



MEMORANDUM

Date: December 16, 2020

To: Project Management Team, Project Advisory Committee, & Technical Advisory Committee

From: Matt Kittelson, PE, Julia Kuhn, PE, and Miranda Barrus

Project: Town of Lakeview Transportation System Plan Update

Subject: Final TM #4: Future Systems Conditions

INTRODUCTION

This technical memorandum presents the key findings related to the year 2040 Baseline Needs Analyses (i.e., No Build) for the Lakeview Transportation System Plan (TSP) update. The memo includes information about the "quality of service" anticipated in the future for people walking and cycling, the needs of people taking transit, and the adequacy of the key streets and intersections in Town to serve the needs of people driving. This information will help inform potential changes to the transportation system that meet the goals guiding the TSP as well as the Town's vision for the future.

All of the technical analyses presented assume that the transportation system will serve both regional needs as well as Town's continued economic growth consistent with the Comprehensive Plan land use designations within the existing Urban Growth Boundary (UGB). At the same time, the analyses assume that the streets, transit, sidewalks, and bike facilities will remain as they exist today. This "Baseline" scenario will be used as a foundation to help the Town understand the effectiveness of potential transportation projects, policies, and programs as well as to help policy makers to weigh trade-offs regarding future funding priorities that can help support continued economic growth in a manner that is safe, sustainable, fundable, and diverse.

As will be discussed in this memorandum, the Baseline analyses highlight the following primary deficiencies:

- ▶ As highlighted in the existing conditions analyses, changes to the US 395/OR 140 and US 395/J Street/Missouri Avenue intersection could alleviate some of the existing driver confusion at these intersections and also shorten the crossing distances for people walking or cycling through the intersection.
- ▶ As highlighted in the existing conditions analyses, the crash rate on US 395 north of OR 140 exceeds the rate experienced at similar highways within the state. Further analysis of safety-related changes to the highway in this section will be evaluated as part of the Solutions Analyses.
- ▶ Improving the range of transportation choices, especially for the transportation disadvantaged, is a key baseline need and can also help contribute to a healthy, equitable community. Connecting people walking and riding bikes between jobs, housing, and medical services, and ensuring transit serves those who need it most are important factors to evaluate.

The remainder of this memorandum outlines the analysis assumptions and findings. Analysis results are presented in figures and tables, with supplemental text provided to explain the illustrated information.

POPULATION AND JOBS FORECASTS

The future street and intersection needs were identified based on forecast year 2040 traffic volumes. These volumes reflect estimates of household and job growth within the Town's adopted UGB (as shown in Attachment A, Figure 1) as well as in Lake County and the overall Southern Oregon region. These population and employment forecasts were "coordinated" for compliance with Oregon transportation and land use planning requirements.

Within the Town's UGB, continued job growth is primarily anticipated within the industrial and commercial/office sectors whereas the population level is anticipated to remain fairly constant. Per the buildable lands summary prepared for the Town in 2019, the jobs and households expected by the year 2040 can be accommodated within the existing UGB.

FUTURE BASELINE TRAFFIC ANALYSES

To understand the future needs for people driving within the Town, year 2040 intersection and roadway volumes were estimated at seven locations. As summarized in Technical Memorandum #3, each of these seven intersections have more than ample capacity to accommodate people driving through them under year 2020 "existing conditions."

The year 2040 analyses are based on a 0.2 percent per year growth in traffic volumes from those occurring in the year 2020. This growth rate reflects how traffic has changed over the past ten years per information provided by the Oregon Department of Transportation (ODOT). Further, the use of this "growth factor" is consistent with the procedures outlined in ODOT's Analysis and Procedures Manual (APM) as well as the Methodology Memorandum previously prepared for the Town's TSP.

BASELINE INTERSECTION ANALYSES

Previously adopted plans and policies for the Town, Lake County, and ODOT all identified a variety of street, sidewalk, bicycle, and transit projects that could be implemented in the future. As discussed above, the Baseline Analysis ("no build alternative") helps to inform transportation projects and programs needed to support economic growth through the year 2040. This analysis will inform the potential project list that will be developed in the Winter and Spring of 2021.

The Baseline Analysis assumes the existing streets and intersections will remain the same as they are today in the Town because no changes to the roadway system are currently under construction or have funding that is already allocated that would materially affect traveler behaviors and traffic volumes on the Town's street network in the future.

Figure 1 reflects the year 2040 intersection volumes, Table 1 summarizes the resultant level-of-service and volume-to-capacity ratios, and Table 2 summarizes the intersection queues (see Attachment A). Attachment B includes the traffic operations worksheets. Consistent with the existing conditions analyses, the year 2040 Baseline evaluation shows that the number and type of travel lanes and the stop sign placement at the seven intersections are adequate to serve the traffic volumes anticipated in the future.

BASELINE SAFETY AND GEOMETRIC NEEDS

Although no capacity-related needs are anticipated, as noted in TM#3, the current configuration of the US 395/OR 140 and US 395/J Street/Missouri Avenue intersections may be confusing for drivers to navigate. At the same time, the design of these intersections results in long crossing distances for people walking or riding bikes. The forthcoming solutions evaluation can help identify potential "fixes" for both of these locations to serve the needs of people driving, walking, and riding bikes in the future.

In addition, TM#3 also identified that the crashes recorded between 2014 and 2018 on US 395 between OR 140 and the northern Town UGB exceed rates that might be “expected” on similar facilities across the state of Oregon. The solutions evaluation conducted in the Winter/Spring 2021 will help identify potential safety-related changes to the transportation system in this segment of US 395.

FUTURE ACTIVE TRANSPORTATION CONDITIONS

One of the key baseline needs for the Town is to improve the range of transportation choices, especially for the transportation disadvantaged. In particular, strengthening walking and bicycle connections between homes, jobs, schools, and other significant attractors will be explored as part of the Solutions Analysis conducted in the Winter/Spring 2021.

SIDEWALK SYSTEM

The presence and continuity of sidewalks within the Town can contribute to support an economically vital, healthy, and equitable community. As noted in TM#3, sidewalks are provided primarily along arterials and collectors in the denser residential and commercial areas of Town. Further from the Town’s core, sidewalks are generally not available and people walking must use the roadway edge or roadway shoulder, if available.

Figure 2 in Attachment C highlights the presence of sidewalk that exists today. Filling the primary gaps in the sidewalk system along collector and arterial streets is a need that will be evaluated during the Solutions Analysis.

BICYCLE FACILITIES

Today, people riding bicycles primarily “share the road” with motorists on all of the arterials and collector streets. There are only three streets with striped bike lanes within the Town. As noted in TM#3, the “bicycle level of stress analyses” revealed that OR 140, US 395, and Roberta Road south of OR 140 would benefit from the addition of bicycle lanes to improve the comfort, convenience, and safety for people riding bicycles. The provision of bike facilities on these streets as well as “off system” facilities to support commuting, recreational (including along the Oregon Outback Scenic Bikeway), and personal travel will be identified as part of the Solutions Analysis.

TRANSIT NEEDS

As noted in TM#3, Lake County Senior Citizens Association (LCSCA) provides public transportation services to people in Lakeview today. The Inner Court Family Center (ICFC) primarily services North Lake County and serves riders coming to Lakeview. The potential for changes to these services is discussed in the 2017 “Lake County Coordinated Transit Plan” and subsequent programming documents such as the Statewide Transportation Improvement Program Plan. Identified transit needs include:

- ▶ **Continuation of existing local services:** Ongoing and reliable service is key to a well-functioning transit system and maintenance of existing services is a top priority for LCSCA and ICFC
- ▶ **Improved Lakeview service.** LCSCA recently began a regular, free, and public shopping shuttle to serve Lakeview residents ‘running errands’. LCSCA seeks to continue to grow this service and ensure that it becomes a valuable component of the local transportation system. Education and awareness, as described below, will be important in growing this new service.
- ▶ **Weekend service:** LCSCA and ICFC primarily operate during the day on weekdays. Little to no service is available during the evening and weekends.
- ▶ **Improved coordination.** LCSCA and ICFC continue to build coordination efforts in order to enhance service delivery for Lake County residents. The agencies are implementing coordinated dispatch which will enhance coordination; however, there are continued opportunities to coordinate marketing and service delivery.

- ▶ **Education and awareness of public transportation options.** Those who need transportation services, such as lower income populations, may not be aware of the ability to ride. Promoting these services broadly may improve knowledge of the available rides and increase ridership. LCSA and ICFC seek to overcome the misconception that services are for seniors and persons with disabled only. Additional outreach as to the availability of trips to all users may increase ridership.
- ▶ **Increase regional connections.** Improved access to Klamath Falls, Alturas, La Pine and connections to other intercity transit services, such as Sage Stage, Cascades East Transit (CET), Basin Transit Service (BTS), and Rogue Valley Transit District (RVTD).

These "Baseline" transit needs will be further evaluated as part of the Solutions Analysis. These baseline needs will also help to inform needed sidewalk connections for people walking and taking transit as well.

SOLUTIONS ANALYSIS FRAMEWORK

Needs identified within this future baseline analysis and the existing conditions analysis presented in TM #3 will be further evaluated by the Solutions Analysis conducted in the Winter/Spring 2021. Beyond the technical information presented, additional transportation needs to be addressed by the Solutions Analysis will be further informed by the following activities:

- ▶ Feedback received through the project advisory committee;
- ▶ Feedback received through the first Virtual Open House (to be held in November 2020);
- ▶ Feedback received from the Project Management Team (PMT)

The Solutions Analysis will identify potential projects, programs, or policies to address identified needs. Those potential solutions will be evaluated by a preliminary screening that considers the following key questions:

- ▶ Does the project, program, or policy address an identified transportation need, deficiency, or opportunity?
- ▶ Is the project, program, or policy within or applicable to the Town's UGB?
- ▶ Is the project, program, or policy technically feasible to construct and/or implement?
- ▶ Could the project, program, or policy be reasonably funded within the next 20 years?

If the answer to any question is "no," the idea will not be further considered.

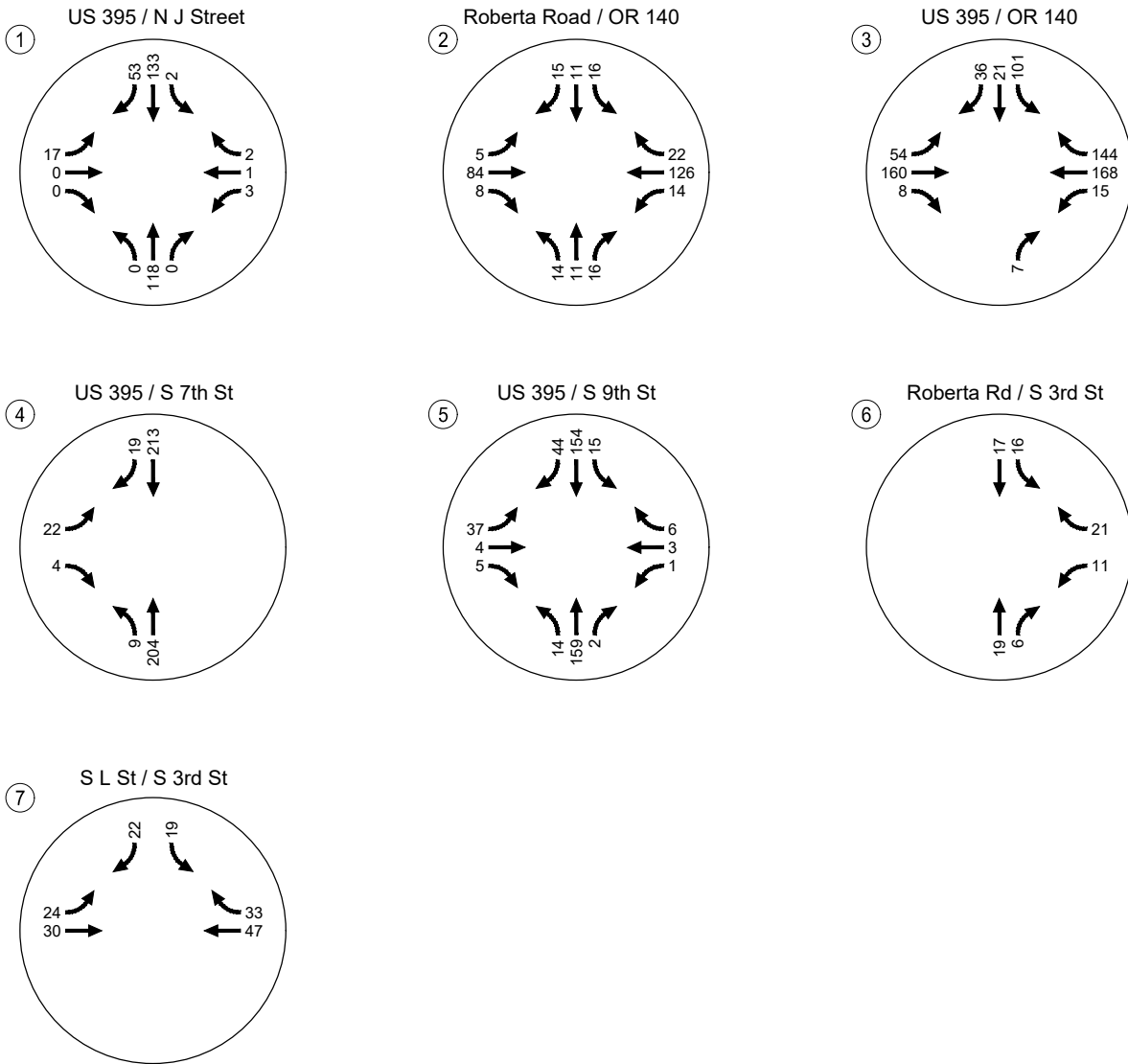
The remaining ideas will be evaluated by Town staff and the PMT against the establish project goals, objectives, and evaluation criteria that are intended to help differentiate projects, programs, and policies. These are document in TM #2: Goals, Objectives, and Evaluation Criteria.

The evaluation results will be presented in tabular format with a rating provided for how each project, program, or policy addresses the criteria via the following:

- ▶ The concept addresses the criterion and/or makes substantial improvements in the criteria category. (●)
- ▶ The concept partially addresses the criterion and/or makes some improvements in the criteria category. (◐)
- ▶ The concept does not support the intent of and/or negatively impacts the criteria category. (○)
- ▶ The criterion does not apply to the concept or the concept has no influence on the criteria. (⊗)

The results of the more detailed analyses against the evaluation criteria will be presented to the Advisory Committee for review. Outcomes of this evaluation will help inform a 20-year project list that could address the identified transportation needs, meet the TSP goals, and criteria contained in Oregon Revised Statute (ORS) 660-012-0035.

ATTACHMENT A – YEAR 2040 INTERSECTION VOLUMES AND RESULTANT OPERATIONS



Future 2040 Traffic Volumes
Weekday PM Peak Hour
Lakeview, Oregon

Figure
1

Table 1: Future (2040) Baseline Intersection Operations

Intersection	Jurisdiction	Performance Standard				Future Operations ¹				Standard Met?
						CM	v/c	LOS	Del	
1: US 395/J St/Missouri Ave	ODOT	US 395 Local Streets	v/c ≤	OHP	HDM	WB	0.01	B	11.9	Yes
				0.80	0.70					
				0.95	0.80					
2: Roberta Rd/OR 140	ODOT	OR 140 Roberta Ave	v/c ≤	OHP	HDM	SB	0.07	B	10.9	Yes
				0.80	0.70					
				0.95	0.80					
3: US 395/OR 140	ODOT	US 395 OR 140	v/c ≤	OHP	HDM	SBL	0.30	C	15.8	Yes
				0.85	0.70					
				0.85	0.70					
4: US 395/S 7 th St	ODOT	US 395 S 7 th St	v/c ≤	OHP	HDM	EB	0.06	B	11.8	Yes
				0.85	0.70					
				0.95	0.80					
5: US 395/S 9 th St	ODOT	US 395 S 9 th St	v/c ≤	OHP	HDM	EB	0.11	B	12.8	Yes
				0.85	0.70					
				0.95	0.80					
6: Roberta Rd/S 3 rd St	County	LOS D or Better				WB	0.06	A	9.0	Yes
7: L St/S 3 rd St	Town	v/c ≤ 1.0 ²				SB	0.07	A	9.6	Yes

¹CM = critical movement; NB = northbound; SB = southbound; EB = eastbound; WB = westbound; L = left; T = through; R = right
²Assumed planning standard

Table 2: 95th Percentile Queuing

Intersection	Movement ¹	Storage Length (Feet) ²	95 th Percentile Queue (Feet) ³	Adequate?
1: US 395/J St/Missouri Ave	EBLTR	130	25	Yes
	WBLTR	150	25	Yes
2: Roberta Rd/OR 140	NBLTR	125	25	Yes
	SBLTR	110	25	Yes
3: US 395/OR 140	NBR	25	25	Yes
	SBL	75	50	Yes
	SBTR	75	25	Yes
	EBL	100	25	Yes
	WBR	90	0	Yes
	EBLTR	100	25	Yes
4: US 395/S 7 th St	EBLTR	100	25	Yes
	WBLTR	115	25	Yes
5: US 395/S 9 th St	EBLTR	115	25	Yes
	WBLTR	115	25	Yes
6: Roberta Rd/S 3 rd St	WBLTR	130	25	Yes
7: L St/S 3 rd St	SBLTR	130	25	Yes

¹NB = northbound; SB = southbound; EB = eastbound; WB = westbound; L = left; T = through; R = right
²Storage lengths reflect striped storage for each turn-lane pocket at the intersections or available storage to the upstream driveway or intersection.
³Vehicle queue lengths were rounded to the nearest 25 feet.

ATTACHMENT B – FUTURE INTERSECTION OPERATIONS WORKSHEETS

Intersection Level Of Service Report
Intersection 1: US 395/N J St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.8
Level Of Service: B
Volume to Capacity (v/c): 0.009

Intersection Setup

Name	US 395			US 395			N J St			Put Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⊕			⊕			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			50.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 395			US 395			N J St			Put Rd		
Base Volume Input [veh/h]	0	118	0	2	133	53	17	0	0	3	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	20.00	0.00	50.00	18.00	20.00	19.00	0.00	0.00	100.00	0.00	100.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	118	0	2	133	53	17	0	0	3	1	2
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	36	0	1	40	16	5	0	0	1	0	1
Total Analysis Volume [veh/h]	0	142	0	2	160	64	20	0	0	4	1	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.65	0.00	0.00	8.02	0.00	0.00	11.43	11.37	9.43	12.81	11.50	10.23
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.11	0.11	0.11	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.13	0.13	0.13	2.67	2.67	2.67	1.00	1.00	1.00
d_A, Approach Delay [s/veh]	0.00			0.07			11.43			11.89		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.83											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: OR 140/Roberta Rd

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 11.7
Level Of Service: B
Volume to Capacity (v/c): 0.023

Intersection Setup

Name	Roberta Rd			Roberta Rd			OR 140			OR 140		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			25.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Roberta Rd			Roberta Rd			OR 140			OR 140		
Base Volume Input [veh/h]	14	11	16	16	11	15	5	84	8	14	126	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	18.00	13.00	20.00	9.00	14.00	20.00	15.00	38.00	8.00	12.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	11	16	16	11	15	5	84	8	14	126	22
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	5	5	3	4	1	24	2	4	36	6
Total Analysis Volume [veh/h]	16	13	18	18	13	17	6	95	9	16	143	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.02	0.03	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.56	11.74	9.28	11.69	11.56	9.62	7.77	0.00	0.00	7.51	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.22	0.22	0.22	0.24	0.24	0.24	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	5.60	5.60	5.60	5.90	5.90	5.90	0.35	0.35	0.35	0.84	0.84	0.84
d_A, Approach Delay [s/veh]	10.74			10.92			0.42			0.65		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.07											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: OR 140/US 395

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 18.0
Level Of Service: C
Volume to Capacity (v/c): 0.304

Intersection Setup

Name	N G St			US 395			OR 140			US 395		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↷			↶↷			↶↷			↷↶		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	N G St			US 395			OR 140			US 395		
Base Volume Input [veh/h]	0	0	7	101	21	36	54	160	8	15	168	144
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	13.00	5.00	12.00	22.00	5.00	0.00	7.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	7	101	21	36	54	160	8	15	168	144
Peak Hour Factor	1.0000	1.0000	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	30	6	11	16	48	2	4	50	43
Total Analysis Volume [veh/h]	0	0	8	120	25	43	64	190	10	18	200	171
Pedestrian Volume [ped/h]	2			1			5			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.30	0.06	0.05	0.05	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	9.29	18.04	14.81	10.27	8.01	0.00	0.00	7.73	0.00	0.00
Movement LOS			A	C	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	1.26	0.39	0.39	0.16	0.00	0.00	0.04	0.04	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	31.57	9.78	9.78	4.01	0.00	0.00	1.02	1.02	0.00
d_A, Approach Delay [s/veh]	9.29		15.84			1.94			0.36			
Approach LOS	A		C			A			A			
d_I, Intersection Delay [s/veh]	4.36											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: US 395/S 7th St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.1
Level Of Service: B
Volume to Capacity (v/c): 0.045

Intersection Setup

Name	US 395		US 395		S 7th St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		↔	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	US 395		US 395		S 7th St	
Base Volume Input [veh/h]	9	204	213	19	22	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	7.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	204	213	19	22	4
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	57	59	5	6	1
Total Analysis Volume [veh/h]	10	227	237	21	24	4
Pedestrian Volume [ped/h]	0		0		1	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	7.76	0.00	0.00	0.00	12.11	9.87
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.57	0.57	0.00	0.00	3.95	3.95
d_A, Approach Delay [s/veh]	0.33		0.00		11.79	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: US 395/S 9th St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 13.1
Level Of Service: B
Volume to Capacity (v/c): 0.086

Intersection Setup

Name	US 395			US 395			S 9th St			S 9th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 395			US 395			S 9th St			S 9th St		
Base Volume Input [veh/h]	14	159	2	15	154	44	37	4	5	1	3	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	46.00	5.00	50.00	0.00	8.00	2.00	8.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	159	2	15	154	44	37	4	5	1	3	6
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	45	1	4	43	12	10	1	1	0	1	2
Total Analysis Volume [veh/h]	16	179	2	17	173	49	42	4	6	1	3	7
Pedestrian Volume [ped/h]	1			2			1			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.09	0.01	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	8.25	0.00	0.00	7.59	0.00	0.00	13.15	13.06	10.05	12.23	12.59	9.25
Movement LOS	A	A	A	A	A	A	B	B	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.04	0.04	0.04	0.34	0.34	0.34	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	1.08	1.08	1.08	0.92	0.92	0.92	8.39	8.39	8.39	1.24	1.24	1.24
d_A, Approach Delay [s/veh]	0.67			0.54			12.78			10.43		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.09											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 6: Roberta Rd/S 3rd St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.4
Level Of Service: A
Volume to Capacity (v/c): 0.021

Intersection Setup

Name	Roberta Rd		Roberta Rd		S 3rd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Roberta Rd		Roberta Rd		S 3rd St	
Base Volume Input [veh/h]	19	6	16	17	11	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	44.00	0.00	0.00	25.00	0.00	15.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	6	16	17	11	21
Peak Hour Factor	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	3	7	7	5	9
Total Analysis Volume [veh/h]	32	10	27	28	18	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.02	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.32	0.00	9.38	8.83
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.18	0.18
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.30	1.30	4.43	4.43
d_A, Approach Delay [s/veh]	0.00		3.59		9.01	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.50					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: S L St/S 3rd St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 10.1
Level Of Service: B
Volume to Capacity (v/c): 0.036

Intersection Setup

Name	S L St		S 3rd St		S 3rd St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	T		↑		↑	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	S L St		S 3rd St		S 3rd St	
Base Volume Input [veh/h]	19	22	24	30	47	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	10.00	4.00	0.00	9.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	22	24	30	47	33
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	8	11	17	12
Total Analysis Volume [veh/h]	27	31	34	42	66	46
Pedestrian Volume [ped/h]	5		0		0	

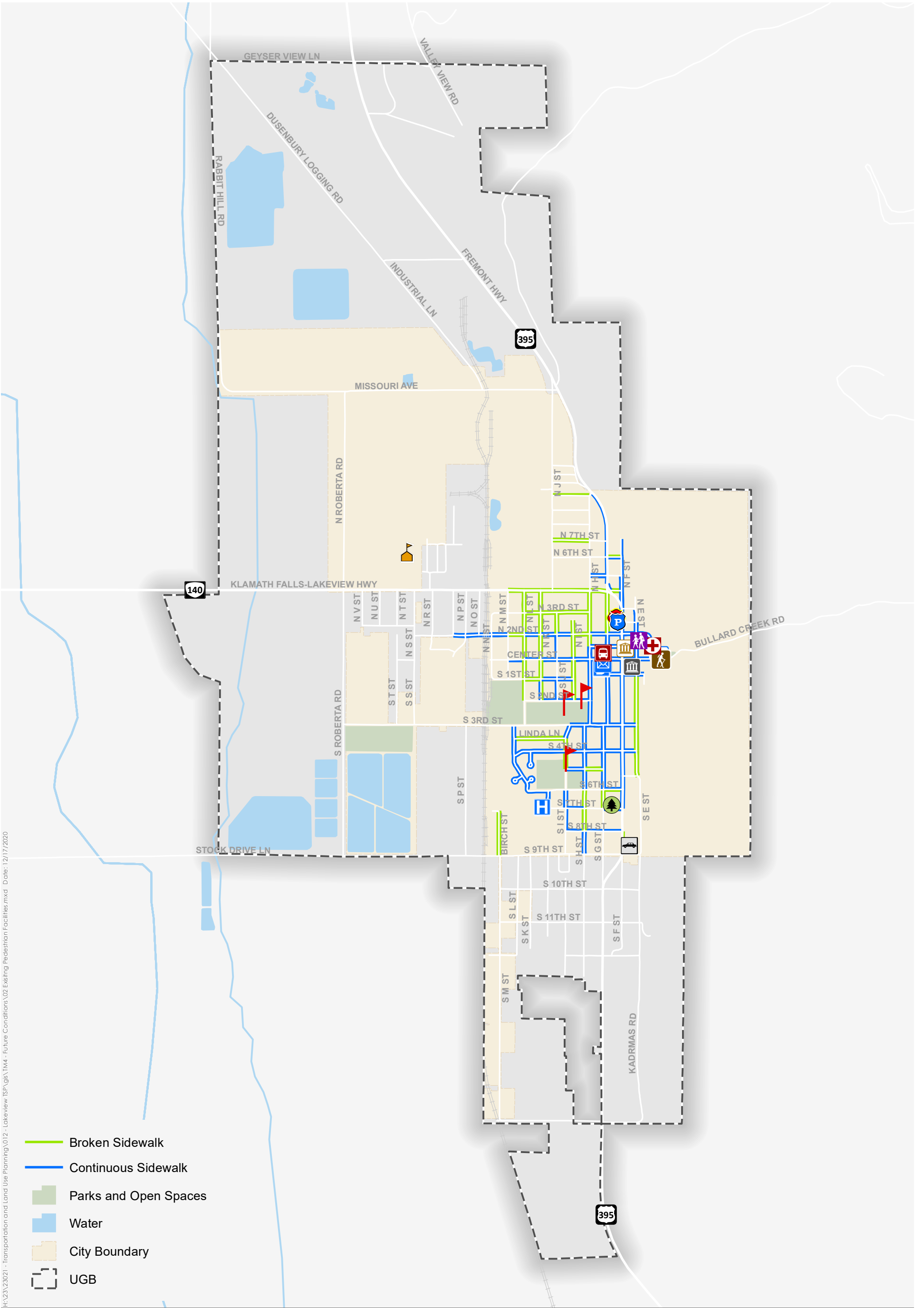
Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.10	9.16	7.54	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.22	0.22	0.07	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.54	5.54	1.80	1.80	0.00	0.00
d_A, Approach Delay [s/veh]	9.59		3.37		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.30					
Intersection LOS	B					

ATTACHMENT C – EXISTING SIDEWALK SYSTEM



H:\23\23021 - Transportation and Land Use Planning\012 - Lakeview_TSP\GIS\TM4 - Future Conditions\02 Existing Pedestrian Facilities.mxd Date: 12/17/2020



Figure 2

**Existing Pedestrian Facilities
Lakeview, Oregon**