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MEMORANDUM

Date: August 14, 2020 Project #: 23641.0

To: Virginia Elandt, Oregon Department of Transportation
Karl MacNair, City of Medford

From: Matt Hughart, AICP, Matt Bell, and Miranda Barrus, Kittelson & Associates, Inc.

Project: I-5 Exit 30 Interchange Area Management Plan (IAMP)

Subject: Final Tech Memo #4: Future Baseline (No-Build) Conditions

This memorandum summarizes future year 2042 no-build traffic conditions in the Interchange Management Study Area (IMSA) for the I-5 Exit 30 Interchange Area Management Plan (IAMP). Figure 1 illustrates the IMSA. This memorandum includes information on the results of the future no-build traffic operations analysis, future multimodal analysis, and future freight analysis, and summarizes information on areas of safety concern. This memorandum is supplemented by a memorandum prepared by Angelo Planning Group on future land use in the IMSA. The information in these memos serves as a basis for identifying future deficiencies and for developing transportation system alternatives for the IAMP

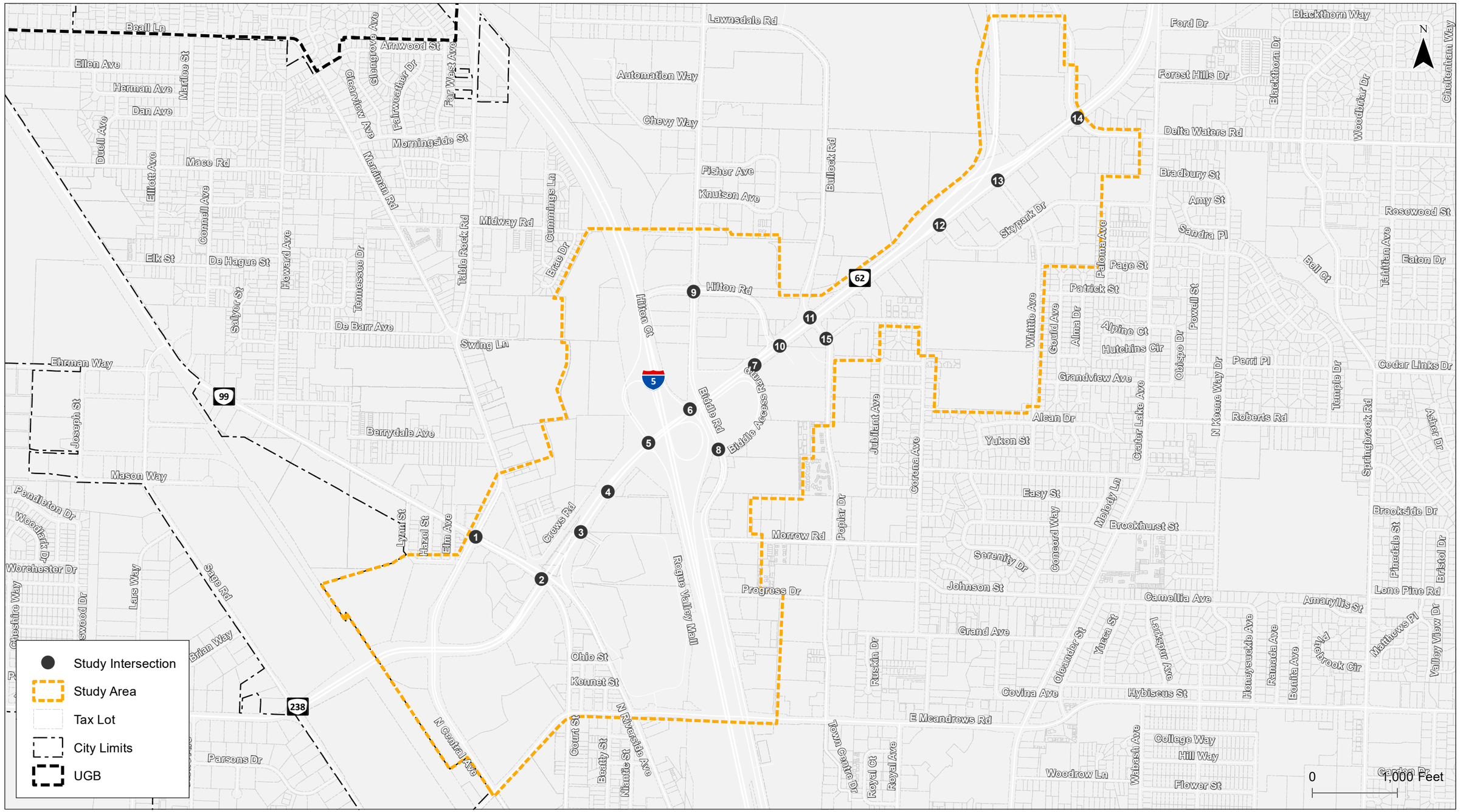
FUTURE NO-BUILD TRAFFIC OPERATIONS ANALYSIS

The future no-build traffic operations analysis identifies how the study intersections will operate under year 2042 traffic conditions during the weekday PM peak hour, assuming no improvements have been made to the transportation system in the IMSA beyond any currently planned and funded projects.

Traffic Volume Development

Forecast traffic volumes were developed for the study intersections based on existing traffic volumes and information provided in the Rogue Valley Metropolitan Planning Organization (RVMPO) travel demand model. The RVMPO travel demand model provides base year 2010 and forecast year 2042 traffic volume projections for study area roadways that reflect anticipated land use changes and planned transportation improvements in the IMSA.1 Forecast traffic volumes were developed by applying the post-processing

[1] The household and employment growth assumptions included in the RVMPO travel demand model were compared to household and employment growth estimates developed by the project team. The project team's growth estimates are based on developable and redevelopable lands within each TAZ and an assessment of potential land use. When compared to the RVMPO travel demand model, the project team's estimates were shown to exceed the assumptions included in the RVMPO model in a limited number of TAZs. Notably, the project team assumed the Rogue Valley Mall has some redevelopment potential over the planning horizon that resulted in comparatively higher employment growth. However, given the conservative nature of the regional travel demand model, there does not appear to be a need to assess the cumulative impact of the growth in the surrounded TAZs.



Study Intersections
Medford, Oregon

Figure
1

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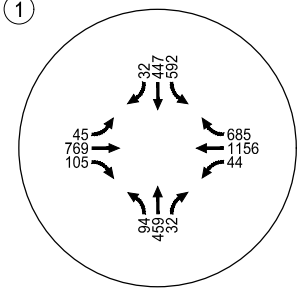
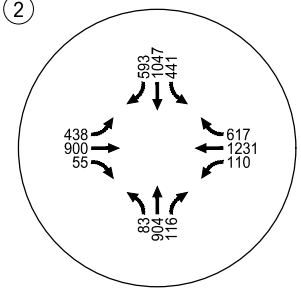
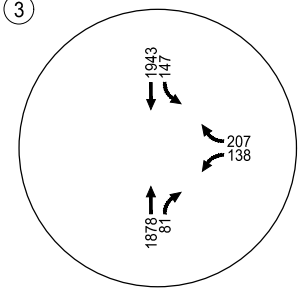
Table Rock Road/OR 99



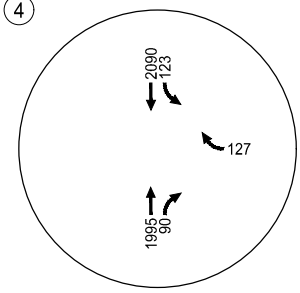
OR 238/OR 62/OR 99/Riverside/Court



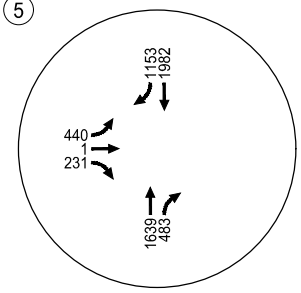
OR 62/RVM (south)



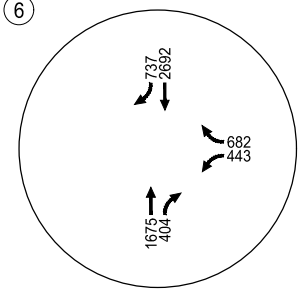
OR 62/RVM (north)



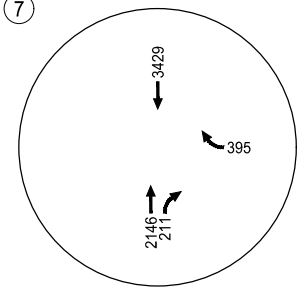
OR 62/I-5 SB Ramps



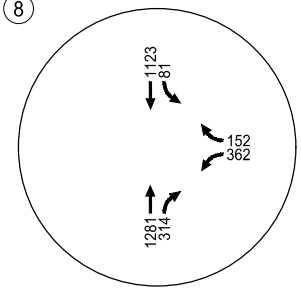
OR 62/I-5 NB Ramps



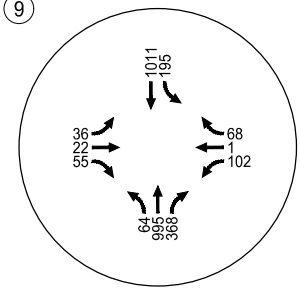
OR 62/Biddle Jughandle (north)



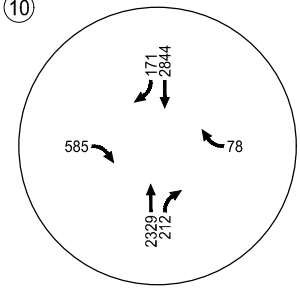
Biddle Road/OR 62 Ramp



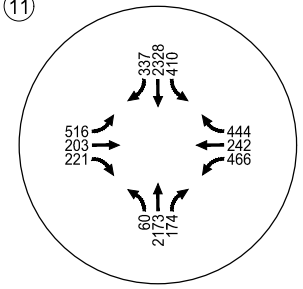
Biddle Road/Hilton Court



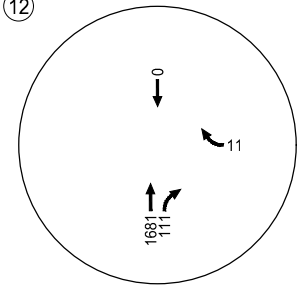
OR 62/Hilton Court/Fred Meyer



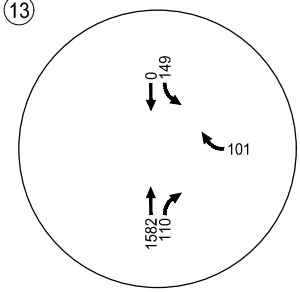
OR 62/Bullock Road/Poplar Drive



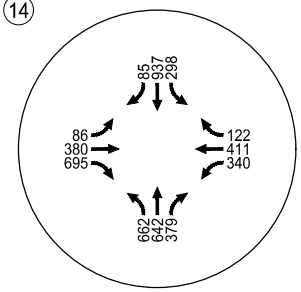
OR 62/Sky Park Drive



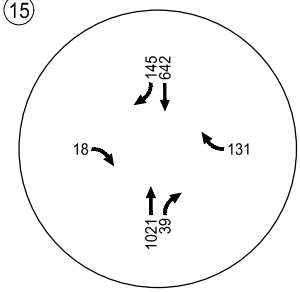
OR 62/Whittle Avenue



OR 62/Delta Waters Road



Poplar Drive/Hilton Road/Fred Meyer



Future 2042 Traffic Volumes
Weekday PM Peak Hour
Medford, Oregon

Figure
2

methodology identified in the National Cooperative Highway Research Program (NCHRP) Report 765 *Analytical Travel Forecasting Approaches for Project-Level Planning and Design*, in conjunction with engineering judgment and knowledge of the study area. The methodology combines existing traffic volumes with base and future year traffic volume projections and derives forecast traffic volumes along the study area roadways and at the study intersections. Figure 2 summarizes the year 2042 traffic volumes developed at the study intersections for the traffic operations analysis.

Intersection Operations Analysis

The intersection operations analysis was conducted using Synchro 10, which is a software tool designed to assist with operations analyses in accordance with Highway Capacity Manual (HCM) methodologies. The analysis results include level-of-service (LOS), delay (del), and volume-to-capacity (v/c) at all intersections regardless of jurisdiction. The LOS, del, and v/c are reported for the overall intersection at signalized intersections and the critical movement at unsignalized intersections – the overall intersection v/c ratios were developed in accordance with the methodologies outlined in ODOT's Analysis Procedures Manual (APM).

Table 1 summarizes the intersection operations analysis results and compares them to applicable mobility standards and targets. As shown, several study intersections are forecast to exceed their applicable mobility standards and targets. *Attachment A contains the future no-build traffic conditions HCM 6th and HCM 2000 worksheets.*

Table 1: Future Intersection Operations

Map ID	Location	Control Type	Mobility Standard/Target	CM	V/C	Del	LOS
1	OR 99 / Table Rock Road	Signal	0.95	N/A	0.87	42.1	D
2	OR 62-OR 238 / OR 99-Court Street-N Riverside Avenue	Signal	0.90	N/A	**0.99**	67.3	E
3	OR 62 / Rogue Valley Mall entrance (west)	Signal	0.90	N/A	0.83	12.0	B
4	OR 62 / Rogue Valley Mall entrance (east, at Target)	Unsignalized	0.90 N-S/0.95 E-W	SBL	**>1.0**	>80.0	F
5[1]	OR 62 / I-5 Southbound Ramp Terminal	Signal	0.85[3]	N/A	**0.89**	28.9	C
6[1]	OR 62 / I-5 Northbound Ramp Terminal	Signal	0.85[3]	N/A	**0.98**	37.2	D
7[2]	OR 62 / Biddle Road (north end of jug handle)	Unsignalized	0.85 N-S/0.95 E-W	WBR	0.48	13.1	B
8[1]	OR 62 / Biddle Road (south end of jug handle)	Signal	0.95	N/A	0.90	26.0	C
9	Biddle Road / Hilton Court	Signal	0.95	N/A	0.65	14.5	B
10[2]	OR 62 / Hilton Court-Fred Meyer Parking Lot Entrance	Unsignalized	0.85 N-S/0.9 5E-W	EBR	**>1.0**	>80.0	F
11	OR 62 / Bullock Road-Poplar Drive	Signal	0.85	N/A	**>1.0**	>80.0	F
12	OR 62 / Sky Park Drive	Unsignalized	0.85 N-S/0.95 E-W	WBL	0.04	19.5	C
13	OR 62 / Whittle Avenue	Unsignalized	0.90 N-S/0.95 E-W	SBL	0.45	23.5	C
14	OR 62 / Delta Waters Road	Signal	0.90/LOS D[4]	N/A	**>1.0**	>80.0	F
15	Poplar Drive / Hilton Road	Unsignalized	LOS D	WBL	0.34	18.5	C

[1]Lane configurations not supported by HCM 2010 or 6th Edition methodologies, therefore, HCM 2000 results are reported.
[2]The HCM 2010 and HCM 6th Edition analysis results do not reflect field observations. Therefore, the HCM 2000 analysis results are reported.
[3]This mobility target may be increased to as much as 0.90 through the IAMP adoption process.
[4]City and State mobility standards and targets are shown given the upcoming jurisdictional transfer.

The following intersections currently exceed their respective mobility standards and targets:

- OR 62-OR 238 / OR 99-Court Street-N Riverside Avenue
- OR 62 / Rogue Valley Mall entrance (east, at Target)
- OR 62 / I-5 Southbound Ramp Terminal
- OR 62 / I-5 Northbound Ramp Terminal
- OR 62 / Hilton Court-Fred Meyer Parking Lot Entrance
- OR 62 / Bullock Road-Poplar Drive
- OR 62 / Delta Waters Road

Queueing Analysis

A queuing analysis was conducted at the study intersections using SimTraffic microsimulation software within Synchro 10. Table 2 summarizes the 95th percentile queues during the weekday PM peak hour under future year 2042 traffic conditions and indicates if existing storage can accommodate future queues. The vehicle queue and storage lengths were rounded to the nearest 25-feet. The turning movement storage lengths reflect the striped storage for each turn-lane pocket at the intersections and the through movement storage lengths reflect the distance from the intersections to the nearest adjacent intersection and/or driveway. *Attachment B contains the SimTraffic reports.*

Table 2: Future Queuing Analysis

Map ID	Location	Movement[1]	Storage Length (Feet)	95th Percentile Queue (Feet)	Adequate?
1	OR 99 /Table Rock Road	NBL	340	150	Yes
		NBT	525	275	Yes
		NBTR	340	275	Yes
		SBL (x2)	500	450-525	Yes[6]
		SBTR	160	675	Yes[2]
		EBL	250	200	Yes
		EBT-TR	150	550-575	Yes[2]
		WBL	200	275	**No**
		WBT (x2)	190	675-700	**No**
		WBR	975	600	Yes
2	OR 62-OR 238 / OR 99-Court Street-N Riverside Avenue	NBL	150	400	**No**
		NBT (x2)	750	5,425-5,475	**No**
		NBR	400	700	**No**
		SBL (x2)	325	225-325	Yes
		SBT (x2)	530	450-475	Yes
		SBR	400	400	Yes
		EBL (x2)	400	350-625	**No**
		EBT-TR	810	875-900	**No**
		WBL	385	775	Yes[2]
		WBT (x3)	385	875-900	Yes[2]

Map ID	Location	Movement[1]	Storage Length (Feet)	95th Percentile Queue (Feet)	Adequate?
		WBR (x2)	680	75-725	**No**
3	OR 62 / Rogue Valley Mall entrance (west)	NBT (x3)	530	325-550	**No**
		NBR	100	200	**No**
		SBL (x2)	300	75-150	Yes
		SBT (x2)	1215	275-300	Yes
		WBL	175	150	Yes
		WBR (x2)	175	100	Yes
4	OR 62 / Rogue Valley Mall entrance (east, at Target)	NBR	125	75	Yes
		SBL	200	175	Yes
		WBR	180	275	**No[7]**
5	OR 62 / I-5 Southbound Ramp Terminal	NBT (x3)	670	250-525	Yes
		NBR	75	100	**No**
		SBT (x2)	530	175-200	Yes
		SBR	625	100	Yes
		EBL	200	325	Yes[3]
		EBTL	200	375	Yes[3]
		EBR	350	700	Yes[3]
6	OR 62 / I-5 Northbound Ramp Terminal	NBT (x3)	530	550-650	**No**
		SBT (x3)	1,100	400-450	Yes
		SBR	295	250	Yes
		WBL	675	3,975	**No**
		WBLTR	675	3,925	**No**
		WBR	675	3,900	**No**
7	OR 62 / Biddle Road (north end of jug handle)	WBR	1,125	600	Yes
8	OR 62 / Biddle Road (south end of jug handle)	NBT-TR	275	1,475-1,500	**No**
		SBL	100	175	**No**
		SBT (x2)	640	1,100	Yes[2]
		WBL	875	225	Yes
		WBLR	875	250	Yes
9	Biddle Road / Hilton Court	NBL	320	150	Yes
		NBT (x2)	425	1,150-1,225	**No**
		NBR	220	425	**No**
		SBL	175	350	Yes[5]
		SBT-TR	540	1,450	Yes[2]
		EBL	375	250	Yes
		EBTR	300	600	Yes[2]
		WBL (x2)	220	50-75	Yes
		WBTR	220	50	Yes
10	OR 62 / Hilton Court-Fred Meyer Parking Lot Entrance	NBR	90	225	**No**
		EBR	1,200	1,350	Yes[6]
		WBR	200	325	**No[7]**
11	OR 62 / Bullock Road-Poplar Drive	NBL	450	400	Yes
		NBT (x2)	360	550-575	Yes[2]
		NBTR	360	550	Yes[2]
		SBL (x2)	410	350	Yes

Map ID	Location	Movement[1]	Storage Length (Feet)	95th Percentile Queue (Feet)	Adequate?
		SBT (x3)	2200	350	Yes
		SBR	425	425	Yes
		EBL (x2)	350	450-550	**No**
		EBT	165	1,500	Yes[2]
		EBR	150	200	**No**
		WBL (x2)	250	275	Yes[6]
		WBT	930	300	Yes
		WBR	450	300	Yes
12	OR 62 / Sky Park Drive	WBR	100	50	Yes
13	OR 62 / Whittle Avenue	WBR	135	100	Yes
14	OR 62 / Delta Waters Road	NBL (x2)	500	325-350	Yes
		NBT (x2)	620	300	Yes
		NBR	500	225	Yes
		SBL	200	350	Yes[6]
		SBT-TR	1190	1,625-1,650	Yes[2]
		EBL	225	275	Yes[8]
		EBT (x2)	400	350-375	Yes
		EBR (x2)	415	400	Yes
		WBL	400	500	Yes[8]
		WBT-TR	130	525-575	Yes[2]

[1] WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right
[2]Sufficient storage is available, but queue blocks nearest driveway or minor street intersection.
[3]Additional storage is available on the southbound ramp, outside of the deceleration lane.
[5]Additional storage is available in the center two-way left-turn lane on Biddle Road.
[6]Additional storage is available in the through lane(s).
[7]Queue extends onto private property.
[8]Sufficient storage is available for this queue beyond the striped storage.

As shown in Table 2, 95th percentile queues for one or more movements at the following study intersections exceed their current striped storage in 2042:

- 1: OR 99 / Table Rock Road – the westbound left-turn queue exceeds its striped storage and the westbound through queues block the upstream signalized intersection.
- 2: OR 62-OR 238 / OR 99-Court Street-N Riverside Avenue – the northbound left-, northbound right-, eastbound left-, and westbound right-turn queues exceed their striped storage and the northbound through and eastbound through-through/right queues block the upstream signalized intersections.
- 3: OR 62 / Rogue Valley Mall entrance (west) – the northbound through queues block the upstream signalized intersection and the northbound right-turn queue exceeds its striped storage.
- 4: OR 62 / Rogue Valley Mall entrance (east, at Target) – the westbound right-turn queue exceeds its striped storage.
- 5: OR 62 / I-5 Southbound Ramp Terminal – the northbound right-turn queue exceeds its striped storage.

- 6: OR 62 / I-5 Northbound Ramp Terminal – the northbound through queues block the upstream signalized intersection and the westbound left- and right-turn and through queues block the outside (right) northbound lane of I-5.
- 8: OR 62 / Biddle Road (south end of jug handle) – the northbound through-through/right queues block the upstream signalized intersection and the southbound left-turn queue exceeds its striped storage.
- 9: Biddle Road / Hilton Court – the northbound through queues block the upstream signalized intersection and the northbound right-turn queue exceeds its striped storage.
- 10: OR 62 / Hilton Court-Fred Meyer Parking Lot Entrance – the northbound and westbound right-turn queues exceed their striped storage.
- 11: OR 62 / Bullock Road-Poplar Drive – the eastbound left and right-turn queues exceed their striped storage.

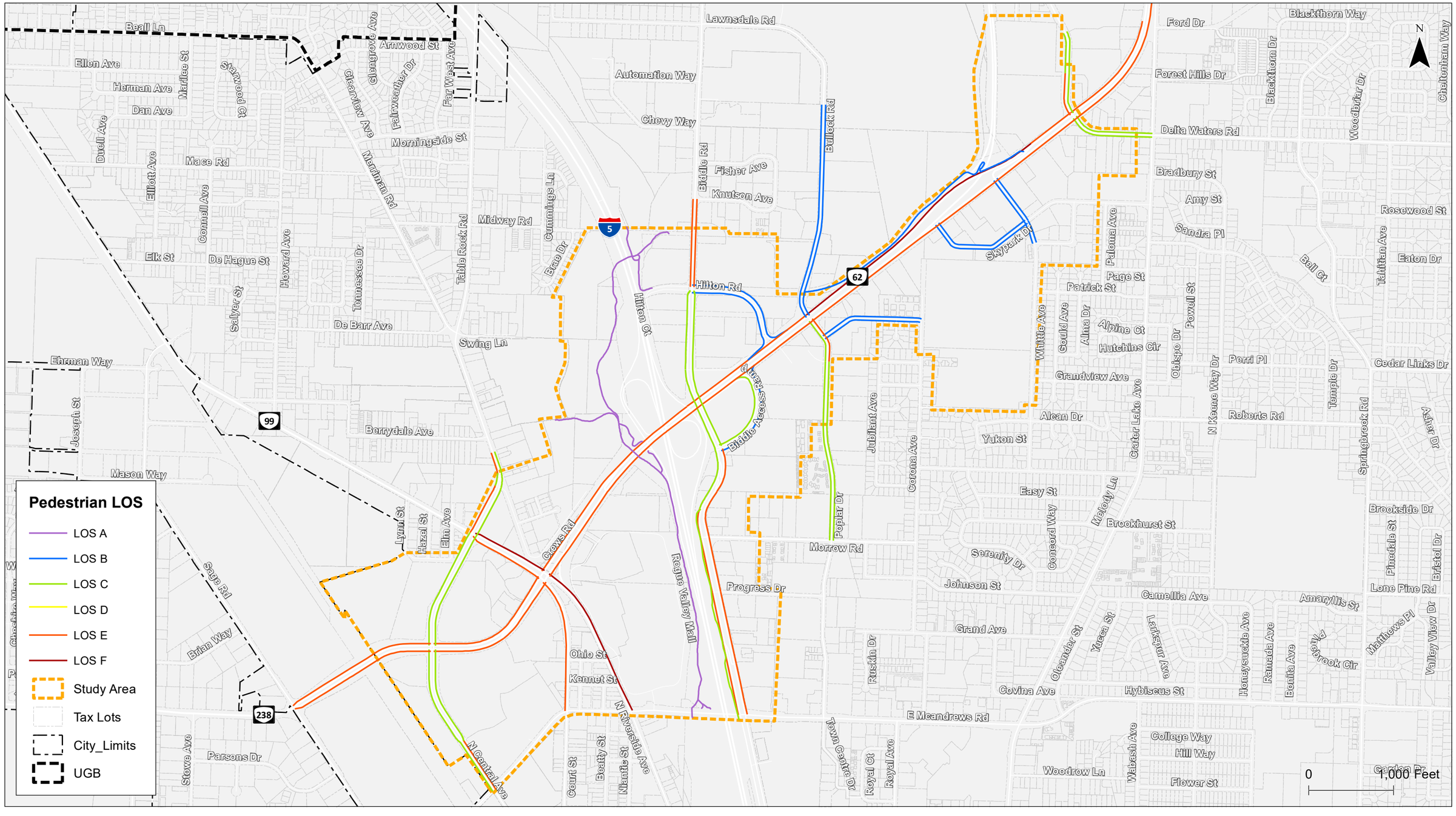
FUTURE MULTIMODAL ANALYSIS

The pedestrian, bicycle, and transit facilities and services within the IMSA were evaluated under year 2042 no-build traffic conditions in accordance with the simplified Multimodal Level-of-Service (LOS) analysis methodologies identified in Chapter 14 of the ODOT Analysis Procedures Manual (APM). Per the APM, these methodologies are intended for use when a detailed analysis is desired or when a no-build alternative is compared to one or more build alternatives. These methodologies are not meant for defining overall needs or making prioritization decisions, rather they are meant for evaluating alternatives. Multimodal LOS scores are based on user perceptions (traveler satisfaction) and are graded from best (LOS A) to worst (LOS F). A more detailed description of how the scores were developed is provided in *Tech Memo 2 Appendix C: Traffic Operations Analysis.* The results of the future multimodal analysis are summarized below.

Pedestrian Level of Service

As described in *Tech Memo 2C: Traffic Operations Analysis*, the simplified multimodal LOS analysis methodology uses four variables to estimate Pedestrian LOS. The only variable that is expected to change under year 2042 no-build conditions is directional traffic volume.

Figure 3 illustrates the future Pedestrian LOS analysis results for major roadways (collector and above) in the IMSA. As shown, most facilities are expected to continue to operate at LOS E with the exception of the segments with relatively low traffic volumes and/or travel speeds, such as Biddle Road, Bullock Road, and Poplar Drive. The segment of OR 62 from Bullock Road to the right-in/right-out commercial driveway is shown as LOS F; however, the shared-use path that runs parallel to OR 62 is LOS A. The segments that changed relative to existing conditions include Biddle Road from Morrow Road to the Jug Handle (the northbound segment changed from LOS C to LOS E) and the Jug Handle from OR 62 to Biddle Road (the southbound segment changed from LOS B to LOS C). *A tabulated summary of the Pedestrian LOS analysis results is provided in Attachment C*.



Pedestrian Level of Service (LOS)
Medford, Oregon

Figure **3**

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Coordinate System: NAD 1983 2011 StatePlane Oregon South FIPS 3602 Ft Intl

Bicycle Level of Service

As described in *Tech Memo 2C: Traffic Operations Analysis*, the simplified multimodal LOS analysis methodology uses four variables to estimate Bicycle LOS. However, none of the variables are expected to change under year 2042 no-build traffic conditions.

Figure 4 illustrates the future Bicycle LOS analysis results for major roadways (collector and above) in the IMSA. As shown, most facilities are expected to continue to operate at LOS D with the exception of the segments with relatively low traffic volumes and/or travel speeds, such as Bullock Road. The segment of OR 62 from Poplar Road to Delta Waters Road is show as LOS F, despite buffered bike lanes, due to the number of unsignalized conflicts along the roadway. *A tabulated summary of the Bicycle LOS analysis results is provided in Attachment C.*

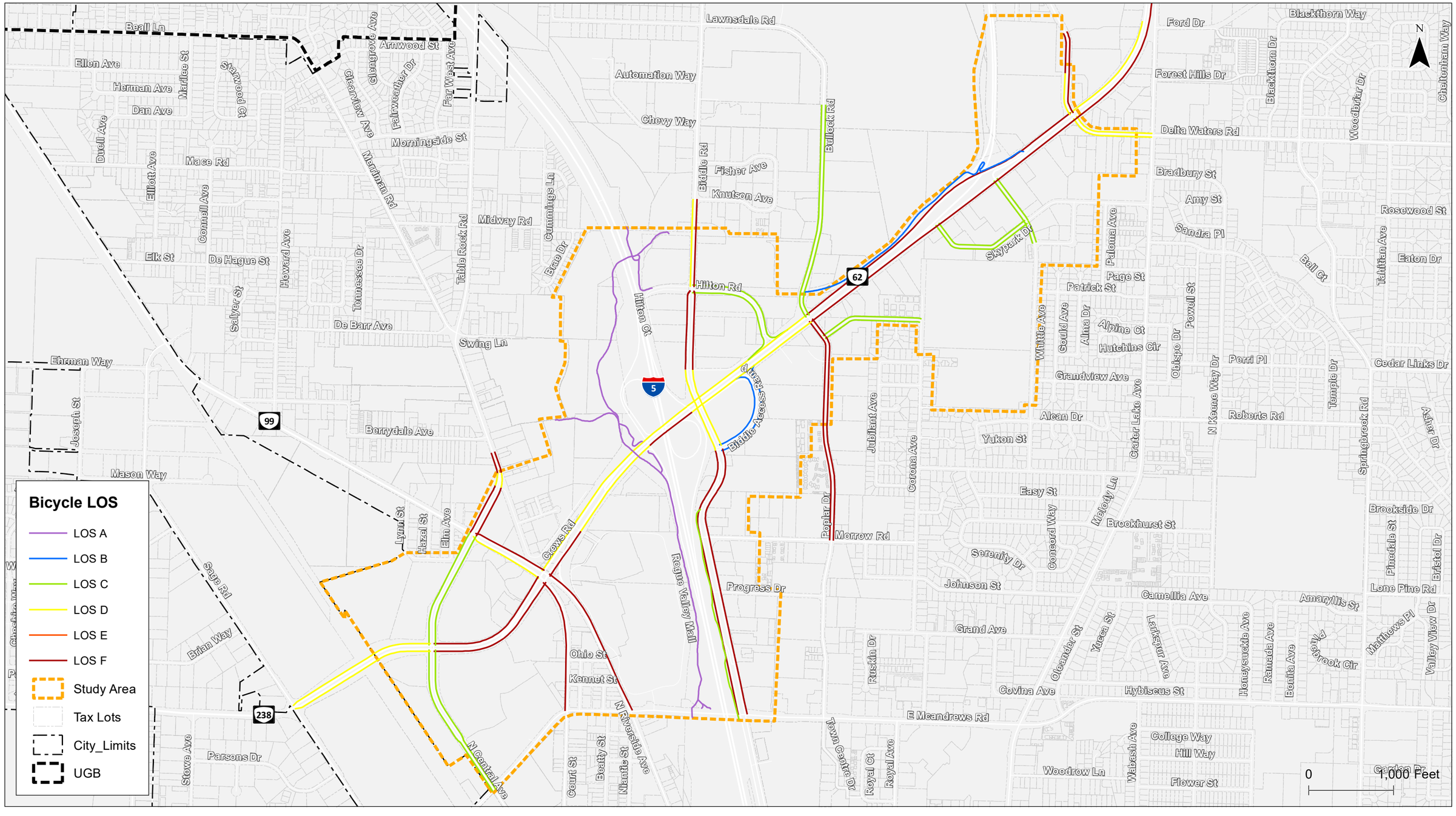
Transit Level of Service

As described in *Tech Memo 2C: Traffic Operations Analysis*, the simplified multimodal LOS analysis methodology uses four variables to estimate Transit LOS. The only variable that is expected to change under year 2042 traffic conditions is Pedestrian LOS. However, as indicated above, the changes are expected to be minimal.

Figure 5 illustrates the future Transit LOS analysis results for roadways in the IMSA with fixed-route transit service. As shown, the TLOS results continue to vary significantly between the roadways. Roadways that are served by multiple bus lines or by bus lines with shorter headways and/or travel times have better LOS. *A tabulated summary of the Transit LOS analysis results is provided in Attachment C.*

FUTURE FREIGHT ANALYSIS

The future freight analysis identifies potential issues with freight movements on designated freight routes within the IMSA, including freight route restrictions, bottlenecks, over-dimension load pinch points. As indicated in *Tech Memo 2B: Transportation Inventory*, the majority of state highways within the IMSA are designated freight routes and/or National Highway System (NHS) routes. Therefore, they have been designed to accommodate large trucks and the intersections have been designed to accommodate large truck turning movements. The Motor Carrier Transportation Division (MCTD) Freight Mobility Map also identifies the majority of state highways in the IMSA as *Orange Routes*, or generally unrestricted freight and oversize/overweight routes; OR 238 is identified as a *Magenta Route*, which is a route with some restrictions for both length and width. The inventory also indicates that there are no freight bottlenecks or over dimension load pinch points within the IMSA. Therefore, the only potential issues with future freight movements are the traffic operations and safety issues identified previously in this report.



Bicycle Level of Service (LOS)
Medford, Oregon

Figure
4

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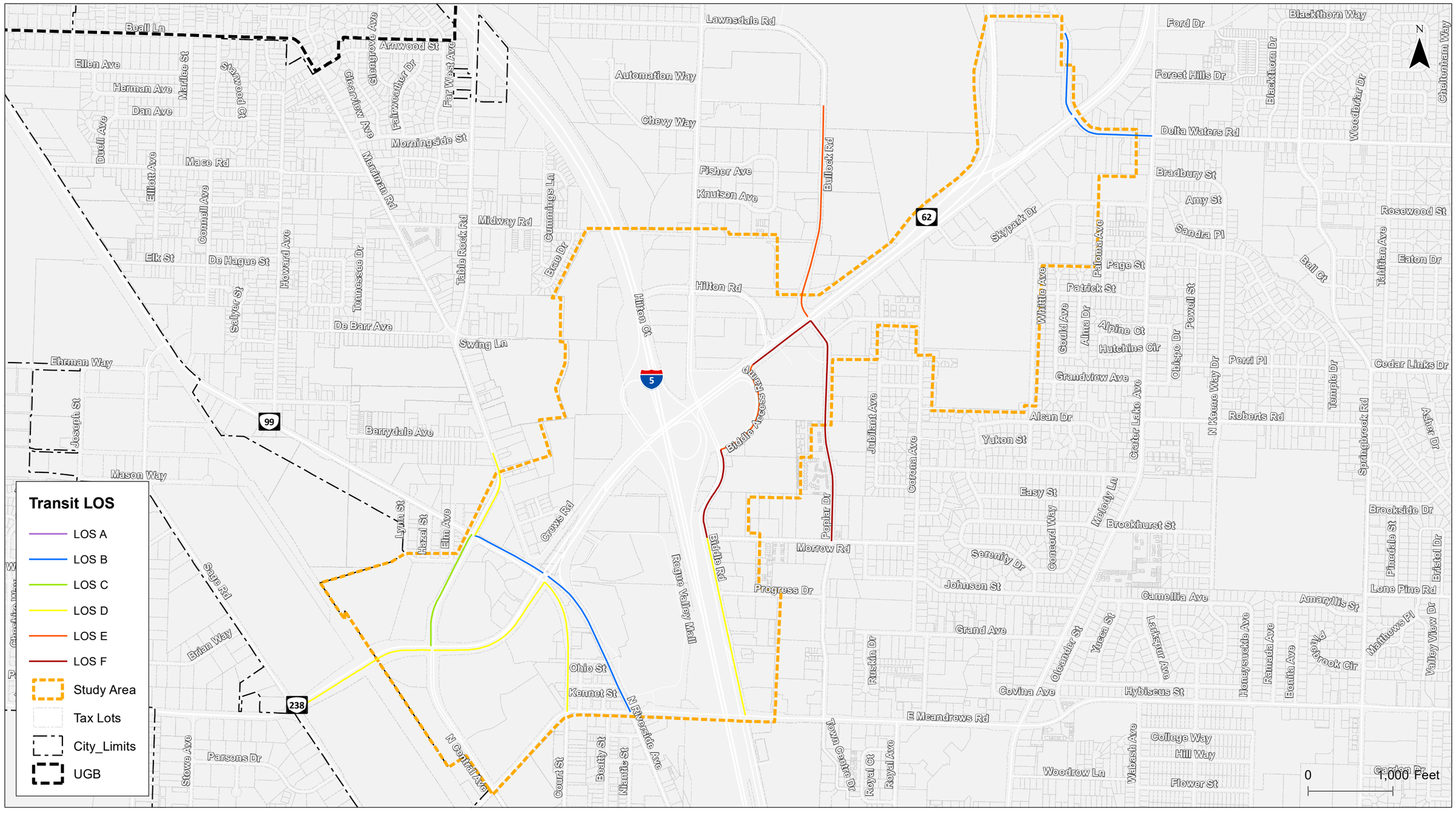
Coordinate System: NAD 1983 2011 StatePlane Oregon South FIPS 3602 Ft Intl



Transit Level of Service (LOS)
Medford, Oregon

Figure **5**

H:\23123641 - Exit 30 IAMP\gis\TM45_Transit LOS.mxd - mbell - 3:34 PM 8/13/2020

KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 2011 StatePlane Oregon South FIPS 3602 Ft Intl

AREAS OF SAFETY CONCERN

The crash analysis in *Tech Memo 2C: Traffic Operations Analysis* provides crash rates for intersections and roadway segments in the IMSA. The crash rates that exceed those of similar facilities throughout the state and within the IMSA highlight areas of potential safety concern. The following summarize the characteristics of the intersections and roadways segments with potential safety concerns.

- Intersection Crash Rate Analysis – The OR 62 / Whittle Avenue intersection was found to exceed the 90th percentile rate for similar facilities throughout Oregon based on the most recently available historical crash data. It is important to note that most of the crashes occurred prior to the OR 62 bypass opening. This infrastructure improvement may result in future changes to the crash patterns at Whittle Road and should be monitored by ODOT and the City of Medford.
- Critical Crash Rate Analysis – The OR 62/Delta Waters Road intersection was found to exceed the critical crash rate for the reference population of 4-leg, signalized intersections within the IMSA. It is important to note that, like the OR 62/Whittle Avenue intersection, most of the crashes occurred prior to the OR 62 bypass opening. This infrastructure improvement may result in future changes to the crash patterns at Delta Waters Road and should be monitored by ODOT and the City of Medford.
- Excess Proportion of Specific Crash Types Analysis – Seven intersections were identified with excess proportions of specific crash types. The intersections, crash types, and probability of future occurrences are summarized below:
    - OR 99 / Table Rock – fixed-object (99%)
    - OR 62-OR 238 / OR 99-Court St-N Riverside Av – angle (100%)/fixed-object (99%)
    - OR 62 / I-5 Northbound Ramp Terminal – turning movement (99%)
    - Biddle Road / Hilton Court – Angle (97%)
    - OR 62 / Bullock Road-Poplar Drive – backing (99%)/fixed-object (99%)
    - OR 62 / Whittle Avenue – turning movement (98%)
    - OR 62 / Delta Waters Road – angle (95%)/backing (98%)
- Segment Crash Analysis – 15 segments within the IMSA have crash rates that currently exceed the 90th percentile rate for similar facilities throughout Oregon. The segments include:
    - OR 99 from Table Rock Road to OR 62
    - OR 62 from OR 99 to RVM Main Entrance
    - OR 62 from Target Entrance to I-5 SB Ramp Terminal
    - I-5 SB Off-Ramp from SB Off-Ramp Gore to OR 62
    - Northerly SB On-Ramp from OR 62 to Northerly SB On-Ramp Gore
    - I-5 NB Off-Ramp from NB Off-Ramp Gore to OR 62
    - Southerly NB On-Ramp from OR 62 to Southerly NB On-Ramp Gore

- OR 62 from I-5 SB Ramp Terminal to I-5 NB Ramp Terminal
- OR 62 from I-5 NB Ramp Terminal to Biddle Road Jug handle (north)
- Biddle Road from north of Morrow Road to Biddle Road Jug handle
- OR 62 from Biddle Road Jug handle (north) to Fred Meyer Entrance
- OR 62 from Fred Meyer Entrance to Bullock Road-Poplar Drive
- OR 62 from Bullock Road-Poplar Drive to Sky Park Drive
- OR 62 from Sky Park Drive to Whittle Avenue
- OR 62 from Whittle Avenue to Delta Waters Road

These areas of safety concern will likely be exacerbated with the anticipated growth in traffic volumes within the IMSA so long that countermeasures are not provided.

PLANNED PROJECTS

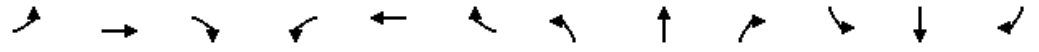
Table 3 summarizes the projects listed in the 2018-2021 Active Statewide Transportation Improvement Program (STIP) that are located within the IMSA. While these projects are expected to improve access and circulation within the IMSA, the improvements are not reflected in the 2042 no-build analysis.

Table 3: Planned Projects

Name	Description	Key	Location	Category	Year
OR 99/I-5/OR 238/OR 62 curb ramps	Design and construct curb ramps to meet compliance with the American with Disabilities Act (ADA) standards on state highways in various locations in the cities of… Medford…	21492	OR 238: milepost 33.38 to 38.42 (includes OR 238/ N Central Ave)	Construction	2020
OR 62: Corridor Solutions unit 2 (Medford) Phase 4	Construct footings and structures to install agency supplied signs, radios, cameras, Bluetooth sensors, Ethernet switches, blank-out sign, traffic sensors, and traffic signal controllers.	21511	OR 62: milepost 1.22 to 5.13 (includes expressway and Delta Waters)	• Prelim. Engineering • Right of Way • Utility Relocation • Construction	2021

Attachment A Future No-build Traffic Conditions Worksheets

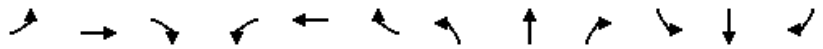
HCM 6th Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	769	105	44	1156	685	94	459	32	592	447	32
Future Volume (veh/h)	45	769	105	44	1156	685	94	459	32	592	447	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1573	1723	1723	1750	1723	1750	1750	1736	1736	1750	1723	1723
Adj Flow Rate, veh/h	47	801	109	46	1204	714	98	478	33	617	466	33
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, %	13	2	2	0	2	0	0	1	1	0	2	2
Cap, veh/h	56	1064	145	61	1204	870	125	576	40	725	529	37
Arrive On Green	0.04	0.37	0.37	0.04	0.37	0.37	0.07	0.18	0.18	0.22	0.33	0.33
Sat Flow, veh/h	1498	2885	393	1667	3273	1461	1667	3131	216	3233	1588	112
Grp Volume(v), veh/h	47	454	456	46	1204	714	98	251	260	617	0	499
Grp Sat Flow(s),veh/h/ln	1498	1637	1641	1667	1637	1461	1667	1650	1697	1617	0	1700
Q Serve(g_s), s	3.0	23.4	23.4	2.6	35.5	35.5	5.6	14.2	14.2	17.7	0.0	26.7
Cycle Q Clear(g_c), s	3.0	23.4	23.4	2.6	35.5	35.5	5.6	14.2	14.2	17.7	0.0	26.7
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.13	1.00		0.07
Lane Grp Cap(c), veh/h	56	603	605	61	1204	870	125	303	312	725	0	567
V/C Ratio(X)	0.83	0.75	0.75	0.75	1.00	0.82	0.78	0.83	0.83	0.85	0.00	0.88
Avail Cap(c_a), veh/h	209	603	605	233	1204	870	337	436	448	921	0	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	26.6	26.6	46.1	30.5	15.7	43.9	37.9	38.0	35.9	0.0	30.4
Incr Delay (d2), s/veh	20.3	5.8	5.8	12.8	26.0	6.6	7.8	7.5	7.7	5.8	0.0	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.7	9.7	1.3	17.5	12.5	2.5	6.2	6.4	7.3	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	32.4	32.4	58.9	56.5	22.4	51.7	45.5	45.6	41.7	0.0	44.2
LnGrp LOS	E	C	C	E	F	C	D	D	D	D	A	D
Approach Vol, veh/h		957			1964			609			1116	
Approach Delay, s/veh		34.1			44.2			46.5			42.8	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	40.1	11.7	36.7	8.1	40.0	26.2	22.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	35.5	19.5	33.5	13.5	35.5	27.5	25.5
Max Q Clear Time (g_c+I1), s	4.6	25.4	7.6	28.7	5.0	37.5	19.7	16.2
Green Ext Time (p_c), s	0.1	7.5	0.2	1.0	0.1	0.0	2.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	42.1
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	438	900	55	110	1231	617	83	904	116	441	1047	593
Future Volume (veh/h)	438	900	55	110	1231	617	83	904	116	441	1047	593
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1736	1736	1736	1723	1736	1723	1695	1709	1736	1709	1723
Adj Flow Rate, veh/h	461	947	58	116	1296	649	87	952	122	464	1102	624
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	1	1	2	1	2	4	3	1	3	2
Cap, veh/h	527	1156	71	139	1340	1137	108	792	354	523	1115	741
Arrive On Green	0.17	0.37	0.37	0.08	0.28	0.28	0.07	0.25	0.25	0.16	0.34	0.34
Sat Flow, veh/h	3183	3154	193	1654	4703	2509	1641	3221	1438	3208	3247	1452
Grp Volume(v), veh/h	461	495	510	116	1296	649	87	952	122	464	1102	624
Grp Sat Flow(s),veh/h/ln	1591	1650	1698	1654	1568	1254	1641	1611	1438	1604	1624	1452
Q Serve(g_s), s	18.1	34.8	34.8	8.9	34.8	24.7	6.7	31.5	9.0	18.1	43.2	44.0
Cycle Q Clear(g_c), s	18.1	34.8	34.8	8.9	34.8	24.7	6.7	31.5	9.0	18.1	43.2	44.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	527	605	622	139	1340	1137	108	792	354	523	1115	741
V/C Ratio(X)	0.87	0.82	0.82	0.84	0.97	0.57	0.81	1.20	0.35	0.89	0.99	0.84
Avail Cap(c_a), veh/h	634	624	643	174	1340	1137	173	792	354	588	1115	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	36.7	36.7	57.8	45.2	26.3	59.1	48.3	39.8	52.4	41.8	27.1
Incr Delay (d2), s/veh	10.9	8.8	8.6	22.2	17.4	0.9	10.5	102.8	0.4	13.7	24.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	15.2	15.6	4.5	15.5	7.4	3.1	23.8	3.2	8.2	20.6	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	45.5	45.3	80.0	62.6	27.2	69.5	151.1	40.2	66.1	65.8	35.6
LnGrp LOS	E	D	D	E	E	C	E	F	D	E	E	D
Approach Vol, veh/h		1466			2061			1161			2190	
Approach Delay, s/veh		50.9			52.4			133.4			57.2	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	51.5	12.9	48.5	25.7	41.0	25.4	36.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	48.5	13.5	41.5	25.5	36.5	23.5	31.5
Max Q Clear Time (g_c+I1), s	10.9	36.8	8.7	46.0	20.1	36.8	20.1	33.5
Green Ext Time (p_c), s	0.1	9.0	0.1	0.0	1.1	0.0	0.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.3
HCM 6th LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	138	207	1878	81	147	1943
Future Volume (veh/h)	138	207	1878	81	147	1943
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1736	1736	1709	1736	1750	1695
Adj Flow Rate, veh/h	145	218	1977	85	155	2045
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	3	1	0	4
Cap, veh/h	202	503	2999	926	233	2478
Arrive On Green	0.12	0.12	0.64	0.64	0.07	0.77
Sat Flow, veh/h	1654	2590	4820	1440	3233	3306
Grp Volume(v), veh/h	145	218	1977	85	155	2045
Grp Sat Flow(s),veh/h/ln	1654	1295	1555	1440	1617	1611
Q Serve(g_s), s	7.0	6.1	21.7	1.9	3.9	33.2
Cycle Q Clear(g_c), s	7.0	6.1	21.7	1.9	3.9	33.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	202	503	2999	926	233	2478
V/C Ratio(X)	0.72	0.43	0.66	0.09	0.66	0.83
Avail Cap(c_a), veh/h	330	703	2999	926	449	2510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.3	9.2	5.6	37.4	6.0
Incr Delay (d2), s/veh	3.5	0.4	0.6	0.1	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.9	6.0	0.5	1.6	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.5	29.8	9.8	5.7	39.8	8.5
LnGrp LOS	D	C	A	A	D	A
Approach Vol, veh/h	363		2062			2200
Approach Delay, s/veh	33.3		9.6			10.7
Approach LOS	C		A			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.5	57.7			68.2	14.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	11.5	48.5			64.5	16.5
Max Q Clear Time (g_c+I1), s	5.9	23.7			35.2	9.0
Green Ext Time (p_c), s	0.3	23.9			28.5	1.1

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	9.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	127	1995	90	123	2090
Future Vol, veh/h	0	127	1995	90	123	2090
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	2	0	1	3
Mvmt Flow	0	135	2122	96	131	2223

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1065	0	0	2222	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	5.32	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.91	-	-	3.11	-
Pot Cap-1 Maneuver	0	189	-	-	~ 98	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	188	-	-	~ 98	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	61.8	0	15.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	188	~ 98	-
HCM Lane V/C Ratio	-	-	0.719	1.335	-
HCM Control Delay (s)	-	-	61.8	283.8	-
HCM Lane LOS	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	4.5	9.4	-

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

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Intersection	
Int Delay, s/veh	43.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑↑	↱		↑↑↑
Traffic Vol, veh/h	0	395	2146	211	0	3429
Future Vol, veh/h	0	395	2146	211	0	3429
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	Free
Storage Length	-	0	-	75	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	6	0	0
Mvmt Flow	0	411	2235	220	0	3572

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1118	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	~ 176	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 176	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 661.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	176	-
HCM Lane V/C Ratio	-	2.338	-
HCM Control Delay (s)	-	$ 661.3	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	34	-

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

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	22	55	102	1	68	64	995	368	195	1011	12
Future Volume (veh/h)	36	22	55	102	1	68	64	995	368	195	1011	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1682	1682	1682	1750	1750	1723	1709	1750	1723	1736	1736
Adj Flow Rate, veh/h	38	23	58	107	1	72	67	1047	387	205	1064	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	5	5	5	0	0	2	3	0	2	1	1
Cap, veh/h	267	35	89	512	2	164	350	1507	785	357	1703	21
Arrive On Green	0.04	0.08	0.08	0.07	0.11	0.11	0.05	0.46	0.46	0.10	0.51	0.51
Sat Flow, veh/h	1667	421	1061	3107	20	1458	1641	3247	1478	1641	3337	41
Grp Volume(v), veh/h	38	0	81	107	0	73	67	1047	387	205	526	551
Grp Sat Flow(s),veh/h/ln	1667	0	1482	1554	0	1478	1641	1624	1478	1641	1650	1728
Q Serve(g_s), s	1.3	0.0	3.4	1.9	0.0	2.9	1.3	16.2	10.5	3.9	14.5	14.5
Cycle Q Clear(g_c), s	1.3	0.0	3.4	1.9	0.0	2.9	1.3	16.2	10.5	3.9	14.5	14.5
Prop In Lane	1.00		0.72	1.00		0.99	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	267	0	125	512	0	166	350	1507	785	357	842	882
V/C Ratio(X)	0.14	0.00	0.65	0.21	0.00	0.44	0.19	0.69	0.49	0.57	0.62	0.62
Avail Cap(c_a), veh/h	610	0	362	1064	0	361	791	1562	810	722	842	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	28.1	23.8	0.0	26.3	8.9	13.4	9.4	11.2	11.2	11.2
Incr Delay (d2), s/veh	0.2	0.0	4.2	0.1	0.0	1.3	0.2	1.5	0.7	1.1	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.3	0.7	0.0	1.0	0.4	5.4	3.0	1.2	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	0.0	32.3	23.9	0.0	27.6	9.1	14.9	10.2	12.2	12.9	12.8
LnGrp LOS	C	A	C	C	A	C	A	B	B	B	B	B
Approach Vol, veh/h		119			180			1501			1282	
Approach Delay, s/veh		30.0			25.4			13.4			12.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	36.9	6.9	11.6	10.9	33.9	8.7	9.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.5	30.5	15.5	15.5	20.5	30.5	15.5	15.5
Max Q Clear Time (g_c+I1), s	3.3	16.5	3.3	4.9	5.9	18.2	3.9	5.4
Green Ext Time (p_c), s	0.2	11.2	0.1	0.2	0.7	11.3	0.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	241.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↑	↱		↑↑↑	↱
Traffic Vol, veh/h	0	0	585	0	0	78	0	2329	212	0	2844	171
Future Vol, veh/h	0	0	585	0	0	78	0	2329	212	0	2844	171
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	2	2	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	90	-	-	140
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	4	0	0	2	0	2	1	0	2	5
Mvmt Flow	0	0	609	0	0	81	0	2426	221	0	2963	178

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1482	-	-	1215	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.18	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.94	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 96	0	0	149	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 96	-	-	149	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	2492.7	54.9	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	96	149	-
HCM Lane V/C Ratio	-	-	6.348	0.545	-
HCM Control Delay (s)	-	-	$ 2492.7	54.9	-
HCM Lane LOS	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	67.6	2.7	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	516	203	221	466	242	444	60	2173	174	410	2328	337
Future Volume (veh/h)	516	203	221	466	242	444	60	2173	174	410	2328	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	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	1736	1709	1750	1736	1736	1723	1723	1723	1750	1723	1709
Adj Flow Rate, veh/h	538	211	230	485	252	462	62	2264	181	427	2425	0
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	1	3	0	1	1	2	2	2	0	2	3
Cap, veh/h	502	240	197	540	247	206	79	1848	146	486	2416	
Arrive On Green	0.16	0.14	0.14	0.16	0.14	0.14	0.02	0.14	0.14	0.15	0.51	0.00
Sat Flow, veh/h	3183	1736	1426	3333	1736	1450	1641	4443	351	3333	4703	1448
Grp Volume(v), veh/h	538	211	230	485	252	462	62	1589	856	427	2425	0
Grp Sat Flow(s),veh/h/ln	1591	1736	1426	1667	1736	1450	1641	1568	1659	1667	1568	1448
Q Serve(g_s), s	20.5	15.5	17.9	18.6	18.5	13.9	4.9	54.1	54.1	16.3	66.8	0.0
Cycle Q Clear(g_c), s	20.5	15.5	17.9	18.6	18.5	13.9	4.9	54.1	54.1	16.3	66.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	502	240	197	540	247	206	79	1304	690	486	2416	
V/C Ratio(X)	1.07	0.88	1.17	0.90	1.02	2.24	0.79	1.22	1.24	0.88	1.00	
Avail Cap(c_a), veh/h	502	240	197	577	247	206	170	1304	690	551	2416	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.8	55.0	56.0	53.4	55.8	31.3	63.3	56.1	56.1	54.4	31.6	0.0
Incr Delay (d2), s/veh	60.8	28.8	116.8	16.0	62.5	573.0	12.2	105.8	120.1	13.4	19.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	8.6	12.8	8.9	12.3	37.7	2.4	41.9	47.1	7.6	27.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.6	83.8	172.9	69.4	118.2	604.3	75.5	161.8	176.2	67.8	50.8	0.0
LnGrp LOS	F	F	F	E	F	F	E	F	F	E	F	
Approach Vol, veh/h		979			1199			2507			2852	A
Approach Delay, s/veh		122.2			285.8			164.6			53.4	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.4	58.6	25.6	22.4	10.7	71.3	25.0	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	51.5	22.5	16.5	13.5	59.5	20.5	18.5
Max Q Clear Time (g_c+I1), s	18.3	56.1	20.6	19.9	6.9	68.8	22.5	20.5
Green Ext Time (p_c), s	0.6	0.0	0.5	0.0	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	136.3
HCM 6th LOS	F

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	1681	111	0	0
Future Vol, veh/h	0	11	1681	111	0	0
Conflicting Peds, #/hr	0	0	0	5	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	11	2	2	0	2
Mvmt Flow	0	11	1698	112	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	910	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.41	-	-	-	-
Pot Cap-1 Maneuver	0	260	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	259	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	259	-
HCM Lane V/C Ratio	-	-	0.043	-
HCM Control Delay (s)	-	-	19.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	101	1582	110	149	0
Future Vol, veh/h	0	101	1582	110	149	0
Conflicting Peds, #/hr	0	0	0	7	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	650	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	2	0	2
Mvmt Flow	0	106	1665	116	157	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	898	0	0	1788	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.35	-	-	2.2	-
Pot Cap-1 Maneuver	0	277	-	-	351	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	275	-	-	349	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	0	23.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	275	349	-
HCM Lane V/C Ratio	-	-	0.387	0.449	-
HCM Control Delay (s)	-	-	26.1	23.5	-
HCM Lane LOS	-	-	D	C	-
HCM 95th %tile Q(veh)	-	-	1.7	2.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	380	695	340	411	122	662	642	379	298	937	85
Future Volume (veh/h)	86	380	695	340	411	122	662	642	379	298	937	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1736	1736	1723	1709	1709	1736	1682	1723	1709	1709	1709
Adj Flow Rate, veh/h	91	400	732	358	433	128	697	676	399	314	986	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	2	3	3	1	5	2	3	3	3
Cap, veh/h	94	457	871	378	770	225	642	1003	458	292	882	80
Arrive On Green	0.06	0.14	0.14	0.23	0.31	0.31	0.20	0.31	0.31	0.18	0.29	0.29
Sat Flow, veh/h	1628	3299	2543	1641	2474	724	3208	3195	1457	1628	3008	271
Grp Volume(v), veh/h	91	400	732	358	283	278	697	676	399	314	532	543
Grp Sat Flow(s),veh/h/ln	1628	1650	1272	1641	1624	1575	1604	1598	1457	1628	1624	1655
Q Serve(g_s), s	7.2	15.4	18.0	27.9	18.9	19.2	26.0	23.9	33.6	23.3	38.1	38.1
Cycle Q Clear(g_c), s	7.2	15.4	18.0	27.9	18.9	19.2	26.0	23.9	33.6	23.3	38.1	38.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	94	457	871	378	505	490	642	1003	458	292	476	485
V/C Ratio(X)	0.97	0.88	0.84	0.95	0.56	0.57	1.09	0.67	0.87	1.08	1.12	1.12
Avail Cap(c_a), veh/h	94	457	871	379	506	491	642	1003	458	292	476	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	54.9	39.8	49.2	37.3	37.4	52.0	38.8	42.1	53.3	45.9	45.9
Incr Delay (d2), s/veh	81.9	16.4	7.0	32.5	0.8	1.0	61.0	1.5	16.0	74.3	77.5	77.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.4	11.5	14.7	7.6	7.5	15.6	9.3	13.9	15.3	25.0	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.0	71.3	46.9	81.7	38.2	38.4	112.9	40.2	58.1	127.6	123.4	123.2
LnGrp LOS	F	E	D	F	D	D	F	D	E	F	F	F
Approach Vol, veh/h		1223			919			1772			1389	
Approach Delay, s/veh		62.0			55.2			72.9			124.3	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.3	46.2	33.9	22.5	30.0	43.5	11.5	44.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.5	4.0	* 5.4	4.0	4.5
Max Green Setting (Gmax), s	23.3	* 41	30.0	18.0	26.0	* 38	7.5	40.5
Max Q Clear Time (g_c+I1), s	25.3	35.6	29.9	20.0	28.0	40.1	9.2	21.2
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	0.0	0.0	3.8

Intersection Summary	
HCM 6th Ctrl Delay	80.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	18	0	0	131	0	1021	39	0	642	145
Future Vol, veh/h	0	0	18	0	0	131	0	1021	39	0	642	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	4	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1	0	1	0	0	1	1
Mvmt Flow	0	0	19	0	0	138	0	1075	41	0	676	153

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	415	-	-	562	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	7.12	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.91	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	592	0	0	405	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	592	-	-	403	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	18.5	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	592	403	-	-
HCM Lane V/C Ratio	-	-	0.032	0.342	-	-
HCM Control Delay (s)	-	-	11.3	18.5	-	-
HCM Lane LOS	-	-	B	C	-	-
HCM 95th %tile Q(veh)	-	-	0.1	1.5	-	-

HCM 2000 Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	769	105	44	1156	685	94	459	32	592	447	32
Future Volume (vph)	45	769	105	44	1156	685	94	459	32	592	447	32
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1471	3196		1662	3260	1476	1662	3262		3225	1689	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1471	3196		1662	3260	1476	1662	3262		3225	1689	
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)	47	801	109	46	1204	714	98	478	33	617	466	33
RTOR Reduction (vph)	0	9	0	0	0	112	0	4	0	0	2	0
Lane Group Flow (vph)	47	901	0	46	1204	602	98	507	0	617	497	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			1			3						2
Heavy Vehicles (%)	13%	2%	1%	0%	2%	0%	0%	1%	0%	0%	2%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	7.0	36.8		6.6	36.4	60.2	9.4	22.1		23.8	36.5	
Effective Green, g (s)	7.0	36.8		6.6	36.4	60.2	9.4	22.1		23.8	36.5	
Actuated g/C Ratio	0.07	0.34		0.06	0.34	0.56	0.09	0.21		0.22	0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.5	4.2		2.5	4.2	2.5	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	95	1096		102	1105	890	145	671		715	574	
v/s Ratio Prot	c0.03	0.28		0.03	c0.37	0.15	0.06	0.16		c0.19	c0.29	
v/s Ratio Perm						0.26						
v/c Ratio	0.49	0.82		0.45	1.09	0.68	0.68	0.76		0.86	0.87	
Uniform Delay, d1	48.4	32.3		48.6	35.5	16.7	47.5	40.1		40.2	33.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	5.4		2.3	54.9	1.9	10.8	4.6		10.4	12.8	
Delay (s)	51.4	37.7		50.9	90.3	18.5	58.2	44.7		50.6	45.9	
Level of Service	D	D		D	F	B	E	D		D	D	
Approach Delay (s)		38.4			63.3			46.9			48.5	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	107.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
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 (vph)	438	900	55	110	1231	617	83	904	116	441	1047	593
Future Volume (vph)	438	900	55	110	1231	617	83	904	116	441	1047	593
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95		1.00	0.91	0.88	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3162	3259		1646	4684	2568	1630	3197	1416	3193	3228	1445
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3162	3259		1646	4684	2568	1630	3197	1416	3193	3228	1445
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	461	947	58	116	1296	649	87	952	122	464	1102	624
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	92	0	0	48
Lane Group Flow (vph)	461	1002	0	116	1296	649	87	952	30	464	1102	576
Confl. Peds. (#/hr)	18		3	18		3	3		6	6		3
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	1%	2%	1%	2%	1%	2%	4%	3%	1%	3%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	22.8	47.3		12.1	36.6	57.9	11.0	31.8	31.8	21.3	42.1	64.9
Effective Green, g (s)	22.8	47.3		12.1	36.6	57.9	11.0	31.8	31.8	21.3	42.1	64.9
Actuated g/C Ratio	0.17	0.36		0.09	0.28	0.44	0.08	0.24	0.24	0.16	0.32	0.50
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.2		2.5	4.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	552	1181		152	1313	1227	137	779	345	521	1041	768
v/s Ratio Prot	c0.15	0.31		0.07	c0.28	0.09	0.05	c0.30		c0.15	c0.34	c0.13
v/s Ratio Perm						0.17			0.02			0.27
v/c Ratio	0.84	0.85		0.76	0.99	0.53	0.64	1.22	0.09	0.89	1.06	0.75
Uniform Delay, d1	52.0	38.3		57.8	46.7	26.4	57.8	49.4	38.1	53.5	44.2	26.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	6.2		19.3	21.6	0.3	8.1	111.3	0.1	17.1	44.8	3.8
Delay (s)	62.4	44.5		77.1	68.3	26.7	66.0	160.7	38.2	70.6	89.0	30.1
Level of Service	E	D		E	E	C	E	F	D	E	F	C
Approach Delay (s)		50.1			55.7			140.7			68.3	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	72.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	138	207	1878	81	147	1943
Future Volume (vph)	138	207	1878	81	147	1943
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1646	2592	4638	1454	3225	3197
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1646	2592	4638	1454	3225	3197
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	218	1977	85	155	2045
RTOR Reduction (vph)	0	9	0	23	0	0
Lane Group Flow (vph)	145	209	1977	62	155	2045
Confl. Peds. (#/hr)	3			1	1	
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	1%	1%	3%	1%	0%	4%
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	3	1	2		1	6
Permitted Phases		3		2		
Actuated Green, G (s)	11.5	20.2	39.7	39.7	8.7	52.9
Effective Green, g (s)	11.5	20.2	39.7	39.7	8.7	52.9
Actuated g/C Ratio	0.16	0.28	0.54	0.54	0.12	0.72
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	2.5	4.2	4.2	2.5	4.2
Lane Grp Cap (vph)	257	872	2508	786	382	2304
v/s Ratio Prot	c0.09	0.03	0.43		0.05	c0.64
v/s Ratio Perm		0.05		0.04		
v/c Ratio	0.56	0.24	0.79	0.08	0.41	0.89
Uniform Delay, d1	28.6	20.6	13.5	8.1	30.0	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1	1.9	0.1	0.5	4.7
Delay (s)	30.9	20.7	15.3	8.1	30.5	12.7
Level of Service	C	C	B	A	C	B
Approach Delay (s)	24.8		15.0			13.9
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	73.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	127	1995	90	123	2090
Future Volume (Veh/h)	0	127	1995	90	123	2090
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	135	2122	96	131	2223
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			833			508
pX, platoon unblocked	0.62	0.68			0.68	
vC, conflicting volume	3500	711			2222	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	0			1142	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			68	
cM capacity (veh/h)	160	735			415	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	135	707	707	707	96	131	1112	1112
Volume Left	0	0	0	0	0	131	0	0
Volume Right	135	0	0	0	96	0	0	0
cSH	735	1700	1700	1700	1700	415	1700	1700
Volume to Capacity	0.18	0.42	0.42	0.42	0.06	0.32	0.65	0.65
Queue Length 95th (ft)	17	0	0	0	0	33	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0
Lane LOS	B					C		
Approach Delay (s)	11.0	0.0				1.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	1	231	0	0	0	0	1639	483	0	1982	1153
Future Volume (vph)	440	1	231	0	0	0	0	1639	483	0	1982	1153
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	4.5
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00		0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00					1.00	0.97		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95	0.95	1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1533	1538	1417					4684	1407		3228	1417
Flt Permitted	0.95	0.95	1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1533	1538	1417					4684	1407		3228	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	489	1	257	0	0	0	0	1725	508	0	2086	1214
RTOR Reduction (vph)	0	0	15	0	0	0	0	0	61	0	0	286
Lane Group Flow (vph)	244	246	242	0	0	0	0	1725	447	0	2086	928
Confl. Peds. (#/hr)							12		7	7		12
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	3%	0%	5%	0%	0%	0%	0%	2%	3%	100%	3%	2%
Turn Type	Perm	NA	Perm					NA	Perm		NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)	25.1	25.1	25.1					95.9	95.9		95.9	95.9
Effective Green, g (s)	25.1	25.1	25.1					95.9	95.9		95.9	95.9
Actuated g/C Ratio	0.19	0.19	0.19					0.74	0.74		0.74	0.74
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.5	2.5	2.5					4.2	4.2		4.2	4.2
Lane Grp Cap (vph)	295	296	273					3455	1037		2381	1045
v/s Ratio Prot								0.37			0.65	
v/s Ratio Perm	0.16	0.16	c0.17						0.32			c0.65
v/c Ratio	0.83	0.83	0.89					0.50	0.43		0.88	0.89
Uniform Delay, d1	50.4	50.4	51.0					7.1	6.6		12.6	13.0
Progression Factor	1.00	1.00	1.00					1.00	1.00		0.31	6.09
Incremental Delay, d2	16.7	17.4	26.9					0.5	1.3		1.5	3.7
Delay (s)	67.1	67.8	77.9					7.6	7.9		5.4	82.6
Level of Service	E	E	E					A	A		A	F
Approach Delay (s)		71.1			0.0			7.7			33.8	
Approach LOS		E			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
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 (vph)	0	0	0	443	3	682	0	1675	404	0	2692	737
Future Volume (vph)	0	0	0	443	3	682	0	1675	404	0	2692	737
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)				4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lane Util. Factor				0.95	0.91	0.95		0.91	1.00		0.91	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00	0.96		1.00	0.98
Flpb, ped/bikes				0.97	1.00	1.00		1.00	1.00		1.00	1.00
Frt				1.00	0.87	0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95	0.99	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1465	1309	1346		4684	1360		4638	1400
Flt Permitted				0.95	0.99	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1465	1309	1346		4684	1360		4638	1400
Peak-hour factor, PHF	0.98	0.98	0.98	0.88	0.88	0.88	0.93	0.93	0.93	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	503	3	775	0	1801	434	0	2775	760
RTOR Reduction (vph)	0	0	0	0	11	11	0	0	53	0	0	254
Lane Group Flow (vph)	0	0	0	443	409	407	0	1801	381	0	2775	506
Confl. Peds. (#/hr)			12	12			1		24	24		1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	5%	0%	2%	5%	0%	3%	4%
Turn Type				Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8			2			6
Actuated Green, G (s)				42.2	42.2	42.2		78.8	78.8		78.8	78.8
Effective Green, g (s)				42.2	42.2	42.2		78.8	78.8		78.8	78.8
Actuated g/C Ratio				0.32	0.32	0.32		0.61	0.61		0.61	0.61
Clearance Time (s)				4.5	4.5	4.5		4.5	4.5		4.5	4.5
Vehicle Extension (s)				2.5	2.5	2.5		4.2	4.2		4.2	4.2
Lane Grp Cap (vph)				475	424	436		2839	824		2811	848
v/s Ratio Prot								0.38			c0.60	
v/s Ratio Perm				0.30	0.31	0.30			0.28			0.36
v/c Ratio				0.93	0.97	0.93		0.63	0.46		0.99	0.60
Uniform Delay, d1				42.5	43.2	42.5		16.4	14.0		25.1	15.8
Progression Factor				1.00	1.00	1.00		0.85	0.68		1.07	2.92
Incremental Delay, d2				25.4	34.4	27.1		0.9	1.6		10.1	1.7
Delay (s)				67.9	77.6	69.7		14.8	11.1		36.9	47.8
Level of Service				E	E	E		B	B		D	D
Approach Delay (s)		0.0			71.6			14.1			39.3	
Approach LOS		A			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	395	2146	211	0	3429
Future Volume (Veh/h)	0	395	2146	211	0	3429
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	411	2235	220	0	3572
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			827			1005
pX, platoon unblocked	0.64	0.78			0.78	
vC, conflicting volume	3427	746			2236	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	525	0			1606	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	52			100	
cM capacity (veh/h)	312	852			322	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	411	745	745	745	220	1191	1191	1191
Volume Left	0	0	0	0	0	0	0	0
Volume Right	411	0	0	0	220	0	0	0
cSH	852	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.44	0.44	0.44	0.13	0.70	0.70	0.70
Queue Length 95th (ft)	67	0	0	0	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	13.1	0.0				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	362	152	1281	314	81	1123
Future Volume (vph)	362	152	1281	314	81	1123
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5		4.5		4.5	4.5
Lane Util. Factor	0.97		0.95		1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.96		0.97		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	3035		3143		1662	3292
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	3035		3143		1662	3292
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	381	160	1348	331	85	1182
RTOR Reduction (vph)	52	0	20	0	0	0
Lane Group Flow (vph)	489	0	1659	0	85	1182
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	2%	4%	2%	3%	0%	1%
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	16.3		43.7		7.5	55.7
Effective Green, g (s)	16.3		43.7		7.5	55.7
Actuated g/C Ratio	0.20		0.54		0.09	0.69
Clearance Time (s)	4.5		4.5		4.5	4.5
Vehicle Extension (s)	2.5		4.2		2.5	4.2
Lane Grp Cap (vph)	610		1695		153	2263
v/s Ratio Prot	c0.16		c0.53		0.05	c0.36
v/s Ratio Perm						
v/c Ratio	0.80		0.98		0.56	0.52
Uniform Delay, d1	30.8		18.2		35.2	6.2
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	7.3		17.0		3.5	0.3
Delay (s)	38.1		35.2		38.6	6.5
Level of Service	D		D		D	A
Approach Delay (s)	38.1		35.2			8.6
Approach LOS	D		D			A

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
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 (vph)	36	22	55	102	1	68	64	995	368	195	1011	12
Future Volume (vph)	36	22	55	102	1	68	64	995	368	195	1011	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1658	1540		3072	1466		1630	3228	1459	1630	3286	
Flt Permitted	0.71	1.00		0.55	1.00		0.21	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	1238	1540		1771	1466		368	3228	1459	244	3286	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	23	58	107	1	72	67	1047	387	205	1064	13
RTOR Reduction (vph)	0	53	0	0	64	0	0	0	184	0	0	0
Lane Group Flow (vph)	38	28	0	107	9	0	67	1047	203	205	1077	0
Confl. Peds. (#/hr)	2					2	1		3	3		1
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	0%	5%	0%	5%	0%	0%	2%	3%	0%	2%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	3	8		7	4		1	6	7	5	2	
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	10.1	6.3		13.7	8.1		37.0	32.2	37.8	46.8	37.5	
Effective Green, g (s)	10.1	6.3		13.7	8.1		37.0	32.2	37.8	46.8	37.5	
Actuated g/C Ratio	0.14	0.09		0.19	0.11		0.51	0.45	0.52	0.65	0.52	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.2	2.5	2.5	4.2	
Lane Grp Cap (vph)	195	134		436	164		272	1439	854	352	1706	
v/s Ratio Prot	0.01	0.02		0.02	0.01		0.02	c0.32	c0.02	c0.08	0.33	
v/s Ratio Perm	0.02			c0.03			0.11		0.12	0.30		
v/c Ratio	0.19	0.21		0.25	0.06		0.25	0.73	0.24	0.58	0.63	
Uniform Delay, d1	27.3	30.6		24.6	28.6		9.3	16.4	9.4	8.9	12.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.2	0.1		0.3	2.1	0.1	2.0	0.9	
Delay (s)	27.7	31.2		24.8	28.7		9.6	18.5	9.5	11.0	13.3	
Level of Service	C	C		C	C		A	B	A	B	B	
Approach Delay (s)		30.1			26.4			15.7			12.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.7%	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)	0	0	585	0	0	78	0	2329	212	0	2844	171
Future Volume (Veh/h)	0	0	585	0	0	78	0	2329	212	0	2844	171
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	0	609	0	0	81	0	2426	221	0	2963	178
Pedestrians		4			2							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1229			603	
pX, platoon unblocked	0.61	0.61	0.52	0.61	0.61	0.82	0.52			0.82		
vC, conflicting volume	3857	5616	992	3416	5395	811	2967			2649		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1454	4331	0	733	3969	0	1559			2241		
tC, single (s)	7.5	6.5	7.0	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	0	0	100	91	100			100		
cM capacity (veh/h)	51	1	560	0	2	887	223			191		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	609	81	809	809	809	221	988	988	988	178
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	609	81	0	0	0	221	0	0	0	178
cSH	560	887	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	1.09	0.09	0.48	0.48	0.48	0.13	0.58	0.58	0.58	0.10
Queue Length 95th (ft)	463	8	0	0	0	0	0	0	0	0
Control Delay (s)	90.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A								
Approach Delay (s)	90.8	9.5	0.0				0.0			
Approach LOS	F	A								

Intersection Summary				
Average Delay	8.7			
Intersection Capacity Utilization	105.7%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	203	221	466	242	444	60	2173	174	410	2328	337
Future Volume (vph)	516	203	221	466	242	444	60	2173	174	410	2328	337
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.97	1.00	1.00	*1.00	1.00	1.00	1.00	0.91		*1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3162	1733	1405	3325	1733	1473	1630	4631		3325	4684	1414
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3162	1733	1405	3325	1733	1473	1630	4631		3325	4684	1414
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)	538	211	230	485	252	462	62	2264	181	427	2425	351
RTOR Reduction (vph)	0	0	151	0	0	189	0	7	0	0	0	153
Lane Group Flow (vph)	538	211	79	485	252	274	63	2438	0	427	2425	198
Confl. Peds. (#/hr)			7	7					1	1		
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	1%	3%	0%	1%	1%	2%	2%	1%	0%	2%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	20.5	17.5	17.5	21.5	18.5	18.5	8.6	53.0		20.0	64.4	64.4
Effective Green, g (s)	20.5	17.5	17.5	21.5	18.5	18.5	8.6	53.0		20.0	64.4	64.4
Actuated g/C Ratio	0.16	0.13	0.13	0.17	0.14	0.14	0.07	0.41		0.15	0.50	0.50
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4.2		2.5	4.2	4.2
Lane Grp Cap (vph)	498	233	189	549	246	209	107	1888		511	2320	700
v/s Ratio Prot	c0.17	0.12		0.15	0.15		0.04	c0.53		c0.13	c0.52	
v/s Ratio Perm			0.06			c0.19						0.14
v/c Ratio	1.08	0.91	0.42	0.88	1.02	1.31	0.59	1.29		0.84	1.05	0.28
Uniform Delay, d1	54.8	55.4	51.6	53.0	55.8	55.8	59.0	38.5		53.4	32.8	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.12		1.00	1.00	1.00
Incremental Delay, d2	63.7	34.4	1.1	15.4	63.8	170.5	5.5	134.4		11.1	31.8	1.0
Delay (s)	118.5	89.8	52.6	68.5	119.6	226.2	59.4	177.4		64.5	64.6	20.3
Level of Service	F	F	D	E	F	F	E	F		E	E	C
Approach Delay (s)		96.8			140.1			174.4			59.8	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	113.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	11	1681	111	0	0
Future Volume (Veh/h)	0	11	1681	111	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	11	1698	112	0	0
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			2			2
Upstream signal (ft)			998			
pX, platoon unblocked	0.62	0.62			0.62	
vC, conflicting volume	1759	910			1815	
vC1, stage 1 conf vol	1759					
vC2, stage 2 conf vol	0					
vCu, unblocked vol	1007	0			1097	
tC, single (s)	6.8	7.1			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.4			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	193	654			399	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	11	1132	678	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	11	0	112	0	0	0
cSH	654	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.67	0.40	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	10.6	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	101	1582	110	149	0
Future Volume (Veh/h)	0	101	1582	110	149	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	106	1665	116	157	0
Pedestrians	7					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			2			2
Upstream signal (ft)						917
pX, platoon unblocked						
vC, conflicting volume	2044	898			1788	
vC1, stage 1 conf vol	1730					
vC2, stage 2 conf vol	314					
vCu, unblocked vol	2044	898			1788	
tC, single (s)	6.8	7.0			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	61			55	
cM capacity (veh/h)	121	275			349	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	106	1110	671	157	0	0
Volume Left	0	0	0	157	0	0
Volume Right	106	0	116	0	0	0
cSH	275	1700	1700	349	1700	1700
Volume to Capacity	0.39	0.65	0.39	0.45	0.00	0.00
Queue Length 95th (ft)	43	0	0	56	0	0
Control Delay (s)	26.1	0.0	0.0	23.5	0.0	0.0
Lane LOS	D			C		
Approach Delay (s)	26.1	0.0		23.5		
Approach LOS	D					

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	67.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	380	695	340	411	122	662	642	379	298	937	85
Future Volume (vph)	86	380	695	340	411	122	662	642	379	298	937	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.5	4.0	4.0	4.5		4.0	5.4	5.4	4.0	5.4	
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1614	3292	2592	1630	3126		3193	3167	1458	1614	3192	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1614	3292	2592	1630	3126		3193	3167	1458	1614	3192	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	91	400	732	358	433	128	697	676	399	314	986	89
RTOR Reduction (vph)	0	0	74	0	22	0	0	0	272	0	5	0
Lane Group Flow (vph)	91	400	658	358	539	0	697	676	127	314	1070	0
Confl. Peds. (#/hr)	5					5	2					2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	3%	1%	1%	2%	3%	0%	1%	5%	2%	3%	3%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	7.5	16.8	42.8	29.0	38.3		26.0	40.8	40.8	23.3	38.1	
Effective Green, g (s)	7.5	16.8	42.8	29.0	38.3		26.0	40.8	40.8	23.3	38.1	
Actuated g/C Ratio	0.06	0.13	0.33	0.23	0.30		0.20	0.32	0.32	0.18	0.30	
Clearance Time (s)	4.0	4.5	4.0	4.0	4.5		4.0	5.4	5.4	4.0	5.4	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	94	432	868	369	936		649	1011	465	294	951	
v/s Ratio Prot	0.06	c0.12	0.15	c0.22	0.17		c0.22	c0.21		0.19	c0.34	
v/s Ratio Perm			0.10						0.09			
v/c Ratio	0.97	0.93	0.76	0.97	0.58		1.07	0.67	0.27	1.07	1.13	
Uniform Delay, d1	60.0	54.9	37.9	49.0	37.9		50.9	37.6	32.5	52.2	44.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	81.1	25.3	3.4	38.7	0.5		56.9	1.3	0.1	71.7	70.0	
Delay (s)	141.1	80.2	41.3	87.6	38.4		107.8	39.0	32.6	123.9	114.9	
Level of Service	F	F	D	F	D		F	D	C	F	F	
Approach Delay (s)		61.4			57.6			64.6			116.9	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	76.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	127.8	Sum of lost time (s)	17.9
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
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)	0	0	18	0	0	131	0	1021	39	0	642	145
Future Volume (Veh/h)	0	0	18	0	0	131	0	1021	39	0	642	145
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	19	0	0	138	0	1075	41	0	676	153
Pedestrians					4							
Lane Width (ft)					12.0							
Walking Speed (ft/s)					3.5							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											326	
pX, platoon unblocked												
vC, conflicting volume	1249	1872	414	1456	1928	383	829			1120		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1249	1872	414	1456	1928	383	829			1120		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	78	100			100		
cM capacity (veh/h)	102	73	592	89	67	616	811			629		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	19	138	430	430	256	451	378
Volume Left	0	0	0	0	0	0	0
Volume Right	19	138	0	0	41	0	153
cSH	592	616	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.22	0.25	0.25	0.15	0.27	0.22
Queue Length 95th (ft)	2	21	0	0	0	0	0
Control Delay (s)	11.3	12.5	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.3	12.5	0.0			0.0	
Approach LOS	B	B					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Attachment B SimTraffic Reports

1: 48748. Table Rock Rd & Hwy 63/N Pacific Hwy Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.7	10.6	1.3	0.8	17.6	3.9	1.3	5.4	0.3	10.5	7.0	0.5
Stop Delay (hr)	0.6	8.2	1.1	0.6	12.8	1.8	1.2	4.5	0.2	8.9	5.4	0.4

1: 48748. Table Rock Rd & Hwy 63/N Pacific Hwy Performance by movement

Movement	All
Denied Delay (hr)	0.2
Total Delay (hr)	59.8
Stop Delay (hr)	45.8

2: 37165. OR-62 & OR-99 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.8	9.2	1.2	0.0	0.0	0.0
Total Delay (hr)	11.9	19.9	1.3	2.9	55.0	1.7	15.3	185.4	21.3	5.6	9.2	2.5
Stop Delay (hr)	10.2	15.4	1.1	2.8	49.2	0.5	15.1	183.7	21.3	5.0	7.2	1.7

2: 37165. OR-62 & OR-99 Performance by movement

Movement	All
Denied Delay (hr)	11.3
Total Delay (hr)	332.1
Stop Delay (hr)	313.1

3: 110085. OR-62 & Rogue Valley Mall Main Ent Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	0.7	14.4	0.4	0.8	3.8	21.0
Stop Delay (hr)	0.9	0.7	9.1	0.2	0.6	1.1	12.6

4: 110080. OR-62 & Rogue Valley Mall Ent Performance by movement

Movement	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	2.4	3.0	0.2	1.5	1.0	8.0
Stop Delay (hr)	2.5	0.4	0.0	1.4	0.1	4.4

5: 37160. OR-62 & I-5 SB Ramps Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.7
Total Delay (hr)	8.8	0.0	3.2	5.6	2.1	2.9	2.7	25.2
Stop Delay (hr)	7.8	0.0	2.8	2.9	1.0	0.8	0.0	15.4

6: 37161. OR-62 & I-5 NB Ramps Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	19.3	0.2	30.5	0.2	0.1	0.0	0.1	50.4
Total Delay (hr)	65.7	0.9	127.0	16.1	3.5	10.2	1.4	224.8
Stop Delay (hr)	65.4	0.9	128.6	10.8	2.3	5.0	0.3	213.3

7: north-south street name & east-west street name Performance by movement

Movement	WBT	WBR	NBT	NBR	SBT	All
Denied Delay (hr)	0.0	4.1	11.5	1.7	0.0	17.3
Total Delay (hr)	0.3	17.5	55.4	3.8	3.1	80.0
Stop Delay (hr)	0.3	17.6	45.9	2.8	1.8	68.3

8: 110086. Biddle Rd Conn 1 & South End of Jug Handle Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	372.1	92.0	0.0	0.1	464.2
Total Delay (hr)	3.2	0.9	33.7	30.8	12.6	7.3	88.6
Stop Delay (hr)	2.9	0.8	32.2	30.8	12.6	5.5	84.7

9: 110088. Biddle Rd Conn 1 & Hilton Ct Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.3	224.9	2.2
Total Delay (hr)	0.2	1.5	4.2	0.6	0.0	0.1	0.4	7.7	11.8	27.3	29.6	0.5
Stop Delay (hr)	0.2	1.4	4.1	0.4	0.0	0.1	0.4	6.6	11.9	27.4	28.0	0.5

9: 110088. Biddle Rd Conn 1 & Hilton Ct Performance by movement

Movement	All
Denied Delay (hr)	269.5
Total Delay (hr)	83.9
Stop Delay (hr)	81.2

10: 37166. OR-62 & Biddle Rd Ramp Performance by movement

Movement	EBT	EBR	WBR	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	8.8	18.0	8.0	0.3	0.0	0.0	35.2
Total Delay (hr)	0.8	40.5	9.0	33.1	1.6	3.0	0.3	88.4
Stop Delay (hr)	0.9	42.3	9.1	27.7	1.2	0.1	0.0	81.2

11: 37163. OR-62 & Poplar Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	25.2	10.4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	63.5	372.5	56.8
Total Delay (hr)	26.0	11.1	11.5	10.5	7.0	4.3	0.6	41.1	2.7	6.5	20.1	1.6
Stop Delay (hr)	22.4	9.6	10.0	9.9	6.6	4.2	0.5	33.4	2.1	6.1	16.1	1.2

11: 37163. OR-62 & Poplar Dr Performance by movement

Movement	All
Denied Delay (hr)	540.3
Total Delay (hr)	143.1
Stop Delay (hr)	122.3

12: 110083. OR-62 & Sky Park Dr Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.6	0.0	0.6
Stop Delay (hr)	0.0	0.0	0.0	0.0

13: 110084. OR-62 & Whittle Ave Performance by movement

Movement	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.4	0.0	5.0	4.6	10.2
Stop Delay (hr)	0.2	0.0	0.0	4.7	2.7	7.6

14: 140087. Crater Lake Hwy & Delta Waters Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	12.2	41.6	3.8
Total Delay (hr)	3.1	10.6	5.8	11.1	6.3	1.5	8.1	5.3	1.0	20.7	62.1	5.2
Stop Delay (hr)	2.9	9.4	3.9	10.3	5.2	1.2	7.1	4.2	0.7	18.3	53.3	4.5

14: 140087. Crater Lake Hwy & Delta Waters Rd Performance by movement

Movement	All
Denied Delay (hr)	58.2
Total Delay (hr)	140.7
Stop Delay (hr)	121.0

15: 110089. Poplar Dr & Hilton Rd Performance by movement

Movement	EBR	WBR	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	11.1	55.5	2.2	0.0	0.0	68.8
Total Delay (hr)	0.0	14.1	16.0	0.5	0.2	0.0	30.8
Stop Delay (hr)	0.0	14.3	14.5	0.4	0.0	0.0	29.3

Total Network Performance

Denied Delay (hr)	1516.3
Total Delay (hr)	1390.5
Stop Delay (hr)	1228.7

Intersection: 1: 48748. Table Rock Rd & Hwy 63/N Pacific Hwy

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	L
Maximum Queue (ft)	274	621	622	290	705	725	644	176	301	303	431	520
Average Queue (ft)	69	299	306	84	423	445	291	81	175	174	249	285
95th Queue (ft)	196	550	551	251	655	678	599	149	264	268	437	514
Link Distance (ft)		1924	1924		852	852	852		2093	2093		1571
Upstream Blk Time (%)					0	0						
Queuing Penalty (veh)					0	0						
Storage Bay Dist (ft)	250			200				340			500	
Storage Blk Time (%)	0	17			38				0		1	3
Queuing Penalty (veh)	0	8			17				0		2	8

Intersection: 1: 48748. Table Rock Rd & Hwy 63/N Pacific Hwy

Movement	SB
Directions Served	TR
Maximum Queue (ft)	682
Average Queue (ft)	373
95th Queue (ft)	656
Link Distance (ft)	1571
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 37165. OR-62 & OR-99

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	B26	B26
Directions Served	L	L	T	TR	L	T	T	T	R	R	T	T
Maximum Queue (ft)	362	540	840	855	737	772	763	739	735	101	236	340
Average Queue (ft)	225	397	563	577	337	619	635	612	223	3	48	75
95th Queue (ft)	338	621	869	878	763	878	888	864	717	52	278	345
Link Distance (ft)			852	852	686	686	686	686	686		4343	4343
Upstream Blk Time (%)			1	2	9	25	30	20	0			
Queuing Penalty (veh)			7	11	0	0	0	0	0			
Storage Bay Dist (ft)	380	380								250		
Storage Blk Time (%)	0	1	33							0		
Queuing Penalty (veh)	0	4	143							0		

Intersection: 2: 37165. OR-62 & OR-99

Movement	B26	B26	NB	NB	NB	NB	SB	SB	SB	SB	SB	
Directions Served	T	T	L	T	T	R	L	L	T	T	R	
Maximum Queue (ft)	415	438	315	4742	4737	500	237	394	492	509	452	
Average Queue (ft)	105	112	188	3386	3395	349	142	179	278	290	198	
95th Queue (ft)	419	455	400	5451	5412	693	217	309	441	455	382	
Link Distance (ft)	4343	4343		4693	4693				524	524		
Upstream Blk Time (%)				26	25				0	0		
Queuing Penalty (veh)				0	0				3	3		
Storage Bay Dist (ft)			150			390	315	315			400	
Storage Blk Time (%)			2	73	83	0		0	6	2	0	
Queuing Penalty (veh)			8	60	97	0		0	28	14	2	

Intersection: 3: 110085. OR-62 & Rogue Valley Mall Main Ent

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	R	R	T	T	T	R	L	L	T	T	
Maximum Queue (ft)	153	105	112	426	625	639	180	68	200	356	350	
Average Queue (ft)	74	43	40	149	244	320	66	19	58	132	151	
95th Queue (ft)	131	85	86	316	510	538	192	56	129	263	280	
Link Distance (ft)	338	338	338	524	524	524				766	766	
Upstream Blk Time (%)					1	1						
Queuing Penalty (veh)					8	7						
Storage Bay Dist (ft)							100	280	280			
Storage Blk Time (%)						30				0		
Queuing Penalty (veh)						25				1		

Intersection: 4: 110080. OR-62 & Rogue Valley Mall Ent

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	R	T	T	R	L	T	T
Maximum Queue (ft)	268	67	353	130	202	192	103
Average Queue (ft)	112	4	58	9	88	11	4
95th Queue (ft)	251	63	231	70	175	115	75
Link Distance (ft)	341	766	766			438	438
Upstream Blk Time (%)	2					0	0
Queuing Penalty (veh)	0					1	1
Storage Bay Dist (ft)				100	200		
Storage Blk Time (%)			4		2	0	
Queuing Penalty (veh)			3		23	0	

Intersection: 5: 37160. OR-62 & I-5 SB Ramps

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	T	T	R
Maximum Queue (ft)	270	344	696	265	404	468	88	216	222	281
Average Queue (ft)	208	261	275	114	175	313	69	73	77	5
95th Queue (ft)	309	371	692	233	332	514	89	173	185	90
Link Distance (ft)			1196	438	438	438		551	551	551
Upstream Blk Time (%)			1		0	2				0
Queuing Penalty (veh)			0		0	11				0
Storage Bay Dist (ft)	195	195					50			
Storage Blk Time (%)	9	29	11			25	3			
Queuing Penalty (veh)	19	66	50			119	16			

Intersection: 6: 37161. OR-62 & I-5 NB Ramps

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	R	T	T	T	R
Maximum Queue (ft)	3154	3134	3134	554	577	578	86	436	467	511	383
Average Queue (ft)	2059	2102	2083	298	332	405	73	266	286	263	93
95th Queue (ft)	3968	3908	3884	542	590	629	83	398	421	437	248
Link Distance (ft)	3096	3096	3096	551	551	551		749	749	749	
Upstream Blk Time (%)	39	38	38	2	2	5					
Queuing Penalty (veh)	0	0	0	11	11	36					
Storage Bay Dist (ft)							50				290
Storage Blk Time (%)						41	5			3	
Queuing Penalty (veh)						165	28			25	

Intersection: 7: north-south street name & east-west street name

Movement	WB	B44	NB	NB	NB	NB
Directions Served	R	T	T	T	T	R
Maximum Queue (ft)	558	637	775	809	791	100
Average Queue (ft)	548	599	693	708	710	83
95th Queue (ft)	588	798	912	916	920	139
Link Distance (ft)	476	618	749	749	749	
Upstream Blk Time (%)	97	85	13	20	23	
Queuing Penalty (veh)	382	336	97	152	174	
Storage Bay Dist (ft)						75
Storage Blk Time (%)					47	1
Queuing Penalty (veh)					99	7

Intersection: 8: 110086. Biddle Rd Conn 1 & South End of Jug Handle

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LR	T	TR	L	T	T
Maximum Queue (ft)	252	294	1218	1220	125	931	916
Average Queue (ft)	137	141	1109	1117	106	429	405
95th Queue (ft)	208	241	1480	1470	157	1089	1081
Link Distance (ft)	618	618	1175	1175		1967	1967
Upstream Blk Time (%)			81	86		3	3
Queuing Penalty (veh)			0	0		19	18
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					79	1	
Queuing Penalty (veh)					438	1	

Intersection: 9: 110088. Biddle Rd Conn 1 & Hilton Ct

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	T	R	L	T	TR
Maximum Queue (ft)	224	568	63	84	51	286	1041	1059	330	285	1136	1147
Average Queue (ft)	39	201	15	32	19	24	340	416	195	264	1025	1020
95th Queue (ft)	239	577	44	66	42	126	1146	1215	415	349	1436	1450
Link Distance (ft)	849	849			1196		1967	1967			1100	1100
Upstream Blk Time (%)	1	2					0	0			82	79
Queuing Penalty (veh)	0	0					0	0			0	0
Storage Bay Dist (ft)			220	220		320			220	175		
Storage Blk Time (%)							1	3	43	90	6	
Queuing Penalty (veh)							0	13	218	451	11	

Intersection: 10: 37166. OR-62 & Biddle Rd Ramp

Movement	EB	WB	NB	NB	NB	NB	SB
Directions Served	R	R	T	T	T	R	T
Maximum Queue (ft)	1214	256	397	405	423	140	6
Average Queue (ft)	1190	234	365	371	422	101	0
95th Queue (ft)	1328	301	388	396	428	202	4
Link Distance (ft)	1196	237	347	347	347		507
Upstream Blk Time (%)	52	81	44	50	99		
Queuing Penalty (veh)	305	0	375	421	835		
Storage Bay Dist (ft)						90	
Storage Blk Time (%)					56	0	
Queuing Penalty (veh)					119	0	

Intersection: 11: 37163. OR-62 & Poplar Dr

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	R	L	T	T	TR
Maximum Queue (ft)	405	460	1236	160	230	277	282	299	460	557	562	568
Average Queue (ft)	300	444	1151	151	201	239	239	251	117	524	530	525
95th Queue (ft)	441	534	1478	196	274	274	284	284	396	545	553	547
Link Distance (ft)			1187			230	230	230		507	507	507
Upstream Blk Time (%)			53		1	42	58	47	0	47	53	43
Queuing Penalty (veh)			0		0	161	223	179	0	376	423	346
Storage Bay Dist (ft)	350	350		135	250				450			
Storage Blk Time (%)	10	19	51	38	1	42			0	62		
Queuing Penalty (veh)	43	79	376	272	3	98			0	37		

Intersection: 11: 37163. OR-62 & Poplar Dr

Movement	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R
Maximum Queue (ft)	321	345	346	342	355	352
Average Queue (ft)	187	311	315	314	317	293
95th Queue (ft)	335	347	331	329	334	412
Link Distance (ft)						
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	410	410				350
Storage Blk Time (%)					1	0
Queuing Penalty (veh)					2	0

Intersection: 12: 110083. OR-62 & Sky Park Dr

Movement	WB	B19	B19	B19
Directions Served	R	T	T	
Maximum Queue (ft)	46	624	651	596
Average Queue (ft)	9	185	252	32
95th Queue (ft)	35	622	727	251
Link Distance (ft)	432	591	591	591
Upstream Blk Time (%)		0	1	0
Queuing Penalty (veh)		3	10	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: 110084. OR-62 & Whittle Ave

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	TR	L	T
Maximum Queue (ft)	107	12	79	453	268
Average Queue (ft)	50	1	7	172	17
95th Queue (ft)	83	11	39	397	189
Link Distance (ft)	479	409	409		823
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				650	
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 14: 140087. Crater Lake Hwy & Delta Waters Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	304	412	444	443	431	485	552	516	354	361	355	349
Average Queue (ft)	129	236	244	283	245	336	338	310	200	215	169	177
95th Queue (ft)	267	346	366	392	387	498	562	521	321	335	293	279
Link Distance (ft)		1246	1246				1401	1401			823	823
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225			450	450	400			500	500		
Storage Blk Time (%)	5	16	0	0	0	12	10		0	0	0	7
Queuing Penalty (veh)	9	13	0	0	0	24	34		0	0	0	27

Intersection: 14: 140087. Crater Lake Hwy & Delta Waters Rd

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (ft)	314	300	1493	1490
Average Queue (ft)	100	290	1403	1390
95th Queue (ft)	206	345	1615	1633
Link Distance (ft)			1423	1423
Upstream Blk Time (%)			73	60
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)	0	38	65	
Queuing Penalty (veh)	1	178	193	

Intersection: 15: 110089. Poplar Dr & Hilton Rd

Movement	EB	WB	NB	NB	NB
Directions Served	R	R	T	T	TR
Maximum Queue (ft)	44	487	295	298	298
Average Queue (ft)	15	392	262	264	269
95th Queue (ft)	43	615	345	341	325
Link Distance (ft)	464	466	260	260	260
Upstream Blk Time (%)		62	61	71	62
Queuing Penalty (veh)		0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 26: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	686
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 8630

Attachment C Pedestrian, Bicycle, and Transit LOS Analysis Results

Segment LOS Output Summary

Roadway	Dir	From-To	Pedestrian LOS	Bicycle LOS	Transit LOS
OR 238	EB	Sage Road to Central Avenue	E	D	D
OR 238	EB	Central Avenue to OR 99	E	F	D
OR 62	EB	OR 99 to RV Mall Entrance (west)	E	F	
OR 62	EB	RV Mall Entrance (west) to RV Mall Entrance (east, at Target)	E	D	
OR 62	EB	RV Mall Entrance (east, at Target) to I-5 SB Ramp Terminal	E	D	
OR 62	EB	I-5 SB Ramp Terminal to I-5 NB Ramp Terminal	E	F	
OR 62	EB	I-5 NB Ramp Terminal to Biddle Road (north end of jug handle)	E	D	
OR 62	EB	Biddle Road (north end of jug handle) to Fred Meyer Driveway	E	D	F
OR 62	EB	Fred Meyer Driveway to Poplar Drive	E	D	F
OR 62	EB	Poplar Drive to Sky Park Drive	E	F	
OR 62	EB	Sky Park Drive to Whittle Avenue	E	F	
OR 62	EB	Whittle Avenue to Delta Waters Road	E	F	
OR 62	EB	Delta Waters Road to East end of IMSA	E	F	
OR 62	WB	East end of IMSA to Delta Waters Road	E	D	
OR 62	WB	Delta Waters Road to RI/RO Commercial Driveway	E	D	
OR 62	WB	RI/RO Commercial Driveway to Bullock Road	F	F	
OR 62	WB	Bullock Road to Hilton Court	E	D	
OR 62	WB	Hilton Court to I-5 NB Ramp Terminal	E	D	
OR 62	WB	I-5 NB Ramp Terminal to I-5 SB Ramp Terminal	E	D	
OR 62	WB	I-5 SB Ramp Terminal to RV Mall Entrance (west)	E	D	
OR 238	WB	RV Mall Entrance (west) to OR 99	E	D	
OR 238	WB	OR 99 to Central Avenue	E	F	
OR 238	WB	Central Avenue to Sage Road	E	D	
Table Rock Road	SB	Berrydale Avenue to Adams Lane	E	F	
Table Rock Road	SB	Adams Lane to Table Rock Road	C	D	
Table Rock Road	SB	Table Rock Road to OR 99	E	F	
Table Rock Road	NB	OR 99 to Table Rock Road	C	F	D
Table Rock Road	NB	Table Rock Road to Adams Lane	C	D	D
Table Rock Road	NB	Adams Lane to Berrydale Avenue	C	F	D
Central Avenue	SB	OR 99 to OR 238	C	C	C
Central Avenue	SB	OR 238 to Commercial Driveway	C	C	
Central Avenue	SB	Commercial Driveway to McAndrews (does not intersect)	C	C	

Segment LOS Output Summary

Roadway	Dir	From-To	Pedestrian LOS	Bicycle LOS	Transit LOS
Central Avenue	NB	McAndrews (does not intersect) to Commercial Driveway	E	C	
Central Avenue	NB	Commercial Driveway to OR 238	C	C	
Central Avenue	NB	OR 238 to OR 99	C	C	
OR 99	SB	Table Rock Road to OR 238	E	D	
OR 99	NB	OR 238 to Table Roock Road	F	F	B
Court Street	SB	OR 238 to Ohio Street	E	F	D
Court Street	SB	Ohio Street to McAndrews Road	E	F	D
Riverside Avenue	NB	McAndrews Road to Ohio Street	F	F	B
Riverside Avenue	NB	Ohio Street to OR 238	F	F	B
Biddle Road	SB	Knutson Avenue to Commercial Driveway	E	D	
Biddle Road	SB	Commercial Driveway to Hilton Court	E	D	
Biddle Road	SB	Hilton Court to OR 62 (does not intersect)	C	F	
Biddle Road	SB	OR 62 (does not intersect) to Biddle Road jug handle	C	D	
Biddle Road	SB	Biddle Road jug handle to North of Morrow Road	C	F	
Biddle Road	SB	North of Morrow Road to Progress Drive	E	F	
Biddle Road	SB	Progress Drive to McAndrews Road	E	F	
Biddle Road	NB	McAndrews Road to Progress Drive	E	F	D
Biddle Road	NB	Progress Drive to Morrow Road	E	F	D
Biddle Road	NB	Morrow Road to Biddle Road jug handle	E	F	F
Biddle Road	NB	Biddle Road jug handle to OR 62 (does not intersect)	C	D	
Biddle Road	NB	OR 62 to Hilton Court	C	F	
Biddle Road	NB	Hilton Court to Commercial Driveway	E	F	
Biddle Road	NB	Hilton Court to Knutson Avenue	E	F	
Hilton Court	EB	Biddle Road to OR 62	B	C	
Hilton Court	WB	OR 62 to Biddle Road	B	C	
Biddle Road jug handle	SB	OR 62 to Biddle Road	C	B	
Biddle Road jug handle	NB	Biddle Road to OR 62	B	B	E
Bullock Road	SB	North IMSA Boundary to OR 62	B	C	
Bullock Road	NB	OR 62 to North IMSA Boundary	B	C	E
Poplar Drive	SB	OR 62 to Hilton Road	C	F	F
Poplar Drive	SB	Hilton Road to Fred Meyer Driveway	C	F	F
Poplar Drive	SB	Fred Meyer Driveway to South IMSA Boundary	C	F	

Segment LOS Output Summary

Roadway	Dir	From-To	Pedestrian LOS	Bicycle LOS	Transit LOS
Poplar Drive	NB	South IMSA Bouundary to Fred Meyer Driveway	C	F	F
Poplar Drive	NB	Fred Meyer Driveway to Holton Road	E	F	F
Poplar Drive	NB	Hilton Road to OR 62	E	F	F
Hilton Road	EB	Poplar Road to East IMSA Boundary	B	C	
Hilton Road	WB	East IMSA Boundary to Poplar Road	B	C	
Sky Park Drive	EB	OR 62 to Wittle Road	B	C	
Sky Park Drive	WB	Whittle Road to OR 62	B	C	
Whittle Avenue	SB	OR 62 to Sky Park Drive	B	C	
Whittle Avenue	SB	Sky Park Drive to United Way	B	C	
Whittle Avenue	NB	United Way to Sky Park Drive	B	C	
Whittle Avenue	NB	Sky Park Drive to OR 62	B	C	
Delta waters Road	SB	Commercial Driveway to Commercial Driveway	C	F	
Delta waters Road	SB	Commercial Driveway to OR 62	E	D	
Delta Waters Road	SB	OR 62 to Crater Lake Avenue	C	D	
Delta Waters Road	NB	Craster Lake Avenue to OR 62	C	D	B
Delta Waters Road	NB	OR 62 to Commercial Driveway	C	F	B
Delta Waters Road	NB	Commercial Driveway to Commercial Driveway	C	F	B

Bike LOS Calculation

Total Meetings per Min=	0.24
Total Active Passings per Min=	0.07
Total Weighted Events per Min=	0.91
Delayed Passings per Min =	0.00

Bike LOS Score = 3.45 LOS = C

Final LOS adjustment for low volume= A

Pedestrian LOS Calculation

Pedestrian Events/hr = 5

Pedestrian LOS = A

LOS	Pedestrian LOS description	Bicycle LOS Description
A	Optimum conditions, bicycle conflicts rare	Optimum conditions, ample ability to absorb more riders
B	Good conditions, few bicycle conflicts	Good conditions, some ability to absorb more riders
C	Difficult to walk two abreast	Meets current demand, marginal ability to absorb more riders
D	Frequent bicycle conflicts	Many conflicts, some reduction in bicycle travel speed
E	Frequent and disruptive bicycle conflicts	Very crowded, significant reduction in bicycle travel speed
F	Significant conflicts, diminished experience	Significant conflicts, diminished experience

Bike LOS Calculation

Total Meetings per Min=	0.24
Total Active Passings per Min=	0.07
Total Weighted Events per Min=	0.91
Delayed Passings per Min =	0.00

Bike LOS Score = 3.83 LOS = B

Final LOS adjustment for low volume= A

LOS	Pedestrian LOS description	Bicycle LOS Description
A	Optimum conditions, bicycle conflicts rare	Optimum conditions, ample ability to absorb more riders
B	Good conditions, few bicycle conflicts	Good conditions, some ability to absorb more riders
C	Difficult to walk two abreast	Meets current demand, marginal ability to absorb more riders
D	Frequent bicycle conflicts	Many conflicts, some reduction in bicycle travel speed
E	Frequent and disruptive bicycle conflicts	Very crowded, significant reduction in bicycle travel speed
F	Significant conflicts, diminished experience	Significant conflicts, diminished experience

Pedestrian LOS Calculation

Pedestrian Events/hr = 5

Pedestrian LOS = A