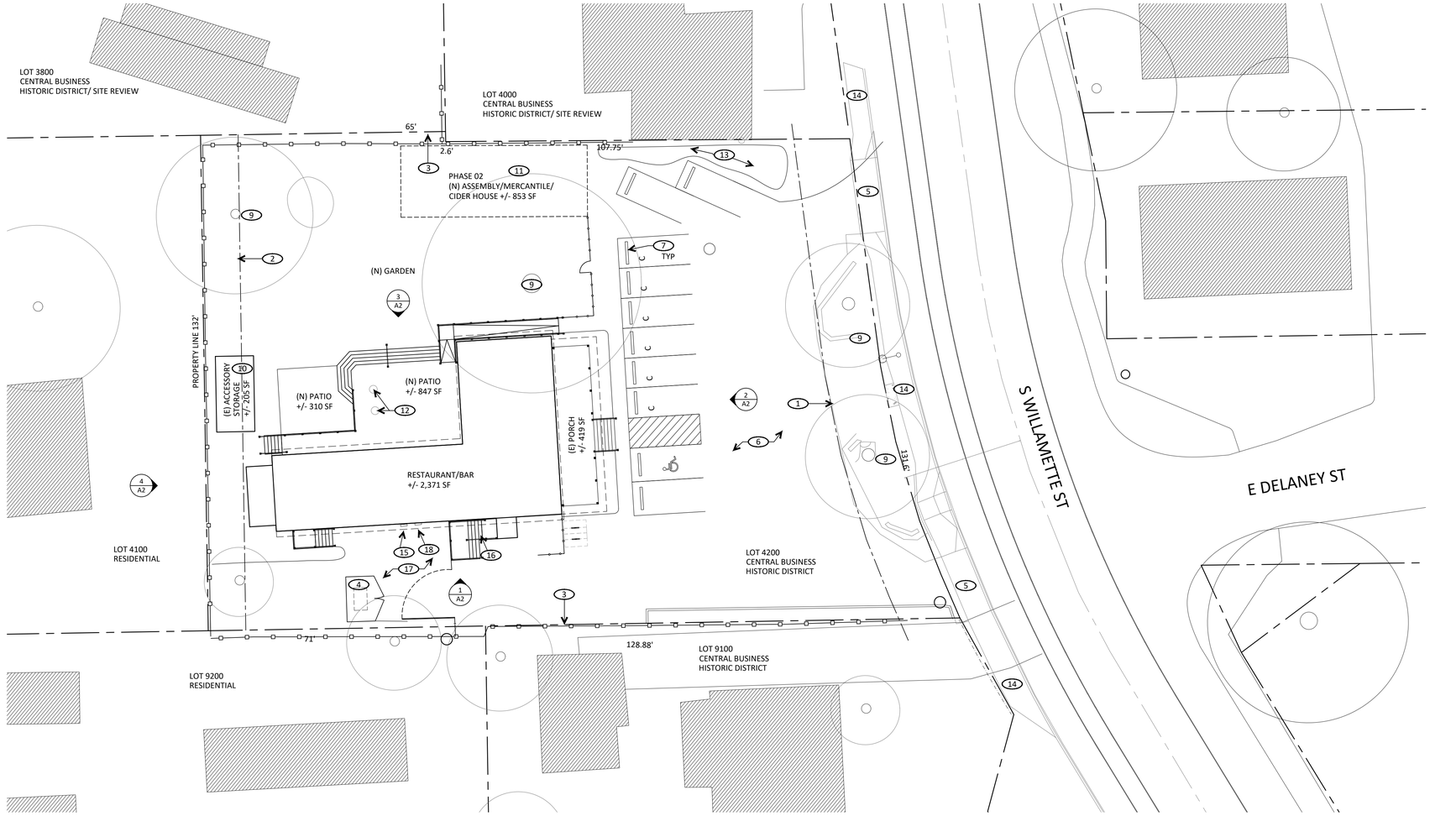


1 PROPOSED OVERALL SITE PLAN

1/16" = 1'-0"

NORTH

0 2 4 8 16 32

KEYNOTES

1. 15'-0" MAX BUILDING FACADE SETBACK
2. 10'-0" REAR YARD REQUIREMENT
3. NO SIDE YARD REQUIREMENT
4. (N) 8'-0" HIGH WD FENCE SCREEN AT (N) TRASH RECEPTACLE
5. (E) STREET ACCESS TO REMAIN
6. (N) COMPACT CRUSHED GRAVEL PARKING LOT
7. (N) PARKING BUMPER
8. FEATURES PROPOSED TO BE REMOVED OR MODIFIED
9. (E) TREE, >6 CALIPER, TO REMAIN
10. EXISTING ACCESSORY SHED
11. PROPOSED PHASE 02 ACCESSORY STRUCTURE TO INTEGRATE WITH HISTORIC CHARACTER
12. (E) SEPTIC ACCESS TO REMAIN BELOW RAISED PATIO
13. LANDSCAPE SCREENING THIS AREA
14. (E) PUBLIC SIDEWALK TO REMAIN
15. (E) ELECTRICAL METER TO REMAIN
16. (E) HVAC @ CONC PAD TO REMAIN
17. (N) COMPACT CRUSHED GRAVEL DELIVERY ACCESS AND SERVICE DRIVE
18. (E) GAS METER TO REMAIN

GMA ARCHITECTS
860 West Park Street / Ste 300
Eugene / Oregon / 97401
p 541.344.9157
gma-arch.com

REVISIONS

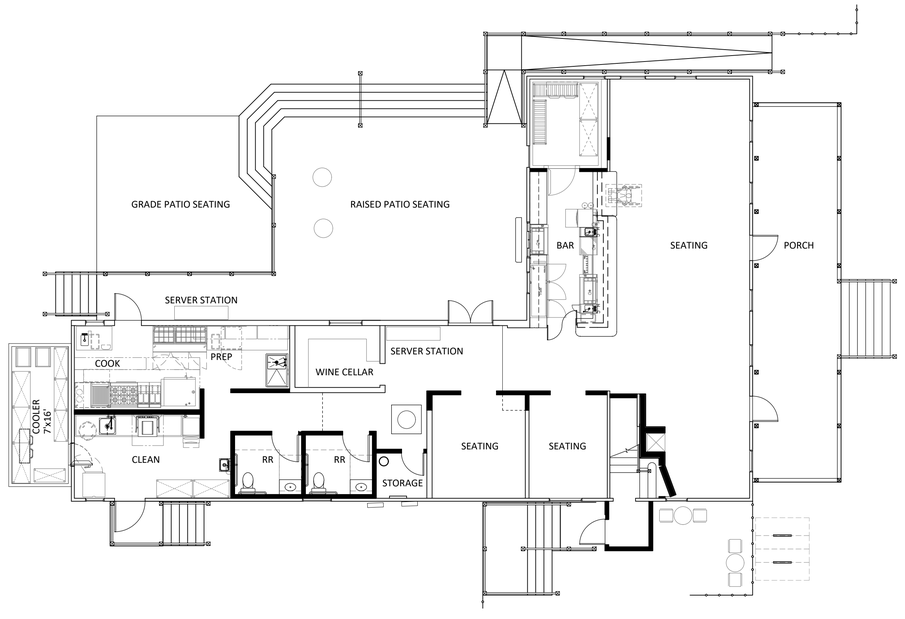
WILLAMETTE FORKS

91032 S WILLAMETTE ST, COBURG
SITE DESIGN REVIEW

JOB NO: 20243
ISSUE DATE: AUG 2020

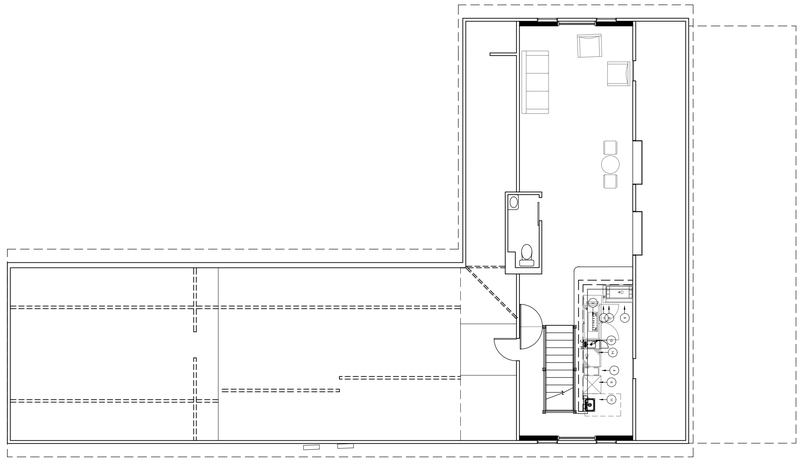
PROPOSED SITE PLAN

A1.1



1 PHASE ONE PLAN - GROUND FLOOR
1/8" = 1'-0"

NORTH



2 PHASE ONE PLAN - SECOND FLOOR
1/8" = 1'-0"

NORTH

GMA ARCHITECTS
860 West Park Street / Ste 300
Eugene / Oregon / 97401
p 541.344.9157
gma-arch.com

REVISIONS

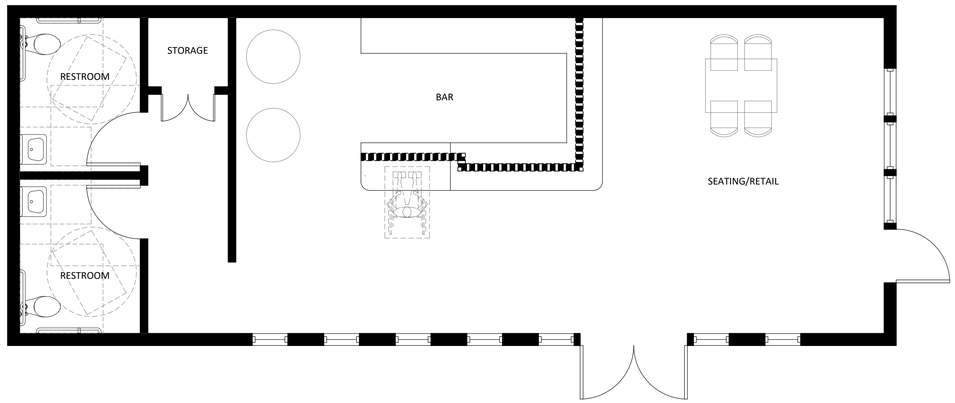
WILLAMETTE FORKS

91032 S WILLAMETTE ST, COBURG
SITE DESIGN REVIEW

JOB NO: 20243
ISSUE DATE: AUG 2021

PHASE 1 PLAN

A1.11



1 PHASE TWO - CIDERHOUSE PLAN
1/8" = 1'-0"

NORTH

GMA ARCHITECTS
860 West Park Street / Ste 300
Eugene / Oregon / 97401
p 541.344.9157
gma-arch.com

REVISIONS

WILLAMETTE FORKS

91032 S WILLAMETTE ST, COBURG
SITE DESIGN REVIEW

JOB NO: 20243
ISSUE DATE: AUG 2021

PHASE 2 PLAN

A1.12

APPENDIX B: SCOPE OF WORK

WILLAMETTE FORKS

SANDOW ENGINEERING

Lane County Public Works Department

Engineering & Construction Services Division

June 9, 2021

TO: Kelly Sandow, Sandow Engineering

FROM: Shashi Bajracharya, Lane County, Traffic Operations
Danielle Stanka, Lane County, Transportation Planning

RE: Scope for Willamette Forks Restaurant

Thank you for the email correspondence requesting a scope of work for a traffic impact analysis (TIA) for the proposed Willamette Forks Restaurant. Lane County Transportation Planning (TP) has reviewed the submitted materials and the following are comments on the proposed scope.

The subject property is identified on the tax map as 16-03-33-23-04200 that is within the city limits of the City of Coburg. The property is served by County Road S. Willamette St, which is functionally classified as an Urban Minor Arterial Road in the County's Transportation System Plan. Although the segment of the roadway is inside the city limits, access decisions on County Roads are governed by Lane Code Chapter 15.

A TIA is required based on the estimated trip generation information provided to us via the email correspondence. For the level of traffic generated, TP is recommending the applicant to provide a comprehensive traffic safety review of the proposed access points, internal circulations needs of the subject project and pedestrian and bike crossings safety at the following locations:

Traffic Analysis Requirements

Considering the subject property location, TP requires the following intersections for the study.

(a) Proposed driveways at S. Willamette St
(c) S. Willamette St/Pearl St

The study will analyze the performance of left and right turning inbound and outbound movements resulting from the proposed access points. The analysis shall analyze the adequacy of existing roadway standards relative to projected traffic on S Willamette St.

We approve the use of ITE Trip Generation Manual 10th Edition ITE 932 and ITE 970 codes for estimating peak-hour trip generation for the proposed land use. The proposed land use in downtown Coburg City is expected to attract a significant pedestrian and bike traffic volume. Please provide existing and future bike and pedestrian attractions by the facility and discuss any potential conflicts with automobile traffic.

Additional analysis requirements are given in LC 15.696 (3), (4), (5) and (6).

Access Management

Demonstrate that proposed access on S. Willamette St complies with Lane Code 15.135-139 provisions. Discuss the adequacy of site circulation for delivery vehicles and validate by modelling or other method that the proposed land use will not impact traffic operations on S Willamette St during the peak periods.

Safety Analysis

The County is interested in reviewing safety impact of the proposed access on the county road, preferably with a crash prediction analysis based on the Highway Safety Manual. Please discuss the following elements in detail.

a. Sight distance evaluation at the driveways
b. Bike traffic safety
c. Pedestrian crossing safety
d. Traffic signal timing review for the Pearl St intersection

Improvement and Dedication Recommendations

Discuss improvements required for the safe operation of the subject property and S Willamette St. Please address site circulation and parking conflicts/concerns.

kellysandow@sandowengineering.com

From: WINNER Megan <Megan.Winner@ci.coburg.or.us>
Sent: Thursday, August 12, 2021 2:00 PM
To: kellysandow@sandowengineering.com; 'Damien Gilbert'; 'HEARLEY Henry O'
Cc: HEATH Anne
Subject: Re: Willamette Forks Restaurant in Coburg Oregon

Hi Kelly,

Henry is out on military duty for a few weeks. In his email below from June 16 he states, " I'm fine with the scope as proposed and discussed".
I'm the Assistant Planner in Coburg and I do not think the City has any further requirements/requests of the TIA. Please let me know if I can be of further assistance.

Best,

Megan

From: HEARLEY Henry O <HHEARLEY@Lcog.org>
Sent: Wednesday, June 16, 2021 1:21 PM
To: Damien Gilbert <damieng@branchengineering.com>; HEATH ANNE (LCOG List) <anne.heath@ci.coburg.or.us>; HARMON Brian <brian.harmon@ci.coburg.or.us>
Cc: Dan Haga <danh@branchengineering.com>; WINNER Megan <Megan.Winner@ci.coburg.or.us>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Hi Damien,

Thanks for weighing in. I'm fine with the scope as proposed and discussed. Will you be commenting on Kelly's findings in the TIA, if necessary?

Henry

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Wednesday, August 11, 2021 11:14 AM
To: 'Damien Gilbert' <damieng@branchengineering.com>; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; BAJRACHARYA Shashi <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Cc: WINNER Megan <Megan.Winner@ci.coburg.or.us>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Thank you Damien!

Kelly

KELLY SANDOW PE

SANDOWENGINEERING
Cell: 541.513.3376
Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

From: Damien Gilbert <damieng@branchengineering.com>
Sent: Wednesday, August 11, 2021 10:48 AM
To: kellysandow@sandowengineering.com; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Cc: WINNER Megan <Megan.Winner@ci.coburg.or.us>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Kelly,

I had replied back to the city that I didn't see a need for any scope beyond what the county required. I am not sure if planning would require anything else. Henry or Megan would be your bet contacts. thanks

DAMIEN GILBERT, P.E. Principal
BRANCH ENGINEERING, INC.
541.746.0637

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Tuesday, August 10, 2021 7:58 AM
To: Damien Gilbert <damieng@branchengineering.com>; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Damien, I have not heard back on the scooping for this project, and the client is ready to proceed with the study. Can you send me a scoping letter for this project please?

Kelly

KELLY SANDOW PE
SANDOWENGINEERING
Cell: 541.513.3376
Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

From: Damien Gilbert <damieng@branchengineering.com>
Sent: Friday, June 4, 2021 10:13 AM
To: kellysandow@sandowengineering.com; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L'

<Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Thank you Kelly! I'll get back to you in a couple of days regarding what, if anything, is needed for the city's process. Have a nice weekend!

DAMIEN GILBERT, P.E. Principal
BRANCH ENGINEERING, INC.
541.746.0637

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Friday, June 04, 2021 10:10 AM
To: Damien Gilbert <damieng@branchengineering.com>; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Damien,

The architect is still refining some of the details for the building so the exact seating is not known, but they think it will be 50-100 seats for both the indoor and outdoor seating areas combined. I have attached the draft site plan.

The trip generation estimate is shown below using the sf and 100 seats. The site will have an out building for tasting room and sales of cider. The closest land-use I could find to a tasting room is 970-Winery. The trips from this lane use seem reasonable for this site.

KSF

PM	ITE	Size	Rate	trips
	932- high turn over rest	2.371	9.77	23
	970- Winery	0.892	7.31	7
			Total	30

ADT	ITE	Size	Rate	trips
	932- high turn over rest	2.371	112.18	266
	970- Winery	0.892	45.96	41
			Total	307

Seats

PM	ITE	Size	Rate	trips
	932- high turn over rest	100	0.42	42
	970- Winery	0.892	7.31	7
			Total	49

PM	ITE	Size	Rate	trips

932- high turn over rest	100	4.37	437
970- Winery	0.892	45.96	41
		Total	478

Let me know if you need anything else

Kelly

KELLY SANDOW PE
SANDOWENGINEERING
Cell: 541.513.3376
Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

From: Damien Gilbert <damieng@branchengineering.com>
Sent: Wednesday, June 2, 2021 9:10 AM
To: kellysandow@sandowengineering.com; 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Hi Kelly,

Looks like an exciting project for Coburg!

Can you provide a trip generation summary that includes the independent variable as both GKSF, and number of tables? If there are floor plans and a site plan, that would be helpful too. Coburg's triggers include PM and ADT, so if you could show both also, that would be helpful.

Thanks,

Damien

DAMIEN GILBERT, P.E. Principal
BRANCH ENGINEERING, INC.
541.746.0637

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Wednesday, June 02, 2021 8:37 AM
To: 'HEARLEY Henry O' <HHEARLEY@Lcog.org>; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>; Damien Gilbert <damieng@branchengineering.com>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Thank you I was just in the middle of sending him a similar email. But hopefully, this will suffice instead.

Thank you Damien!

-Kelly

KELLY SANDOW PE
SANDOWENGINEERING
Cell: 541.513.3376
Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

From: HEARLEY Henry O <HHEARLEY@Lcog.org>
Sent: Wednesday, June 2, 2021 8:34 AM
To: kellysandow@sandowengineering.com; 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>; Damien Gilbert <damieng@branchengineering.com>
Subject: RE: Willamette Forks Restaurant in Coburg Oregon

Thanks, Kelly.

Damien, would you also like to weigh in on the City's behalf?

Henry

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: June 2, 2021 8:31 AM
To: 'VARTANIAN Sasha L' <Sasha.VARTANIAN@co.lane.or.us>; 'BAJRACHARYA Shashi' <Shashi.BAJRACHARYA@co.lane.or.us>; 'STANKA Danielle E' <danielle.stanka@lanecountyor.gov>
Cc: HEARLEY Henry O <HHEARLEY@Lcog.org>
Subject: Willamette Forks Restaurant in Coburg Oregon

Good Morning, I have been asked to help with the traffic evaluation for the proposed Willamette Forks Restaurant in Coburg, Oregon. I was forwarded previous correspondence for this project regarding traffic (attached). I wanted to check in and make sure that we are all on the same page for what is required. If you can provide me with a "scope of work," that will be appreciated.

Project Details:
Located at 91032 S Willamette Street
2,371 sf restaurant with outdoor seating
892 sf ciderhouse/store
Acces via Willamette street

Let me know if you need additional information

Kelly

KELLY SANDOW PE
SANDOWENGINEERING
Cell: 541.513.3376
Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

APPENDIX C: CRASH DATA

WILLAMETTE FORKS

			# Crashes	ADT	MEV	Crash Rate	Critical Crash Rate	
1	Willamette @ Pearl	signal	3	10100	18.43	0.16	0.34	under
2	Willamette 2 Delaney	Stop	1	6930	12.65	0.08	0.25	under
3								

Weighted Average

Signal	3	18	0.162756002
Stop	1	12.65	0.079068572

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PEARL ST at WILLAMETTE ST, City of Coburg, Lane County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2018														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR 2018 TOTAL	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**
YEAR: 2016														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	0	1	1	0	1	0	1
REAR-END	0	0	1	1	0	0	0	0	1	1	0	1	0	0
YEAR 2016 TOTAL	**0**	**1**	**1**	**2**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**2**	**0**	**1**
FINAL TOTAL	**0**	**2**	**1**	**3**	**0**	**2**	**0**	**1**	**2**	**3**	**0**	**3**	**0**	**1**

CITY OF COBURG, LANE COUNTY

PEARL ST at WILLAMETTE ST, City of Coburg, Lane County, 01/01/2015 to 12/31/2019

1 - 3 of 3 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	M R J U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST FROM / LONG	CITY STREET / 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
03406	N	N	N		N	N	10/22/2018	16	PEARL ST	INTER	3-LEG	N	N	CLR	PED	01	NONE 0	TURN-L											02
CITY							MO	0	WILLAMETTE ST	E		TRF SIGNAL	N	DRY	PED		PRVTE	N -E									000		00
N							8A			05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	71	F	OR-Y		029	000		02
N							44 8 13.55	-123 3 58.52																	OR<25					
																		- STRGHT	01	PED	INJB	18	F		I XWLK	000	035		00
																		UN UN											
03316	N	N	N		N	N	09/06/2016	16	PEARL ST	INTER	3-LEG	N	Y	CLD	FIX OBJ	01	NONE 0	STRGHT										040,062	17
CITY							TU	0	WILLAMETTE ST	S		TRF SIGNAL	N	WET	FIX		PRVTE	E -W									000	040,062	00
N							2P			05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	32	M	OR-Y		080,081	028		17
N							44 8 13.55	-123 3 58.52																	OR<25					
04358	N	N	N				11/14/2016	16	PEARL ST	INTER	3-LEG	N	N	RAIN	S-1STOP	01	NONE 9	STRGHT											29
NONE							MO	0	WILLAMETTE ST	NW		TRF SIGNAL	N	WET	REAR		N/A	NW-SE									000		00
N							8A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							44 8 13.55	-123 3 58.52																	UNK					
																02	NONE 9	STOP											
																	N/A	NW-SE									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK				

CITY OF COBURG, LANE COUNTY

PEARL ST at WILLAMETTE ST, City of Coburg, Lane County, 01/01/2015 to 12/31/2019

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF COBURG, LANE COUNTY

WILLAMETTE ST at DELANEY ST, City of Coburg, Lane County, 01/01/2015 to 12/31/2019

1 - 1 of 1 Crash records shown.

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	CLASS / DIST / FROM / LONG	CITY STREET / 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
03118	N	N	N		N	N	09/13/2015	16	DELANEY ST	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NO RPT							SU	0	WILLAMETTE ST	SE		NONE	N	DRY	REAR		PRVTE	SE-NW									000	00
N							1P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	35	F	OR-Y		026	000	29
N							44 8 9.85	-123 3 57.68																OR<25				
																02	NONE 0	STOP										
																	PRVTE	SE-E									013	00
																	PSNGR CAR		01	DRVR	NONE	69	F	OR-Y		000	000	00
																								OR<25				

APPENDIX D: TRAFFIC VOLUMES

WILLAMETTE FORKS

SANDOW ENGINEERING

1

Intersection: 1: N Willamette St @ E Pearl St **City:** Coburg, OR

Counter: Sandow Engineering **Date:** Tuesday, April 13, 2021

Total of All Vehicles

Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
16:00	16:15	0	43	33	76	60	0	34	94	22	41	0	63	1	0	0	1	234		0	0	0	0
16:15	16:30	0	40	28	68	52	0	26	78	16	64	0	80	0	0	0	0	226		0	0	0	0
16:30	16:45	1	52	38	91	33	1	37	71	19	59	1	79	0	1	1	2	243		1	0	0	0
16:45	17:00	2	42	32	76	43	0	24	67	27	53	1	81	0	0	1	1	225	928	0	0	1	0
17:00	17:15	0	36	42	78	39	0	36	75	17	55	1	73	0	0	0	0	226	920	0	0	0	0
17:15	17:30	0	38	34	72	54	0	19	73	18	77	3	98	0	1	0	1	244	938	0	0	0	0
17:30	17:45	0	37	21	58	33	0	21	54	14	64	0	78	0	0	1	1	191	886	0	0	0	0
17:45	18:00	1	37	32	70	43	0	11	54	20	51	1	72	1	0	0	1	197	858	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Count Period Total		**4**	**325**	**260**		**357**	**1**	**208**		**153**	**464**	**7**		**2**	**2**	**3**		**1786**		**1**	**0**	**1**	**0**

PM Peak Hour Count Summary

	Southbound				Westbound				Northbound				Eastbound						Pedestrians			
	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach			SB	WB	NB	EB
Peak Volumes	**3**	**168**	**146**	**317**	**169**	**1**	**116**	**286**	**81**	**244**	**6**	**331**	**0**	**2**	**2**	**4**	**938**		**0**	**0**	**0**	**0**
PHF	0.38	0.81	0.87	0.87	0.78	0.25	0.78	0.95	0.75	0.79	0.50	0.84	0.00	0.50	0.50	0.50	0.96					
Trucks	0	3	12		8	0	2		4	9	0		0	0	0							
% Trucks	0%	2%	8%		5%	0%	2%		5%	4%	0%		0%	0%	0%							

1: N Willamette St @ E Pearl St

Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
4:00 PM			42	30			58		33			21	40				1				225	
4:15 PM			40	27			49		25			15	61								217	
4:30 PM		1	51	35			28	1	37			17	57	1				1	1		230	
4:45 PM		2	41	31			42		22			27	53	1					1		220	892
5:00 PM			35	37			38		36			16	53	1							216	883
5:15 PM			38	31			53		19			17	72	3				1			234	900
5:30 PM			37	19			33		21			14	61						1		186	856
5:45 PM		1	36	32			41		11			20	49	1			1				192	828
6:00 PM																					0	612
6:15 PM																					0	378
6:30 PM																					0	192
6:45 PM																					0	0
Total	0	4	320	242		0	342	1	204		0	147	446	7		0	2	2	3			
Peak Hour	**0**	**3**	**165**	**134**	**0**	**0**	**161**	**1**	**114**	**0**	**0**	**77**	**235**	**6**	**0**	**0**	**0**	**2**	**2**	**0**	**900**	**2675**

Trucks

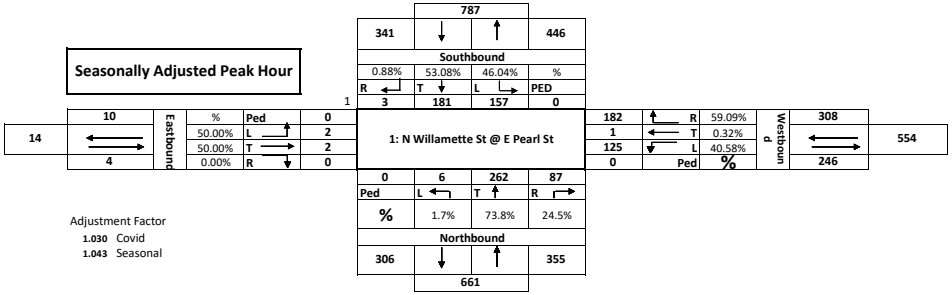
Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
4:00 PM		1	3		2		1		1	1							9	
4:15 PM		0	1		3		1		1	3							9	
4:30 PM		1	3		5		0		2	2							13	
4:45 PM		1	1		1		2		0	0							5	36
5:00 PM		1	5		1				1	2							10	37
5:15 PM		0	3		1				1	5							10	38
5:30 PM		0	2		0					3							5	30
5:45 PM		1	0		2					2							5	30
6:00 PM																	0	20
6:15 PM																	0	10
6:30 PM																	0	5
6:45 PM																	0	0
Total	0	5	18		15	0	4		6	18	0		0	0	0			
Peak Hour	**0**	**3**	**12**	**0**	**8**	**0**	**2**	**0**	**4**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**111**

Bikes

Time Period	Southbound				Westbound				Northbound				Eastbound			SB	WB	NB	EB
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM		1														1	0	0	0
4:45 PM										1						0	0	1	0
5:00 PM																0	0	0	0
5:15 PM																0	0	0	0
5:30 PM																0	0	0	0
5:45 PM																0	0	0	0
6:00 PM																0	0	0	0
6:15 PM																0	0	0	0
6:30 PM																0	0	0	0
6:45 PM																0	0	0	0
Total	0	1	0		0	0	0		0	1	0		0	0	0				
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

Pedestrians

Time Period	NE				NW				SW				SE			SB	WB	NB	EB
	Left	Right	Total		Left	Right	Total		Left	Right	Total		Left	Right	Total				
4:00 PM			0				0				0				0	0	0	0	0
4:15 PM			0				0				0				0	0	0	0	0
4:30 PM			0				0				0				0	0	0	0	0
4:45 PM			0		1	1	2		1		1				0	2	1	0	0
5:00 PM			0				0				0				0	0	0	0	0
5:15 PM		2	2			1	1				0			1	1	1	2	1	0
5:30 PM			0				0				0				0	0	0	0	0
5:45 PM			0				0				0				0	0	0	0	0
6:00 PM			0				0				0				0	0	0	0	0
6:15 PM			0				0				0				0	0	0	0	0
6:30 PM			0				0				0				0	0	0	0	0
6:45 PM			0				0				0				0	0	0	0	0
Total	0	2	2		1	2	3		1	0	1		0	1	1	3	3	1	0
Peak Hour	**0**	**2**	**2**	**0**	**1**	**2**	**3**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**3**	**3**	**1**	**0**


Seasonally Adjusted Peak Hour
787
341
446
Southbound
0.88%
53.08%
46.04%
%
R
T
L
PED
1
3
181
157
0
10
Eastbound
%
Ped
0
14
50.00%
L
2
1: N Willamette St @ E Pearl St
50.00%
T
2
4
0.00%
R
0
182
R
59.09%
1
T
0.32%
125
L
40.58%
0
Ped
%
Westboun
d
308
554
246
0
6
262
87
Ped
L
T
R
%
1.7%
73.8%
24.5%
Northbound
306
355
661
Adjustment Factor
1.030 Covid
1.043 Seasonal

Intersection: 2: N Willamette St @ E Delaney St **City:** Coburg, OR

Counter: Sandow Engineering **Date:** Friday, August 20, 2021

Total of All Vehicles

Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
16:00	16:15	0	67	0	67	1	0	1	2	1	58	0	59	0	0	0	0	128		0	0	0	0
16:15	16:30	0	72	1	73	1	0	1	2	1	78	0	79	0	0	0	0	154		0	0	0	0
16:30	16:45	0	89	0	89	0	0	1	1	1	79	0	80	0	0	0	0	170		0	0	0	0
16:45	17:00	0	78	1	79	0	0	6	6	4	99	0	103	0	0	0	0	188	640	1	0	0	0
17:00	17:15	0	73	1	74	2	0	0	2	1	90	0	91	0	0	0	0	167	679	0	0	1	0
17:15	17:30	0	70	1	71	1	0	1	2	4	85	0	89	0	0	0	0	162	687	0	0	0	0
17:30	17:45	0	52	0	52	2	0	1	3	1	84	0	85	0	0	0	0	140	657	0	0	0	0
17:45	18:00	0	58	0	58	1	0	1	2	0	75	0	75	0	0	0	0	135	604	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Count Period Total		**0**	**559**	**4**		**8**	**0**	**12**		**13**	**648**	**0**		**0**	**0**	**0**		**1244**		**1**	**0**	**1**	**0**

PM Peak Hour Count Summary

	Southbound				Westbound				Northbound				Eastbound						Pedestrians			
	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach			SB	WB	NB	EB
Peak Volumes	**0**	**310**	**3**	**313**	**3**	**0**	**8**	**11**	**10**	**353**	**0**	**363**	**0**	**0**	**0**	**0**	**687**		**0**	**0**	**0**	**0**
PHF	0.00	0.87	0.75	0.88	0.38	0.00	0.33	0.46	0.63	0.89	0.00	0.88	0.00	0.00	0.00	0.00	0.91					
Trucks	0	11	0		0	0	0		0	12	0		0	0	0							
% Trucks	0%	4%	0%		0%	0%	0%		0%	3%	0%		0%	0%	0%							

2: N Willamette St @ E Delaney St

Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
4:00 PM			64				1		1			1	57								124	
4:15 PM			68	1			1		1			1	75								147	
4:30 PM			86						1			1	76								164	
4:45 PM			72	1					6			4	94								177	612
5:00 PM			71	1			2					1	86								161	649
5:15 PM			69	1			1		1			4	84								160	662
5:30 PM			51				2		1			1	78								133	631
5:45 PM			57				1		1			0	75								134	588
6:00 PM																					0	427
6:15 PM																					0	267
6:30 PM																					0	134
6:45 PM																					0	0
Total	0	0	538	4		0	8	0	12		0	13	625	0		0	0	0	0			
Peak Hour	**0**	**0**	**298**	**3**	**0**	**0**	**3**	**0**	**8**	**0**	**0**	**10**	**340**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**662**	**1923**

Trucks

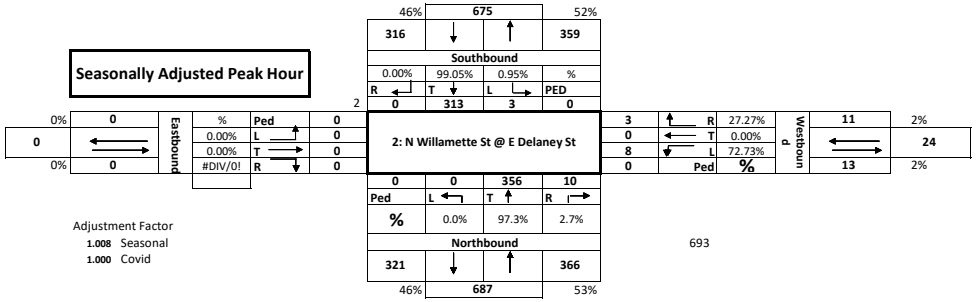
Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
4:00 PM		3								1							4	
4:15 PM		4								3							7	
4:30 PM		3								3							6	
4:45 PM		5								5							10	27
5:00 PM		2								3							5	28
5:15 PM		1								1							2	23
5:30 PM		1								6							7	24
5:45 PM		1								0							1	15
6:00 PM																	0	10
6:15 PM																	0	8
6:30 PM																	0	1
6:45 PM																	0	0
Total	0	20	0		0	0	0		0	22	0		0	0	0			
Peak Hour	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**23**	**78**

Bikes

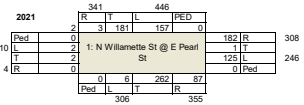
Time Period	Southbound				Westbound				Northbound				Eastbound			SB	WB	NB	EB
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM																0	0	0	0
4:45 PM		1														1	0	0	0
5:00 PM										1						0	0	1	0
5:15 PM																0	0	0	0
5:30 PM																0	0	0	0
5:45 PM																0	0	0	0
6:00 PM																0	0	0	0
6:15 PM																0	0	0	0
6:30 PM																0	0	0	0
6:45 PM																0	0	0	0
Total	0	1	0		0	0	0		0	1	0		0	0	0				
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

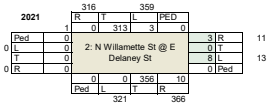
Pedestrians

Time Period	NE				NW				SW				SE			SB	WB	NB	EB
	Left	Right	Total		Left	Right	Total		Left	Right	Total		Left	Right	Total				
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM																0	0	0	0
4:45 PM																0	0	0	0
5:00 PM		1														0	1	0	0
5:15 PM																0	0	0	0
5:30 PM																0	0	0	0
5:45 PM														1		0	0	1	0
6:00 PM																0	0	0	0
6:15 PM																0	0	0	0
6:30 PM																0	0	0	0
6:45 PM																0	0	0	0
Total	0	1	0		0	0	0		0	0	0		0	1	0	0	1	1	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**


Seasonally Adjusted Peak Hour
46%
675
52%
316
359
Southbound
0.00%
99.05%
0.95%
%
R
T
L
PED
2
0
313
3
0
0%
0
Eastbound
%
Ped
0
0.00%
L
0
0
0.00%
T
0
#DIV/0!
R
0
2: N Willamette St @ E Delaney St
3
R
27.27%
0
T
0.00%
8
L
72.73%
0
Ped
%
Westbound
11
2%
0
24
0%
0
13
2%
0
0
356
10
Ped
L
T
R
%
0.0%
97.3%
2.7%
Northbound
321
366
46%
687
53%
Adjustment Factor
1.008 Seasonal
1.000 Covid
693

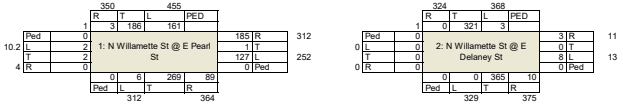
2021 PM Volumes Background





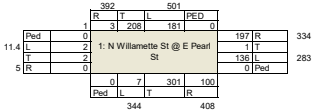
2022 PM Volumes Background

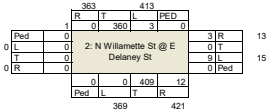
EDIT Highlighted		
Base Year	2021	
Target Year	2022	
Years of Growth	1	
Growth Rate Per Year	0.025	0.014
Growth Factor	1.03	1.014



2027 PM Volumes Background

EDIT Highlighted		
Base Year	2021	
Target Year	2027	
Years of Growth	6	
Growth Rate Per Year	0.025	0.014
Growth Factor	1.15	1.084





			2011 Estimates by Direction	2035 Estimates by Direction	Anuual Growth	Difference	Existing 2021 Volumes	1: Future Growth Method	2: Future Difference Method	3: Percent Differenc e Method	Selected Method	
Willamette @ Delaney			**Trips**	**Trips**	**%**	**Trips**	**Trips**	**Trips**	**Trips**	**%**	**Method #**	
	North	In	323	454	0.016899	131	116	145.404	197.875	0.360863	145.404	0.025707
		Out	223	415	0.035874	192	107	164.5785	227	37.92812	227	
	South	In	238	430	0.033613	192	15	22.56303	135	498.324	135	
		Out	332	463	0.016441	131	33	41.13818	114.875	179.2418	114.875	
	East	In	1	1	0	0	394	394	394	0	394	
		Out	1	1	0	0	275	275	275	0	275	
	West	In	0	0	#DIV/0!	0	270	#DIV/0!	270	#DIV/0!	#DIV/0!	
		Out	0	0	#DIV/0!	0	160	#DIV/0!	160	#DIV/0!	#DIV/0!	
N Willamette St @ E Pearl St			**Trips**	**Trips**	**%**	**Trips**	**Trips**	**Trips**	**Trips**	**%**	**Method #**	
	North	In	332	463	0.016441	131	338	421.3547	419.875	-0.35117	421.3547	
		Out	238	430	0.033613	192	289	434.7143	409	-5.91522	434.7143	
	South	In	283	393	0.016196	110	323	401.4673	391.75	-2.42045	401.4673	0.021099
		Out	411	590	0.018147	179	423	538.1414	534.875	-0.60698	538.1414	
	East	In	0	0	#DIV/0!	0	4	#DIV/0!	4	#DIV/0!	#DIV/0!	
		Out	0	0	#DIV/0!	0	10	#DIV/0!	10	#DIV/0!	#DIV/0!	0.023403
	West	In	262	354	0.014631	92	291	354.8645	348.5	-1.7935	354.8645	
		Out	229	191	-0.00691	-38	234	209.7314	210.25	0.247249	209.7314	

SEASONAL TREND TABLE (Updated: 7/20/2021)[1]																							Seasonal Trend Peak Period Factor
TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	
INTERSTATE URBANIZED	1.0672	1.0684	1.0922	1.1160	1.0605	1.0050	0.9923	0.9796	0.9781	0.9767	0.9615	0.9463	0.9517	0.9571	0.9551	0.9531	0.9674	0.9816	0.9850	0.9884	1.0045	1.0206	1.0322	1.0438	0.9463
INTERSTATE NONURBANIZED	1.2426	1.2883	1.3750	1.4616	1.2645	1.0673	1.0382	1.0092	0.9798	0.9504	0.9005	0.8506	0.8322	0.8139	0.8221	0.8302	0.8719	0.9135	0.9441	0.9747	1.0178	1.0608	1.1123	1.1638	0.8139
COMMUTER	1.0850	1.0875	1.1183	1.1492	1.0880	1.0268	1.0014	0.9759	0.9705	0.9650	0.9503	0.9355	0.9470	0.9585	0.9509	0.9433	0.9528	0.9623	0.9614	0.9604	0.9938	1.0272	1.0474	1.0676	0.9355
COASTAL DESTINATION	1.1885	1.1712	1.2001	1.2289	1.1242	1.0194	1.0316	1.0437	1.0080	0.9723	0.9347	0.8972	0.8612	0.8252	0.8205	0.8159	0.8686	0.9214	0.9689	1.0164	1.0660	1.1156	1.1580	1.2005	0.8159
COASTAL DESTINATION ROUTE	1.3445	1.3248	1.4108	1.4968	1.2858	1.0747	1.0911	1.1076	1.0274	0.9473	0.8941	0.8409	0.7820	0.7231	0.7218	0.7205	0.8016	0.8827	0.9669	1.0511	1.1133	1.1754	1.2480	1.3206	0.7205
AGRICULTURE	1.4583	1.4827	1.5763	1.6700	1.4596	1.2492	1.1487	1.0482	0.9747	0.9011	0.8579	0.8146	0.8058	0.7970	0.7922	0.7873	0.7772	0.7670	0.8288	0.8905	0.9947	1.0989	1.2462	1.3934	0.7670
RECREATIONAL SUMMER	1.5848	1.6474	1.7861	1.9247	1.6595	1.3942	1.2973	1.2004	1.0517	0.9029	0.8256	0.7484	0.7018	0.6552	0.6708	0.6864	0.7393	0.7922	0.8898	0.9874	1.1242	1.2610	1.3965	1.5320	0.6552
RECREATIONAL SUMMER WINTER	0.8736	0.8525	0.9330	1.0135	1.0146	1.0158	1.1492	1.2825	1.1763	1.0700	0.9760	0.8821	0.8005	0.7190	0.7305	0.7420	0.8897	1.0374	1.2010	1.3645	1.5212	1.6778	1.3812	1.0847	0.7190
RECREATIONAL WINTER	0.6997	0.6389	0.6561	0.6733	0.7219	0.7704	1.0580	1.3455	1.3746	1.4038	1.2832	1.1625	0.9985	0.8344	0.8600	0.8857	1.0560	1.2262	1.4100	1.5937	1.8758	2.1580	1.5328	0.9076	0.6389
SUMMER	1.2151	1.2357	1.3129	1.3901	1.2520	1.1139	1.0620	1.0100	0.9718	0.9336	0.8976	0.8615	0.8457	0.8299	0.8354	0.8410	0.8743	0.9077	0.9357	0.9638	1.0273	1.0908	1.1322	1.1737	0.8299
SUMMER < 2500	1.3035	1.3186	1.3817	1.4448	1.2869	1.1289	1.0598	0.9906	0.9480	0.9053	0.8720	0.8387	0.8237	0.8086	0.8229	0.8373	0.8616	0.8859	0.9233	0.9607	1.0428	1.1249	1.2016	1.2783	0.8086

* Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.
* Grey shading indicates months were seasonal factor is greater than or less than 30%
* February 2019 snow event causing lower seasonal factors

[1]Seasonal Trend Table: The 2020 table is based on 2019 values due to the irregularity caused by the Covid epidemic shutdown during the 2020 count year.

	Count	Peak	SAF
13-Apr	0.9759	0.9355	1.04
20-Aug	0.9433	0.9355	1.01

April	1.03
August	1.00

Table 2

Comparison of 2021 Volumes to 2020 and 2019: Average Weekday Traffic Volumes by Region: Week 18, April 26-May 2, 2021				
I-5				
	Portland	**Willamette Valley**	**South Segment**	**Corridor**
2021 Volumes Percent Difference from 2020	41%	40%	42%	41%
2021 Volumes Percent Difference from 2019	-6%	-3%	3%	-4%
I-84				
	Portland	**Outside of Portland**		**Corridor**
2021 Volumes Percent Difference from 2020	37%	39%		37%
2021 Volumes Percent Difference from 2019	-4%	7%		-2%
US-97				
	Bend	**Outside of Bend**		**Corridor**
2021 Volumes Percent Difference from 2020	23%	41%		26%
2021 Volumes Percent Difference from 2019	-8%	7%		-5%

- US-101 weekday volumes ranged from 97% - 107% above last year, while weekend volumes were 155% - 200% higher than 2020; compared to 2019, weekday volumes were 5% - 7% higher and weekend volumes were 0% - 17% higher;

There are regional patterns to note when comparing current travel relative to pre-pandemic volumes for this reporting period. For the last week of reporting data for March 29 – April 4, 2021:

- Portland Metro area state highway volumes are approaching pre-pandemic levels. Overall, volumes range between 2% - 12% below pre-pandemic levels for weekday traffic and 2% - 13% below weekend traffic;
- I-5 south of Portland Metro within the Willamette Valley has volumes essentially at 2019 levels, weekday volumes are 2% below 2019 levels and weekend volumes are 4% above 2019 levels;
- Southern Oregon along the I-5 Corridor is seeing weekday volumes 14% below 2019 levels and weekend volumes 11% below 2019 levels;
- The Oregon Coast highway and the roadways connecting the Willamette Valley to the coast currently have volumes equal to or exceeding pre-pandemic levels for both weekdays and weekends.
- Central and Eastern Oregon volumes are equal to or exceed pre-pandemic levels for both weekdays and weekends;

APPENDIX E: SYNCHRO OUTPUTS

WILLAMETTE FORKS

Pearl at Willamette

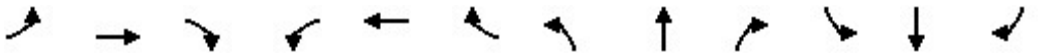
2021 Existing Conditions											B
Phase											
1	SBL	100	1641	0.061	Prot	1 prot, 2	0.286				
		61	640	0.095	Perm	1 perm, 2	0.320				
2	NBLTR	370	1646	0.225		6	0.112	0.286		Cycle Length	50
3						4	0.003			Lost Time/phase	4
4	EBLTR	4	1356	0.003		8	0.130	0.130		# phases	3
5										Total Lost Time	12
6	SBT	192	1718	0.112							
7						Critical Pairs	0.416		Critical	v/c	0.55
8	WBLT	131	1485	0.088							
	WBR	190	1460	0.130							

2022 Background											B
Phase											
1	SBL	102	1641	0.062	Prot	1 prot, 2	0.292				
		66	640	0.103	Perm	1 perm, 2	0.333				
2	NBLTR	379	1647	0.230		6	0.115	0.292		Cycle Length	51
						4	0.003			Lost Time/phase	4
4	EBLTR	4	1345	0.003		8	0.132	0.132		# phases	3
5										Total Lost Time	12
6	SBT	197	1718	0.115							
7						Critical Pairs	0.424		Critical	v/c	0.56
8	WBLT	133	1485	0.090							
	WBR	193	1460	0.132							

2022 Build											B
Phase											
1	SBL	109	1694	0.064	Prot	1 prot, 2	0.307				
		59	575	0.103	Perm	1 perm, 2	0.345				
2	NBLTR	400	1647	0.243		6	0.123	0.307		Cycle Length	54
						4	0.003			Lost Time/phase	4
4	EBLTR	4	1300	0.003		8	0.132	0.132		# phases	3
5										Total Lost Time	12
6	SBT	212	1718	0.123							
7						Critical Pairs	0.439		Critical	v/c	0.56
8	WBLT	145	1490	0.097							
	WBR	193	1460	0.132							

2027 Background											B
Phase											
1	SBL	123	1641	0.075	Prot	1 prot, 2	0.333				
		66	574	0.115	Perm	1 perm, 2	0.373				
2	NBLTR	425	1646	0.258		6	0.128	0.333		Cycle Length	55
						4	0.003			Lost Time/phase	4
4	EBLTR	4	1281	0.003		8	0.140	0.140		# phases	3
5										Total Lost Time	12
6	SBT	220	1718	0.128							
7						Critical Pairs	0.474		Critical	v/c	0.61
8	WBLT	143	1490	0.096							
	WBR	205	1460	0.140							

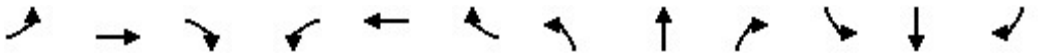
2027 Build											B
Phase											
1	SBL	125	1641	0.076	Prot	1 prot, 2	0.347				
		64	558	0.115	Perm	1 perm, 2	0.385				
2	NBLTR	445	1646	0.270		6	0.137	0.347		Cycle Length	57
						4	0.003			Lost Time/phase	4
4	EBLTR	4	1233	0.003		8	0.140	0.140		# phases	3
5										Total Lost Time	12
6	SBT	235	1719	0.137							
7						Critical Pairs	0.487		Critical	v/c	0.62
8	WBLT	154	1496	0.103							
	WBR	205	1460	0.140							



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	125	1	182	6	262	87	157	181	3
Future Volume (vph)	2	2	0	125	1	182	6	262	87	157	181	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1635	1458		1657		1630	1712	
Flt Permitted		0.90			0.73	1.00		1.00		0.39	1.00	
Satd. Flow (perm)		1544			1245	1458		1651		663	1712	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	130	1	190	6	273	91	164	189	3
RTOR Reduction (vph)	0	0	0	0	0	143	0	14	0	0	1	0
Lane Group Flow (vph)	0	4	0	0	131	47	0	356	0	164	191	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.9			11.9	11.9		18.5		29.2	29.2	
Effective Green, g (s)		12.4			12.4	12.4		19.0		29.7	29.7	
Actuated g/C Ratio		0.25			0.25	0.25		0.38		0.59	0.59	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		382			308	360		626		522	1014	
v/s Ratio Prot										c0.04	0.11	
v/s Ratio Perm		0.00			c0.11	0.03		c0.22		0.14		
v/c Ratio		0.01			0.43	0.13		0.57		0.31	0.19	
Uniform Delay, d1		14.2			15.9	14.7		12.3		5.9	4.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.9	0.2		1.2		0.3	0.1	
Delay (s)		14.2			16.8	14.8		13.5		6.2	4.8	
Level of Service		B			B	B		B		A	A	
Approach Delay (s)		14.2			15.6			13.5			5.4	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	0	125	1	182	6	262	87	157	181	3
Future Volume (veh/h)	2	2	0	125	1	182	6	262	87	157	181	3
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	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	2	2	0	130	1	190	6	273	91	164	189	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	203	0	528	3	343	95	422	139	688	950	15
Arrive On Green	0.22	0.24	0.00	0.22	0.24	0.24	0.33	0.34	0.33	0.12	0.56	0.55
Sat Flow, veh/h	491	865	0	1471	14	1460	8	1233	405	1641	1691	27
Grp Volume(v), veh/h	4	0	0	131	0	190	370	0	0	164	0	192
Grp Sat Flow(s),veh/h/ln	1356	0	0	1485	0	1460	1646	0	0	1641	0	1718
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	2.1	0.0	2.2
Cycle Q Clear(g_c), s	2.7	0.0	0.0	2.7	0.0	4.5	7.6	0.0	0.0	2.1	0.0	2.2
Prop In Lane	0.50		0.00	0.99		1.00	0.02		0.25	1.00		0.02
Lane Grp Cap(c), veh/h	439	0	0	512	0	343	635	0	0	688	0	965
V/C Ratio(X)	0.01	0.00	0.00	0.26	0.00	0.55	0.58	0.00	0.00	0.24	0.00	0.20
Avail Cap(c_a), veh/h	1107	0	0	1185	0	1036	1694	0	0	951	0	2351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	12.8	0.0	13.3	11.1	0.0	0.0	5.2	0.0	4.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	1.4	0.9	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.9	0.0	1.4	2.4	0.0	0.0	0.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	0.0	13.0	0.0	14.7	11.9	0.0	0.0	5.4	0.0	4.4
LnGrp LOS	B	A	A	B	A	B	B	A	A	A	A	A
Approach Vol, veh/h		4			321			370			356	
Approach Delay, s/veh		11.7			14.0			11.9			4.8	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.7	17.5		13.3		26.2		13.3				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	10.5	38.5		27.5		53.5		27.5				
Max Q Clear Time (g_c+I1), s	4.1	9.6		4.7		4.2		6.5				
Green Ext Time (p_c), s	0.6	3.3		0.0		1.9		2.5				

Intersection Summary												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									

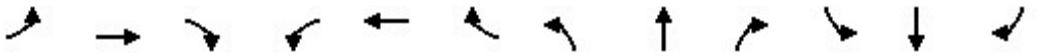
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	8	0	3	0	356	10	3	313	0
Future Vol, veh/h	0	0	0	8	0	3	0	356	10	3	313	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	3	0	391	11	3	344	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	748	752	344	747	747	397	344	0	0	402	0	0
Stage 1	350	350	-	397	397	-	-	-	-	-	-	-
Stage 2	398	402	-	350	350	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	329	339	699	329	341	652	1215	-	-	1157	-	-
Stage 1	666	633	-	629	603	-	-	-	-	-	-	-
Stage 2	628	600	-	666	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	327	338	699	328	340	652	1215	-	-	1157	-	-
Mov Cap-2 Maneuver	327	338	-	328	340	-	-	-	-	-	-	-
Stage 1	666	631	-	629	603	-	-	-	-	-	-	-
Stage 2	625	600	-	664	631	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.8	0	0.1
HCM LOS	A	B		

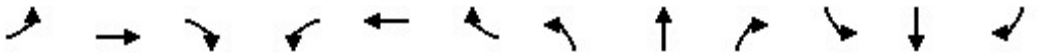
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	-	379	1157	-	-
HCM Lane V/C Ratio	-	-	-	-	0.032	0.003	-	-
HCM Control Delay (s)	0	-	-	0	14.8	8.1	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	127	1	185	6	269	89	161	186	3
Future Volume (vph)	2	2	0	127	1	185	6	269	89	161	186	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1635	1458		1658		1630	1712	
Flt Permitted		0.90			0.73	1.00		1.00		0.38	1.00	
Satd. Flow (perm)		1545			1245	1458		1652		653	1712	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	132	1	193	6	280	93	168	194	3
RTOR Reduction (vph)	0	0	0	0	0	145	0	14	0	0	1	0
Lane Group Flow (vph)	0	4	0	0	133	48	0	365	0	168	196	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		12.1			12.1	12.1		18.8		29.5	29.5	
Effective Green, g (s)		12.6			12.6	12.6		19.3		30.0	30.0	
Actuated g/C Ratio		0.25			0.25	0.25		0.38		0.59	0.59	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		384			310	363		630		516	1015	
v/s Ratio Prot										c0.04	0.11	
v/s Ratio Perm		0.00			c0.11	0.03		c0.22		0.15		
v/c Ratio		0.01			0.43	0.13		0.58		0.33	0.19	
Uniform Delay, d1		14.3			16.0	14.8		12.4		6.0	4.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.0	0.2		1.3		0.4	0.1	
Delay (s)		14.3			16.9	14.9		13.7		6.3	4.8	
Level of Service		B			B	B		B		A	A	
Approach Delay (s)		14.3			15.7			13.7			5.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	0	127	1	185	6	269	89	161	186	3
Future Volume (veh/h)	2	2	0	127	1	185	6	269	89	161	186	3
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	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	2	2	0	132	1	193	6	280	93	168	194	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	203	0	528	3	346	94	426	139	679	953	15
Arrive On Green	0.22	0.24	0.00	0.22	0.24	0.24	0.33	0.35	0.33	0.12	0.56	0.55
Sat Flow, veh/h	489	856	0	1471	14	1460	8	1235	404	1641	1692	26
Grp Volume(v), veh/h	4	0	0	133	0	193	379	0	0	168	0	197
Grp Sat Flow(s),veh/h/ln	1345	0	0	1485	0	1460	1647	0	0	1641	0	1718
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	2.2	0.0	2.3
Cycle Q Clear(g_c), s	2.7	0.0	0.0	2.7	0.0	4.7	7.9	0.0	0.0	2.2	0.0	2.3
Prop In Lane	0.50		0.00	0.99		1.00	0.02		0.25	1.00		0.02
Lane Grp Cap(c), veh/h	437	0	0	513	0	346	639	0	0	679	0	968
V/C Ratio(X)	0.01	0.00	0.00	0.26	0.00	0.56	0.59	0.00	0.00	0.25	0.00	0.20
Avail Cap(c_a), veh/h	1088	0	0	1168	0	1022	1670	0	0	937	0	2318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	12.9	0.0	13.4	11.2	0.0	0.0	5.3	0.0	4.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	1.4	0.9	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.9	0.0	1.4	2.5	0.0	0.0	0.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	13.2	0.0	14.8	12.1	0.0	0.0	5.5	0.0	4.4
LnGrp LOS	B	A	A	B	A	B	B	A	A	A	A	A
Approach Vol, veh/h		4			326			379			365	
Approach Delay, s/veh		11.8			14.2			12.1			4.9	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.7	17.8		13.5		26.5		13.5				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	10.5	38.5		27.5		53.5		27.5				
Max Q Clear Time (g_c+I1), s	4.2	9.9		4.7		4.3		6.7				
Green Ext Time (p_c), s	0.6	3.4		0.0		2.0		2.6				

Intersection Summary												
HCM 6th Ctrl Delay			10.3									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	8	0	3	0	365	10	3	321	0
Future Vol, veh/h	0	0	0	8	0	3	0	365	10	3	321	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	3	0	401	11	3	353	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	767	771	353	766	766	407	353	0	0	412	0	0
Stage 1	359	359	-	407	407	-	-	-	-	-	-	-
Stage 2	408	412	-	359	359	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	319	331	691	320	333	644	1206	-	-	1147	-	-
Stage 1	659	627	-	621	597	-	-	-	-	-	-	-
Stage 2	620	594	-	659	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	330	691	319	332	644	1206	-	-	1147	-	-
Mov Cap-2 Maneuver	317	330	-	319	332	-	-	-	-	-	-	-
Stage 1	659	625	-	621	597	-	-	-	-	-	-	-
Stage 2	617	594	-	657	625	-	-	-	-	-	-	-

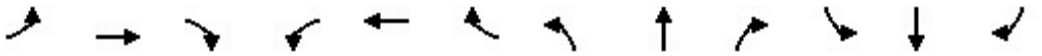
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.1	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1206	-	-	-	370	1147	-	-
HCM Lane V/C Ratio	-	-	-	-	0.033	0.003	-	-
HCM Control Delay (s)	0	-	-	0	15.1	8.1	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	138	1	185	6	284	94	161	201	3
Future Volume (vph)	2	2	0	138	1	185	6	284	94	161	201	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1635	1458		1658		1630	1712	
Flt Permitted		0.90			0.73	1.00		1.00		0.35	1.00	
Satd. Flow (perm)		1549			1245	1458		1652		601	1712	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	144	1	193	6	296	98	168	209	3
RTOR Reduction (vph)	0	0	0	0	0	145	0	13	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	145	48	0	387	0	168	212	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		13.1			13.1	13.1		19.5		32.3	32.3	
Effective Green, g (s)		13.6			13.6	13.6		20.0		32.8	32.8	
Actuated g/C Ratio		0.25			0.25	0.25		0.37		0.60	0.60	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		387			311	364		607		528	1032	
v/s Ratio Prot										c0.05	0.12	
v/s Ratio Perm		0.00			c0.12	0.03		c0.23		0.14		
v/c Ratio		0.01			0.47	0.13		0.64		0.32	0.21	
Uniform Delay, d1		15.3			17.3	15.8		14.2		6.3	4.9	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.1	0.2		2.2		0.3	0.1	
Delay (s)		15.4			18.4	16.0		16.4		6.7	5.0	
Level of Service		B			B	B		B		A	A	
Approach Delay (s)		15.4			17.0			16.4			5.7	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	0	138	1	185	6	284	94	161	201	3
Future Volume (veh/h)	2	2	0	138	1	185	6	284	94	161	201	3
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	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	2	2	0	144	1	193	6	296	98	168	209	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	199	0	530	3	351	92	432	141	659	956	14
Arrive On Green	0.23	0.24	0.00	0.23	0.24	0.24	0.34	0.35	0.34	0.12	0.56	0.55
Sat Flow, veh/h	473	826	0	1478	13	1460	7	1236	403	1641	1694	24
Grp Volume(v), veh/h	4	0	0	145	0	193	400	0	0	168	0	212
Grp Sat Flow(s),veh/h/ln	1300	0	0	1490	0	1460	1647	0	0	1641	0	1718
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	2.3	0.0	2.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	3.1	0.0	4.7	8.7	0.0	0.0	2.3	0.0	2.5
Prop In Lane	0.50		0.00	0.99		1.00	0.01		0.24	1.00		0.01
Lane Grp Cap(c), veh/h	429	0	0	515	0	351	644	0	0	659	0	970
V/C Ratio(X)	0.01	0.00	0.00	0.28	0.00	0.55	0.62	0.00	0.00	0.26	0.00	0.22
Avail Cap(c_a), veh/h	1238	0	0	1331	0	1191	1289	0	0	1025	0	2030
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	13.2	0.0	13.6	11.6	0.0	0.0	5.4	0.0	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	1.3	1.0	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.0	0.0	1.5	2.8	0.0	0.0	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	0.0	13.5	0.0	15.0	12.5	0.0	0.0	5.6	0.0	4.6
LnGrp LOS	B	A	A	B	A	B	B	A	A	A	A	A
Approach Vol, veh/h		4			338			400			380	
Approach Delay, s/veh		12.0			14.3			12.5			5.0	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.8	18.3		13.9		27.2		13.9				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	13.5	30.0		33.0		48.0		33.0				
Max Q Clear Time (g_c+I1), s	4.3	10.7		5.1		4.5		6.7				
Green Ext Time (p_c), s	0.8	3.2		0.0		2.1		2.8				

Intersection Summary												
HCM 6th Ctrl Delay			10.5									
HCM 6th LOS			B									

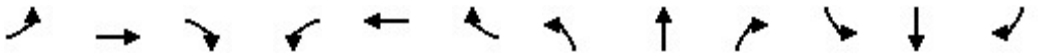
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	13	8	0	4	0	365	10	3	321	0
Future Vol, veh/h	20	1	13	8	0	4	0	365	10	3	321	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1	14	9	0	4	0	401	11	3	353	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	768	771	353	774	766	407	-	0	0	412	0	0
Stage 1	359	359	-	407	407	-	-	-	-	-	-	-
Stage 2	409	412	-	367	359	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	319	331	691	316	333	644	0	-	-	1147	-	0
Stage 1	659	627	-	621	597	-	0	-	-	-	-	0
Stage 2	619	594	-	653	627	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	316	330	691	308	332	644	-	-	-	1147	-	-
Mov Cap-2 Maneuver	316	330	-	308	332	-	-	-	-	-	-	-
Stage 1	659	625	-	621	597	-	-	-	-	-	-	-
Stage 2	615	594	-	636	625	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	15	0	0.1
HCM LOS	C	C		

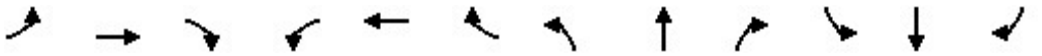
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	399	373	1147	-
HCM Lane V/C Ratio	-	-	0.094	0.035	0.003	-
HCM Control Delay (s)	-	-	15	15	8.1	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	136	1	197	7	301	100	181	208	3
Future Volume (vph)	2	2	0	136	1	197	7	301	100	181	208	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1635	1458		1658		1630	1712	
Flt Permitted		0.90			0.73	1.00		1.00		0.35	1.00	
Satd. Flow (perm)		1547			1245	1458		1651		593	1712	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	142	1	205	7	314	104	189	217	3
RTOR Reduction (vph)	0	0	0	0	0	155	0	15	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	143	50	0	410	0	189	220	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		12.8			12.8	12.8		20.5		32.9	32.9	
Effective Green, g (s)		13.3			13.3	13.3		21.0		33.4	33.4	
Actuated g/C Ratio		0.24			0.24	0.24		0.38		0.61	0.61	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		376			302	354		633		521	1045	
v/s Ratio Prot										c0.06	0.13	
v/s Ratio Perm		0.00			c0.11	0.03		c0.25		0.17		
v/c Ratio		0.01			0.47	0.14		0.65		0.36	0.21	
Uniform Delay, d1		15.7			17.7	16.2		13.8		6.3	4.8	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.2	0.2		2.3		0.4	0.1	
Delay (s)		15.7			18.9	16.4		16.1		6.8	4.9	
Level of Service		B			B	B		B		A	A	
Approach Delay (s)		15.7			17.4			16.1			5.7	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	54.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	0	136	1	197	7	301	100	181	208	3
Future Volume (veh/h)	2	2	0	136	1	197	7	301	100	181	208	3
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	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	2	2	0	142	1	205	7	314	104	189	217	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	193	0	517	3	349	87	456	149	644	979	14
Arrive On Green	0.23	0.24	0.00	0.23	0.24	0.24	0.36	0.37	0.36	0.12	0.58	0.57
Sat Flow, veh/h	473	808	0	1477	13	1460	8	1236	403	1641	1695	23
Grp Volume(v), veh/h	4	0	0	143	0	205	425	0	0	189	0	220
Grp Sat Flow(s),veh/h/ln	1281	0	0	1490	0	1460	1646	0	0	1641	0	1718
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	2.7	0.0	2.7
Cycle Q Clear(g_c), s	3.2	0.0	0.0	3.2	0.0	5.4	9.7	0.0	0.0	2.7	0.0	2.7
Prop In Lane	0.50		0.00	0.99		1.00	0.02		0.24	1.00		0.01
Lane Grp Cap(c), veh/h	415	0	0	503	0	349	673	0	0	644	0	993
V/C Ratio(X)	0.01	0.00	0.00	0.28	0.00	0.59	0.63	0.00	0.00	0.29	0.00	0.22
Avail Cap(c_a), veh/h	945	0	0	1040	0	902	1642	0	0	790	0	2163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.1	0.0	14.7	11.8	0.0	0.0	5.4	0.0	4.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	1.6	1.0	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.1	0.0	1.7	3.1	0.0	0.0	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	0.0	14.4	0.0	16.3	12.8	0.0	0.0	5.7	0.0	4.6
LnGrp LOS	B	A	A	B	A	B	B	A	A	A	A	A
Approach Vol, veh/h		4			348			425			409	
Approach Delay, s/veh		12.8			15.5			12.8			5.1	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.1	20.1		14.4		29.2		14.4				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	8.5	41.5		26.5		54.5		26.5				
Max Q Clear Time (g_c+I1), s	4.7	11.7		5.2		4.7		7.4				
Green Ext Time (p_c), s	0.5	3.9		0.0		2.3		2.7				

Intersection Summary												
HCM 6th Ctrl Delay			10.9									
HCM 6th LOS			B									

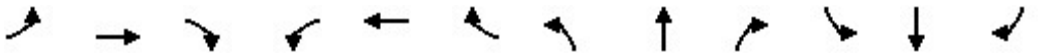
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	9	0	3	0	409	12	3	360	0
Future Vol, veh/h	0	0	0	9	0	3	0	409	12	3	360	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	0	3	0	449	13	3	396	0

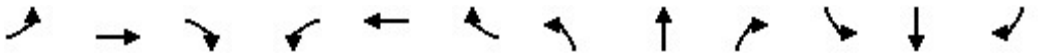
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	859	864	396	858	858	456	396	0	0	462	0	0
Stage 1	402	402	-	456	456	-	-	-	-	-	-	-
Stage 2	457	462	-	402	402	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	277	292	653	277	294	604	1163	-	-	1099	-	-
Stage 1	625	600	-	584	568	-	-	-	-	-	-	-
Stage 2	583	565	-	625	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	275	291	653	276	293	604	1163	-	-	1099	-	-
Mov Cap-2 Maneuver	275	291	-	276	293	-	-	-	-	-	-	-
Stage 1	625	598	-	584	568	-	-	-	-	-	-	-
Stage 2	580	565	-	623	598	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	16.8	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1163	-	-	-	319	1099	-	-
HCM Lane V/C Ratio	-	-	-	-	0.041	0.003	-	-
HCM Control Delay (s)	0	-	-	0	16.8	8.3	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-



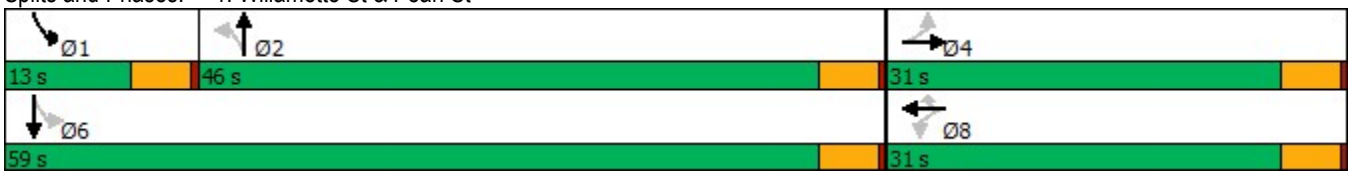
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	147	1	197	7	316	105	181	223	3
Future Volume (vph)	2	2	0	147	1	197	7	316	105	181	223	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Storage Length (ft)	0		0	140		0	0		0	100		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.967			0.998	
Flt Protected		0.976			0.953			0.999		0.950		
Satd. Flow (prot)	0	1675	0	0	1635	1458	0	1657	0	1630	1712	0
Flt Permitted		0.903			0.725			0.995		0.336		
Satd. Flow (perm)	0	1549	0	0	1244	1458	0	1651	0	576	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						205		24			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		209			1618			388			434	
Travel Time (s)		5.7			44.1			10.6			11.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	153	1	205	7	329	109	189	232	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	154	205	0	445	0	189	235	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	3	4	1	4		4	4	
Detector Template	Left			Left			Left					
Leading Detector (ft)	20	21		20	56	186	20	131		156	156	
Trailing Detector (ft)	0	5		0	5	5	0	5		5	5	
Detector 1 Position(ft)	0	5		0	5	5	0	5		5	5	
Detector 1 Size(ft)	20	6		20	6	6	20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		15			15	15		15		15	15	
Detector 2 Size(ft)		6			6	6		6		6	6	
Detector 2 Type		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Detector 3 Position(ft)					50	50		50		85	85	
Detector 3 Size(ft)					6	6		6		6	6	
Detector 3 Type					Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	

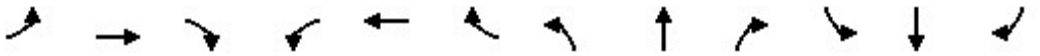


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Channel												
Detector 3 Extend (s)					0.0	0.0		0.0		0.0	0.0	
Detector 4 Position(ft)						180		125		150	150	
Detector 4 Size(ft)						6		6		6	6	
Detector 4 Type						Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 4 Channel												
Detector 4 Extend (s)						0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	13.0	13.0		5.0	13.0	
Minimum Split (s)	24.5	24.5		29.5	29.5	29.5	28.5	28.5		10.0	24.5	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	46.0	46.0		13.0	59.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%	34.4%	51.1%	51.1%		14.4%	65.6%	
Maximum Green (s)	26.5	26.5		26.5	26.5	26.5	41.5	41.5		8.5	54.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		-0.5			-0.5	-0.5		-0.5		-0.5	-0.5	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	13.0	13.0		18.0	18.0	18.0	17.0	17.0			13.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		14.1			14.1	14.1		21.8		34.7	34.7	
Actuated g/C Ratio		0.25			0.25	0.25		0.38		0.61	0.61	
v/c Ratio		0.01			0.50	0.40		0.69		0.37	0.23	
Control Delay		18.8			26.7	6.2		21.1		8.1	6.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		18.8			26.7	6.2		21.1		8.1	6.6	
LOS		B			C	A		C		A	A	
Approach Delay		18.8			15.0			21.1			7.3	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 57.3			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Willamette St & Pearl St

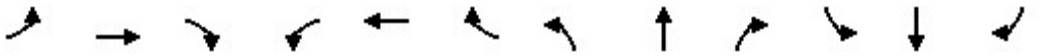




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	0	147	1	197	7	316	105	181	223	3
Future Volume (vph)	2	2	0	147	1	197	7	316	105	181	223	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1634	1458		1658		1630	1712	
Flt Permitted		0.90			0.73	1.00		1.00		0.34	1.00	
Satd. Flow (perm)		1549			1245	1458		1651		576	1712	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	153	1	205	7	329	109	189	232	3
RTOR Reduction (vph)	0	0	0	0	0	154	0	15	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	154	51	0	430	0	189	235	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		13.5			13.5	13.5		21.6		34.1	34.1	
Effective Green, g (s)		14.0			14.0	14.0		22.1		34.6	34.6	
Actuated g/C Ratio		0.25			0.25	0.25		0.39		0.61	0.61	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		383			307	360		644		510	1046	
v/s Ratio Prot										c0.06	0.14	
v/s Ratio Perm		0.00			c0.12	0.03		c0.26		0.17		
v/c Ratio		0.01			0.50	0.14		0.67		0.37	0.22	
Uniform Delay, d1		16.1			18.3	16.6		14.2		6.6	5.0	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.3	0.2		2.6		0.5	0.1	
Delay (s)		16.1			19.6	16.8		16.9		7.0	5.1	
Level of Service		B			B	B		B		A	A	
Approach Delay (s)		16.1			18.0			16.9			5.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

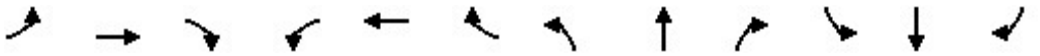
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	0	147	1	197	7	316	105	181	223	3
Future Volume (veh/h)	2	2	0	147	1	197	7	316	105	181	223	3
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	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	2	2	0	153	1	205	7	329	109	189	232	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	186	0	513	3	347	84	470	153	631	991	13
Arrive On Green	0.23	0.24	0.00	0.23	0.24	0.24	0.37	0.38	0.37	0.11	0.58	0.57
Sat Flow, veh/h	452	781	0	1484	12	1460	7	1236	403	1641	1697	22
Grp Volume(v), veh/h	4	0	0	154	0	205	445	0	0	189	0	235
Grp Sat Flow(s),veh/h/ln	1233	0	0	1496	0	1460	1646	0	0	1641	0	1719
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	2.7	0.0	3.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	3.6	0.0	5.6	10.4	0.0	0.0	2.7	0.0	3.0
Prop In Lane	0.50		0.00	0.99		1.00	0.02		0.24	1.00		0.01
Lane Grp Cap(c), veh/h	400	0	0	499	0	347	689	0	0	631	0	1004
V/C Ratio(X)	0.01	0.00	0.00	0.31	0.00	0.59	0.65	0.00	0.00	0.30	0.00	0.23
Avail Cap(c_a), veh/h	907	0	0	1013	0	877	1597	0	0	771	0	2104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	0.0	14.6	0.0	15.2	11.9	0.0	0.0	5.4	0.0	4.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	1.6	1.0	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.3	0.0	1.8	3.4	0.0	0.0	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.0	0.0	15.0	0.0	16.8	12.9	0.0	0.0	5.6	0.0	4.6
LnGrp LOS	B	A	A	B	A	B	B	A	A	A	A	A
Approach Vol, veh/h		4			359			445			424	
Approach Delay, s/veh		13.2			16.0			12.9			5.1	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.2	21.1		14.7		30.2		14.7				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	8.5	41.5		26.5		54.5		26.5				
Max Q Clear Time (g_c+I1), s	4.7	12.4		5.6		5.0		7.6				
Green Ext Time (p_c), s	0.5	4.2		0.0		2.4		2.7				

Intersection Summary			
HCM 6th Ctrl Delay		11.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	12	9	0	4	0	409	12	3	360	0
Future Volume (vph)	20	1	12	9	0	4	0	409	12	3	360	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.951			0.961			0.996				
Flt Protected		0.970			0.966							
Satd. Flow (prot)	0	1583	0	0	1593	0	0	1709	0	0	1716	0
Flt Permitted		0.970			0.966							
Satd. Flow (perm)	0	1583	0	0	1593	0	0	1709	0	0	1716	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		193			1502			918			171	
Travel Time (s)		5.3			41.0			25.0			4.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	22	1	13	10	0	4	0	449	13	3	396	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	0	0	14	0	0	462	0	0	399	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	12	9	0	4	0	409	12	3	360	0
Future Vol, veh/h	20	1	12	9	0	4	0	409	12	3	360	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1	13	10	0	4	0	449	13	3	396	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	860	864	396	865	858	456	-	0	0	462	0	0
Stage 1	402	402	-	456	456	-	-	-	-	-	-	-
Stage 2	458	462	-	409	402	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	276	292	653	274	294	604	0	-	-	1099	-	0
Stage 1	625	600	-	584	568	-	0	-	-	-	-	0
Stage 2	583	565	-	619	600	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	273	291	653	267	293	604	-	-	-	1099	-	-
Mov Cap-2 Maneuver	273	291	-	267	293	-	-	-	-	-	-	-
Stage 1	625	598	-	584	568	-	-	-	-	-	-	-
Stage 2	579	565	-	604	598	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	16.7	0	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	347	322	1099	-
HCM Lane V/C Ratio	-	-	0.105	0.044	0.003	-
HCM Control Delay (s)	-	-	16.6	16.7	8.3	0
HCM Lane LOS	-	-	C	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	17	416	363	26
Future Volume (vph)	0	0	17	416	363	26
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.991	
Flt Protected				0.998		
Satd. Flow (prot)	0	0	0	1712	1700	0
Flt Permitted				0.998		
Satd. Flow (perm)	0	0	0	1712	1700	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	379			171	388	
Travel Time (s)	10.3			4.7	10.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	50%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	0	19	457	399	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	476	428	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			

APPENDIX F: QUEUING OUTPUTS

WILLAMETTE FORKS

Intersection: 1: Willamette St & Pearl St , Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	98	74	178	98	85
Average Queue (ft)	4	58	47	111	66	46
95th Queue (ft)	18	100	83	194	108	90
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)					2	0
Queuing Penalty (veh)					3	0

Intersection: 1: Willamette St & Pearl St , Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	22	100	88	176	97	127
Average Queue (ft)	2	42	42	85	45	37
95th Queue (ft)	13	80	77	149	80	89
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)			0		0	0
Queuing Penalty (veh)			0		0	1

Intersection: 1: Willamette St & Pearl St , All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	27	103	91	189	105	127
Average Queue (ft)	3	46	43	91	50	39
95th Queue (ft)	15	87	79	163	90	90
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)			0		1	0
Queuing Penalty (veh)			0		1	1

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #1

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	16	6
Average Queue (ft)	3	1
95th Queue (ft)	13	9
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #2

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	26	11
Average Queue (ft)	6	1
95th Queue (ft)	21	10
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willamette St & Site Access/Delaney St, All Intervals

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	26	11
Average Queue (ft)	5	1
95th Queue (ft)	19	10
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 4
Network wide Queuing Penalty, Interval #2: 1
Network wide Queuing Penalty, All Intervals: 2

Intersection: 1: Willamette St & Pearl St , Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	5	121	91	209	99	103
Average Queue (ft)	1	59	53	118	59	46
95th Queue (ft)	7	110	89	208	101	111
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			1	1
Queuing Penalty (veh)		0			3	1

Intersection: 1: Willamette St & Pearl St , Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	23	106	82	190	103	116
Average Queue (ft)	2	51	43	94	48	41
95th Queue (ft)	13	96	76	170	82	92
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			0	0
Queuing Penalty (veh)		0			0	1

Intersection: 1: Willamette St & Pearl St , All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	23	123	93	223	105	133
Average Queue (ft)	2	53	45	99	50	43
95th Queue (ft)	12	100	80	181	87	97
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			1	0
Queuing Penalty (veh)		0			1	1

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #1

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	25
Average Queue (ft)	8
95th Queue (ft)	25
Link Distance (ft)	1452
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #2

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	16	22
Average Queue (ft)	5	2
95th Queue (ft)	17	16
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willamette St & Site Access/Delaney St, All Intervals

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	22
Average Queue (ft)	5	1
95th Queue (ft)	19	13
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 4
Network wide Queuing Penalty, Interval #2: 1
Network wide Queuing Penalty, All Intervals: 2

Intersection: 1: Willamette St & Pearl St , Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	9	125	101	224	98	111
Average Queue (ft)	2	63	52	138	60	48
95th Queue (ft)	11	121	101	240	101	103
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		1	0		1	1
Queuing Penalty (veh)		1	1		2	2

Intersection: 1: Willamette St & Pearl St , Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	117	77	200	112	120
Average Queue (ft)	2	52	43	99	47	43
95th Queue (ft)	11	95	75	171	87	91
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			1	1
Queuing Penalty (veh)		0			1	1

Intersection: 1: Willamette St & Pearl St , All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	140	102	241	119	132
Average Queue (ft)	2	55	45	109	50	44
95th Queue (ft)	11	102	82	193	91	94
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0	0		1	1
Queuing Penalty (veh)		0	0		1	1

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	20	30	6
Average Queue (ft)	21	6	7	1
95th Queue (ft)	45	21	28	9
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	17	64	23
Average Queue (ft)	20	5	7	1
95th Queue (ft)	47	16	36	10
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Willamette St & Site Access/Delaney St, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	20	65	23
Average Queue (ft)	20	5	7	1
95th Queue (ft)	46	17	34	10
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty, Interval #1: 5
Network wide Queuing Penalty, Interval #2: 2
Network wide Queuing Penalty, All Intervals: 3

Intersection: 1: Willamette St & Pearl St , Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	114	97	233	102	208
Average Queue (ft)	2	64	54	130	64	70
95th Queue (ft)	13	120	94	230	111	186
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			4	1
Queuing Penalty (veh)		0			9	2

Intersection: 1: Willamette St & Pearl St , Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	23	118	103	235	105	139
Average Queue (ft)	2	55	47	115	53	52
95th Queue (ft)	14	103	85	205	93	109
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0	0		1	1
Queuing Penalty (veh)		0	0		2	1

Intersection: 1: Willamette St & Pearl St , All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	27	128	111	268	112	213
Average Queue (ft)	2	57	49	118	56	56
95th Queue (ft)	14	108	88	212	98	133
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0	0		2	1
Queuing Penalty (veh)		0	0		4	1

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #1

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	21	16
Average Queue (ft)	7	3
95th Queue (ft)	23	19
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #2

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	20	17
Average Queue (ft)	5	1
95th Queue (ft)	18	11
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Willamette St & Site Access/Delaney St, All Intervals

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	27
Average Queue (ft)	6	1
95th Queue (ft)	19	13
Link Distance (ft)	1452	331
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 12
Network wide Queuing Penalty, Interval #2: 4
Network wide Queuing Penalty, All Intervals: 6

Intersection: 1: Willamette St & Pearl St , Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	113	85	221	91	105
Average Queue (ft)	3	66	46	125	59	54
95th Queue (ft)	16	116	85	226	98	102
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0			1	1
Queuing Penalty (veh)		0			2	2

Intersection: 1: Willamette St & Pearl St , Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	124	112	244	106	122
Average Queue (ft)	2	58	49	120	52	51
95th Queue (ft)	13	104	92	214	88	102
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0	0		0	1
Queuing Penalty (veh)		0	0		1	2

Intersection: 1: Willamette St & Pearl St , All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	18	137	124	258	110	133
Average Queue (ft)	2	60	49	121	54	52
95th Queue (ft)	14	107	90	217	91	102
Link Distance (ft)	164		1578	331		395
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		140			100	
Storage Blk Time (%)		0	0		0	1
Queuing Penalty (veh)		0	0		1	2

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	20	37	17
Average Queue (ft)	20	5	8	2
95th Queue (ft)	44	19	37	19
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Willamette St & Site Access/Delaney St, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	43	21	55	29
Average Queue (ft)	19	6	7	2
95th Queue (ft)	44	19	37	24
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Willamette St & Site Access/Delaney St, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	26	62	46
Average Queue (ft)	19	6	8	2
95th Queue (ft)	44	19	37	23
Link Distance (ft)	162	1452	866	331
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty, Interval #1: 4
Network wide Queuing Penalty, Interval #2: 3
Network wide Queuing Penalty, All Intervals: 3

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