



TM#3 EXISTING CONDITIONS INVENTORY AND ANALYSIS (DRAFT)

DATE: September 12, 2023

TO: Project Management Team

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SUBJECT: Sweet Home TSP and NSHA Refinement
TM#3 Existing Conditions

Project #20020-015

INTRODUCTION

This memorandum summarizes the transportation inventory of existing conditions for the City of Sweet Home and analyzes the existing multimodal travel conditions. A review of the existing transportation conditions for walking, biking, transit, motor vehicles, freight, and safety is included in the inventory.

The purpose of this existing conditions inventory and analysis is to assess the current conditions of the transportation system in Sweet Home, including its physical infrastructure, operational characteristics, and usage patterns. This includes an inventory of the existing transportation network, including roadways, sidewalks, bike infrastructure, and transit facilities. The analysis also includes an assessment of existing traffic conditions and a review of historical crash rates. The inventory will help identify potential gaps and deficiencies in the transportation system.

BACKGROUND

Sweet Home is a small city located in Linn County, Oregon, United States. As of the 2020 census, the population was approximately 10,000 people. The community is situated in the foothills of the Cascade Mountains and is known for its outdoor recreation opportunities, including hiking, fishing, and camping. Sweet Home is located approximately 19 miles east of Interstate-5 (I-5). Sweet Home is approximately 80 miles south of Portland, 40 miles north of Eugene/Springfield, and 45 miles west of Santiam Pass. The area surrounding Sweet Home is primarily rural and has historically been served by a mostly agricultural and timber-based economy. Located within the

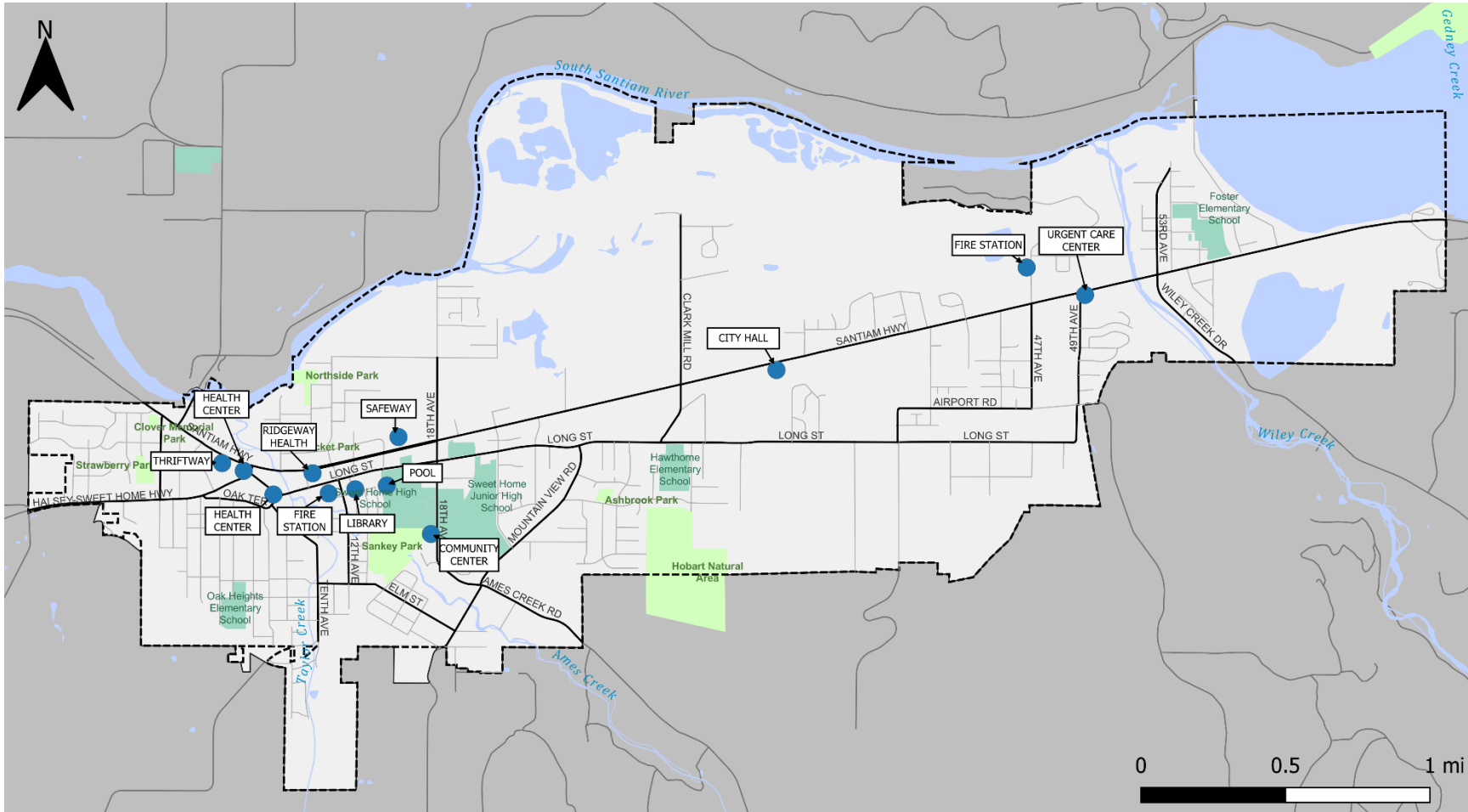
South Santiam Watershed, the city is situated along the South Fork of the Santiam River at an elevation of about 537 feet.

U.S. 20 (Santiam Highway) runs east-west through the city along Main Street and forms the major transportation link through the community. ORE 228 (Holley Road) enters Sweet Home from the west and curves north to terminate at U.S. 20 near the west end of the city.

Sweet Home is served by the Sweet Home School District. The district includes Sweet Home High School, a junior high school, and four elementary schools. The district covers Sweet Home, Cascadia, Crawfordsville, Holley, Liberty, Pleasant Valley, and other surrounding communities.

The study area boundary for this plan generally coincides with the Urban Growth Boundary (UGB), which is shown in **Figure 1** together with the city limits and street system, and key destinations identified within the city.

Figure 2 illustrates a zoning map of Sweet Home that shows how different land uses are oriented around the City. Most commercial land is found in the downtown area, and highway commercial along U.S. 20. High density residential is primarily located along Long Street or adjacent to the downtown area, and medium and low density radiating outward from the downtown area. In Fall 2022 the City updated the Development Code and added a Mixed Use Employment Zone (MUE) designation. This update was accompanied by an update to the Comprehensive Plan map and all the properties currently zoned RC had the Comprehensive Plan designation changed to MUE. While existing zoning in the area was not changed during this process, the modification enables flexibility by providing the benefits of the existing RC zoning while facilitating future transition to the MUE. **Figure 3** illustrates the City's 2022 Zoning Update.



- City Limits
- Schools
- Parks
- Outside UGB

FIGURE 1: SWEET HOME AND KEY DESTINATIONS

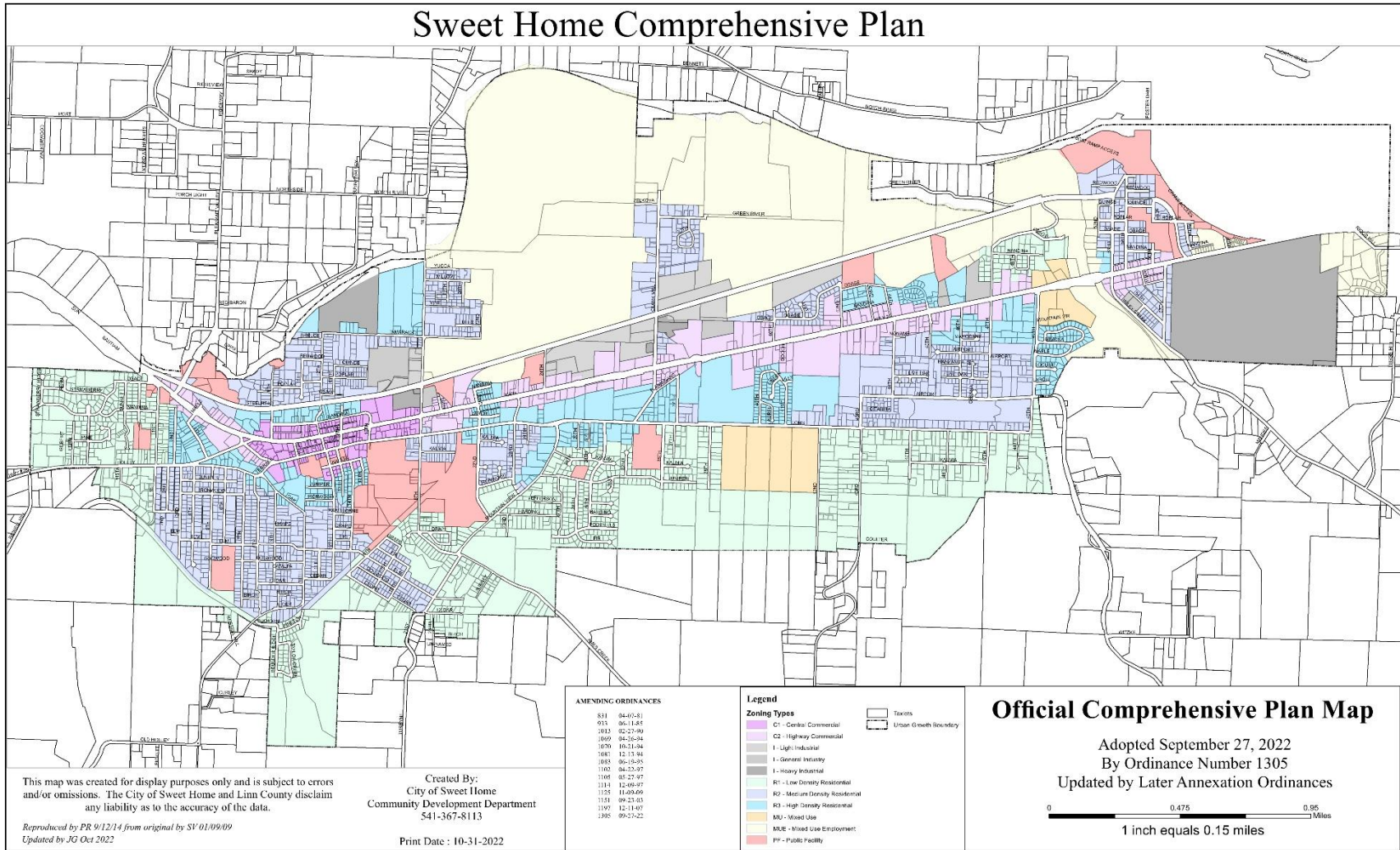


FIGURE 2: SWEET HOME COMPREHENSIVE PLAN (2022) LAND USE DESIGNATIONS

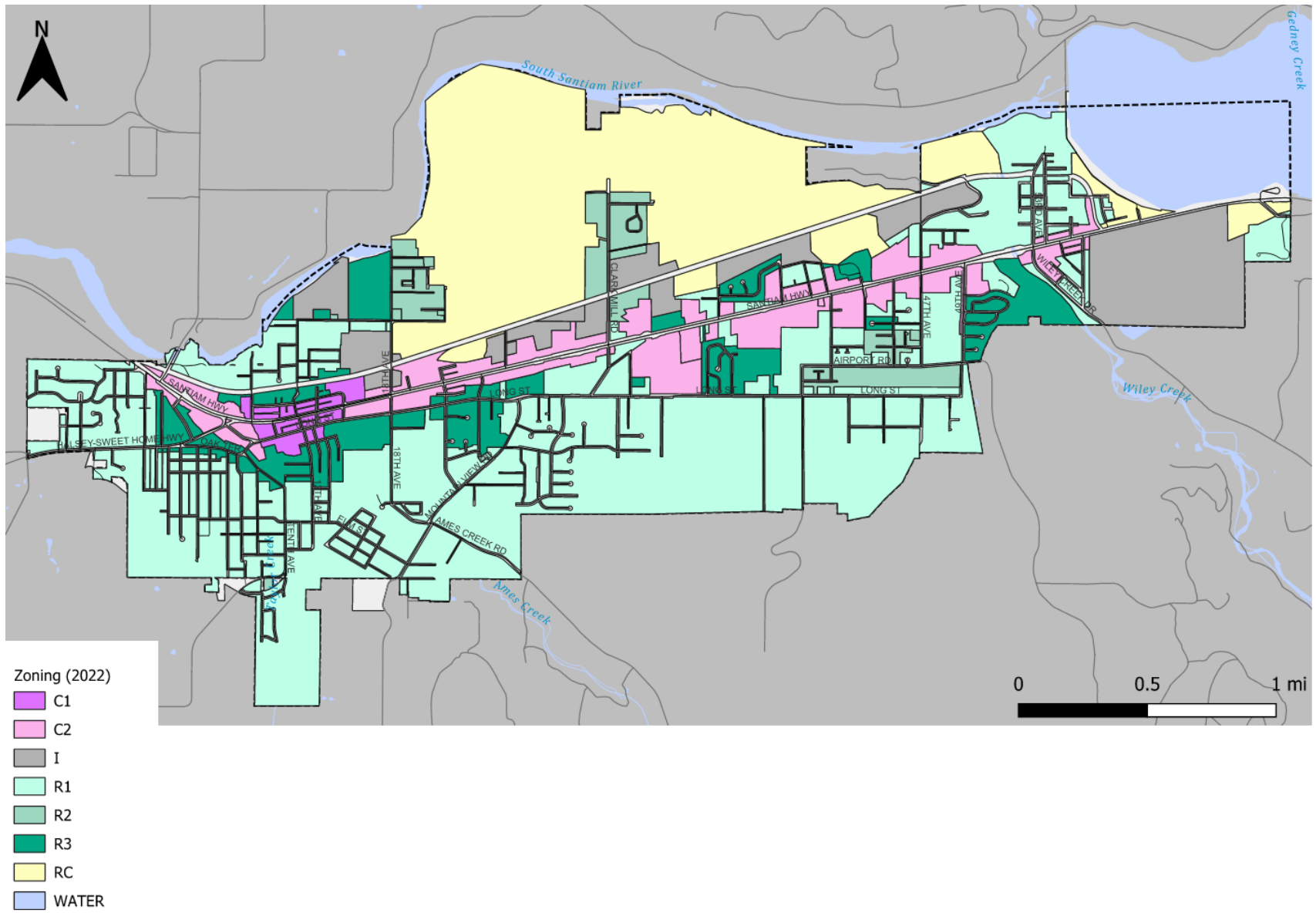


FIGURE 3: SWEET HOME ZONING UPDATE (2022)

WALKING AND BIKING CONDITIONS

Sweet Home is a compact city with many destinations located within a half-mile to three miles of each other. The system connectivity, density, and generally flat topography offer excellent pedestrian and cycling conditions in many areas of the city. Sweet Home's downtown area features a grid pattern of short blocks only interrupted by Ames Creek. Older areas in town also have a grid pattern, while newer areas transition to more suburban character with long blocks and cul-de-sacs.

The primary corridor through Sweet Home is U.S. 20 (Main Street/South Santiam Highway), which facilitates traffic flow between I-5 and Central Oregon. The high travel speeds of motor passing through the town to reach other destinations highlights the need for safe and highly visible pedestrian and bicycling facilities. Although improvements have been made, U.S. 20 still lacks adequate infrastructure for pedestrians and bicyclists along much of its length. However, the downtown stretch of the highway features a median with mid-block crosswalks, promoting enhanced visibility and safety for motorists, cyclists, and pedestrians.

While some streets in downtown provide satisfactory pedestrian amenities and can accommodate bicycles, many other streets in Sweet Home lack basic amenities such as sidewalks. Several barriers contribute to inefficient and less desirable pedestrian and bicycle travel, including the absence of walkways and challenges in crossing U.S. 20 outside of downtown, the lack of sidewalks and bike lanes or paths on collector streets, limited east-west connectivity (aside from Long Street and U.S. 20), and the absence of a connection between the newer and older parts of town via the street system, making it difficult to link the downtown core with the newer residential areas.

PEDESTRIAN NETWORK

Pedestrian facilities are a key aspect of a complete multimodal transportation system. Emphasizing pedestrian infrastructure not only promotes healthy lifestyles but also addresses social equity concerns by ensuring that individuals of all ages, including the young and elderly, as well as those without access to motorized transportation, can access essential goods, services, employment opportunities, public transit, and education.

Sidewalks are provided throughout the downtown core and some residential areas. Sidewalks are located in all of the commercial areas along Main Street and are well connected with most streets improved with curbs and sidewalks. Moving away from the downtown and nearby residential areas, the roads take on a more rural, unimproved character with the eastern part of the City having fewer sidewalks than the western and central areas.

Sidewalks are present on one or both sides of the street on arterials and collectors in streets, but there are deficiencies and gaps in multiple locations. Deficiencies are defined at locations where there is no sidewalk on either side of the street. Deficiencies exist on Long Street, Airport Road, 47th Avenue, 49th Avenue, 53rd Avenue and Wiley Creek Drive. Full sidewalks on both sides of the street are generally provided downtown and near the schools, as well as along Santiam Highway.

A map of existing pedestrian facilities can be found in **Figure 4**.

BICYCLE NETWORK

Bicycling plays a key role in the transportation system's ability to support healthy lifestyles and provide a variety of travel choices beyond the motor vehicle. Biking trips are an option for getting to and from school, shopping, commuting to work, and for travel to other activity generators in the City, as well as for recreational purposes. Currently, there are several designated bike routes and lanes within Sweet Home's downtown area, including portions of Main Street and Long Street.

Currently there are no separated cycling facilities in Sweet Home, however, painted bike lanes are present along a large portion of U.S. 20 and one segment of Long Street between 22nd Avenue and 35th Avenue. Sweet Home's existing bicycle facilities is shown in **Figure 5**.

BICYCLE LEVEL OF TRAFFIC STRESS

The Bicycle Level of Traffic Stress (LTS) is a measure used to assess the comfort and safety of bicycling conditions on different streets and routes. It quantifies the level of stress or discomfort experienced by cyclists when riding in proximity to motor vehicle traffic. The LTS methodology was developed to evaluate the suitability of streets and determine the need for bicycle infrastructure improvements.

LTS categorizes streets into four levels based on their traffic characteristics:

- LTS 1: Very Low Stress - These streets typically have minimal or no traffic, low vehicle speeds, and dedicated bicycle facilities such as bike lanes or separated paths. They are considered highly comfortable for cyclists.
- LTS 2: Low Stress - These streets have low traffic volumes and speeds, and they may have shared roadways or designated bicycle lanes. They are generally comfortable for most cyclists.
- LTS 3: Moderate Stress - These streets have moderate traffic volumes and speeds, often lacking dedicated bicycle facilities. Cyclists may have to share the road with vehicles, and there may be some challenges at intersections or other conflict points.
- LTS 4: High Stress - These streets are characterized by high traffic volumes, high vehicle speeds, and a lack of dedicated bicycle facilities. Cyclists face significant challenges sharing the road with fast-moving and heavy traffic, making these streets uncomfortable and potentially unsafe for biking.

By evaluating streets using the LTS framework, transportation planners and policymakers can identify areas where improvements are needed to create a more bicycle-friendly environment. This may include implementing bike lanes, protected bike facilities, traffic calming measures, or other infrastructure enhancements to reduce stress and enhance safety for cyclists.

Collector and Arterial streets in Sweet Home have been evaluated based on the BLTS methodology outlined in the *ODOT Analysis Procedures Manual Version 2 (2020)*. Based on this methodology, the majority of Sweet Home's arterial and connector street network is BLTS level 3 or BLTS level 4, with the score primarily driven by the high travel speeds on these corridors. BLTS on Sweet Home's transportation network is summarized in **Figure 6**.

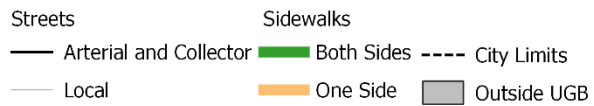
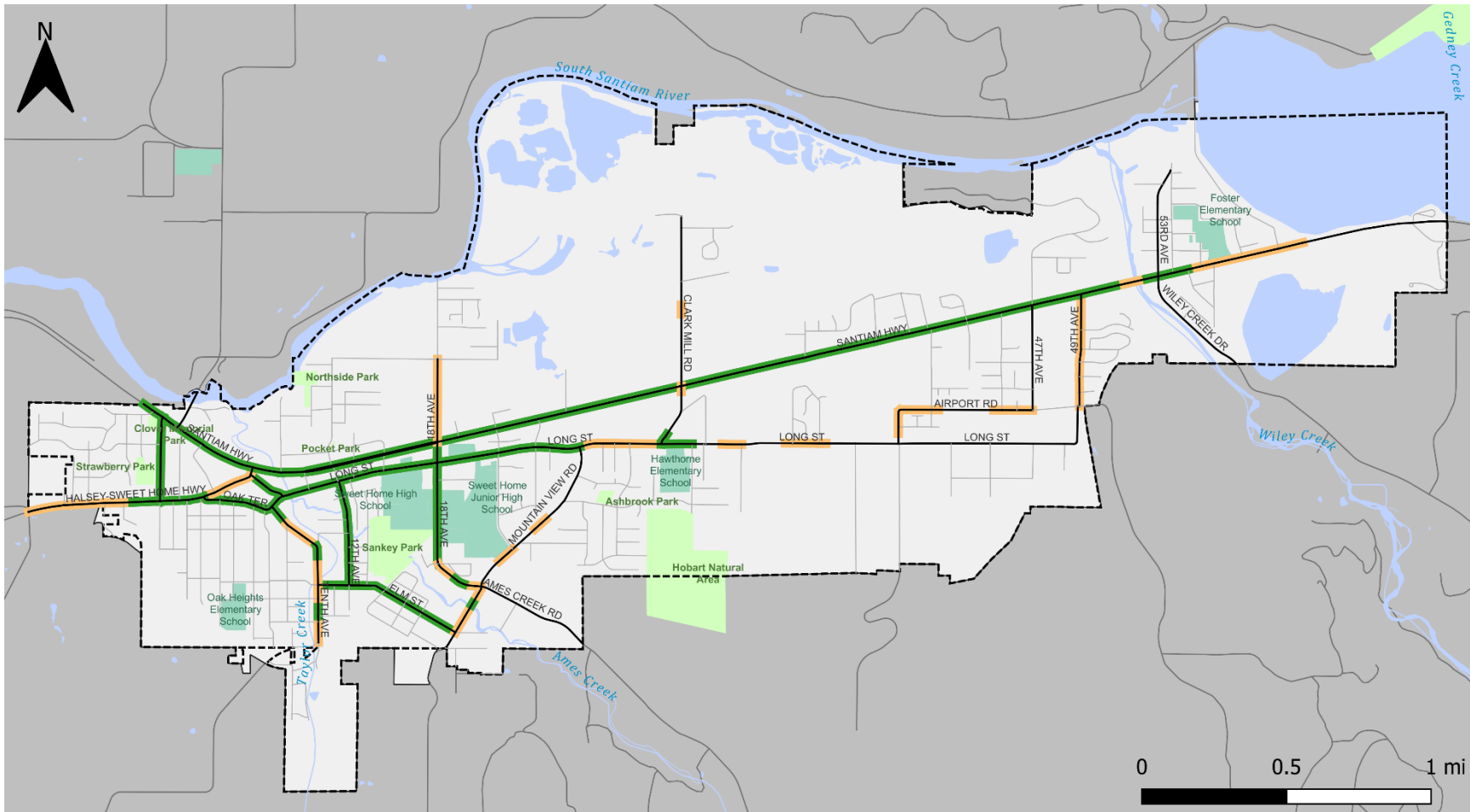
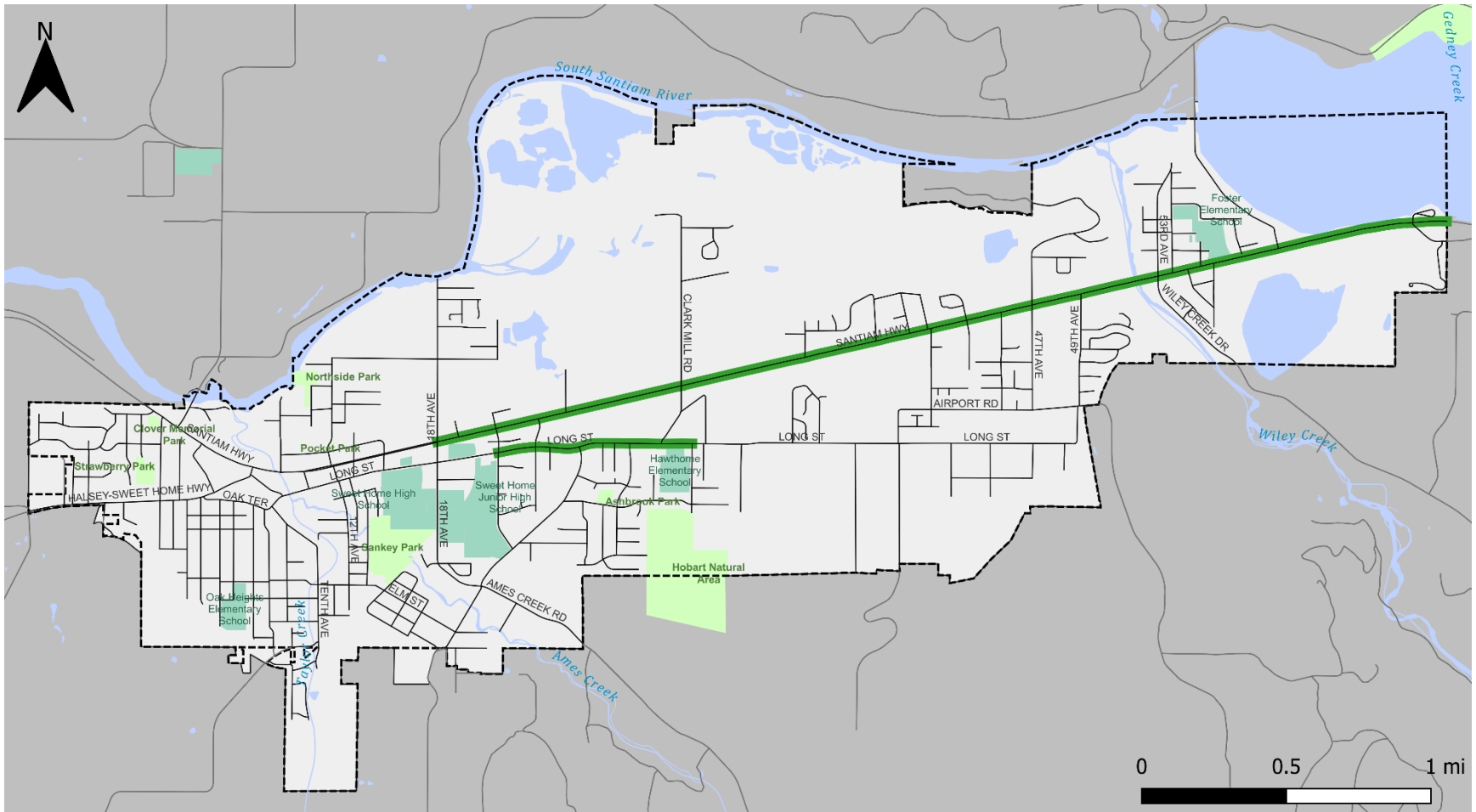
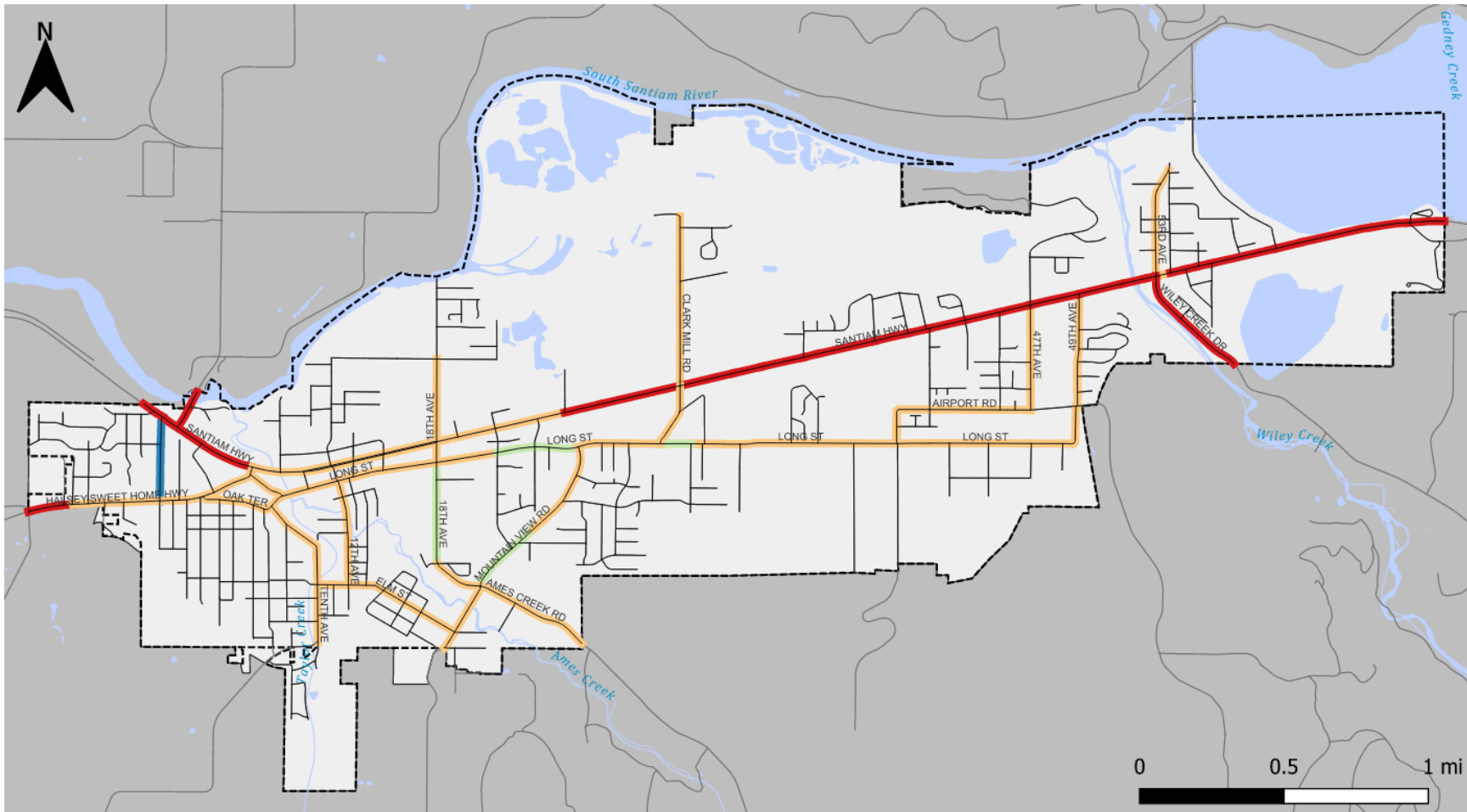


FIGURE 4: SIDEWALK INVENTORY



- Painted Bike Lane
- City Limits
- Outside UGB

FIGURE 5: EXISTING BICYCLE FACILITIES



- BLTS - - - - City Limits
- 1 █ Outside UGB
- 2 █
- 3 █
- 4 █

FIGURE 6: BLTS ON CITY COLLECTOR AND ARTERIAL STREETS

TRANSIT CONDITIONS

Transit service is provided in Sweet Home through three main routes. The Linn Shuttle, the Sweet Home Shopper, and Dial-A-Bus Service. A description of these three services is summarized in the following sections.

LINN SHUTTLE

The non-profit Senior Citizens of Sweet Home operates the Linn Shuttle fixed route service between Sweet Home-Lebanon-Albany. The Linn Shuttle connects with the Linn-Benton Loop (at the Linn- Benton Community College Albany Campus) to provide service to East Linn County residents who wish to travel to Albany or Corvallis. Seven round trips a day between Sweet Home-Lebanon-Albany with an additional 5 round trips between Lebanon and LBCC-Albany called the "LBCC-Lebanon Express". Service is available Monday-Friday between 6:30 a.m. and 7:30 p.m.

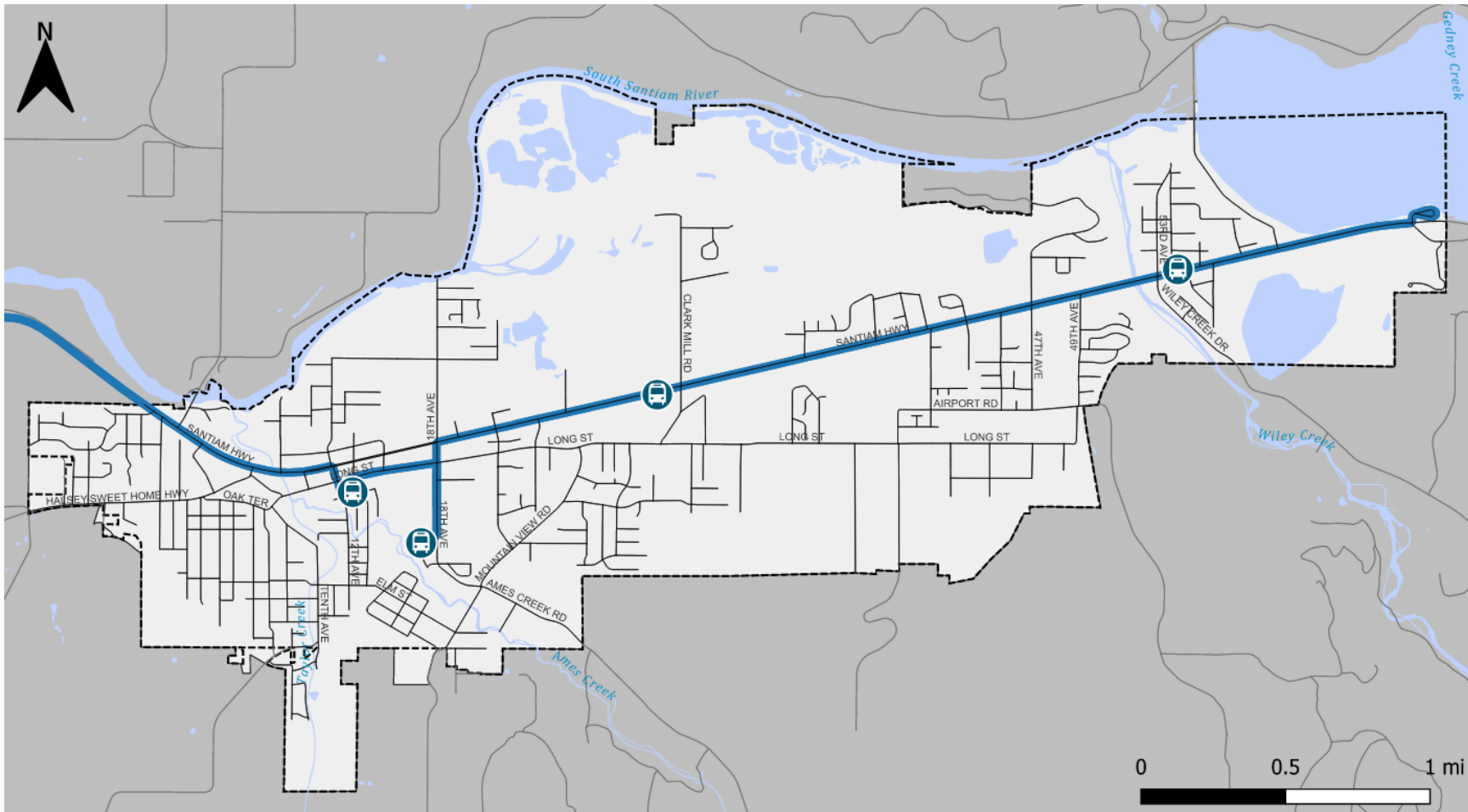
Funding for the Linn Shuttle comes from State Cigarette Tax funds allocated for elderly and handicapped transportation systems, as well as small cities and rural transportation funds from the Department of Transportation. Anyone can ride the Linn Shuttle. Linn-Benton Community College students and staff can ride for free by showing their ID cards. The shuttle operates on a scheduled route and the route is illustrated in **Figure 7**.

SWEET HOME SHOPPER

The Shopper is available to everyone, is wheelchair accessible, and buses are equipped with bike racks. The Shopper operates Monday Through Friday from 9:00 a.m. to 4:00 p.m. There are four trips from town out to Foster and back. On Tuesdays and Thursdays, the Shopper goes to Cascadia (stopping at Cascadia Short Bridge Rest Stop) with a trip in the morning and a return in the afternoon. The Sweet Home Shopper Route is illustrated in **Figure 8**.

DIAL-A-BUS

The non-profit Senior Citizens of Sweet Home operates the Sweet Home Dial-A-Bus which provides curb-to-curb service to older adults, people with disabilities and the general public within the boundaries of the Sweet Home School District. It also operates a limited "deviated fixed route" program within the boundaries of the City of Sweet Home. Dial-A-Bus Service is available Monday-Friday between 7:00 a.m. and 4:00 p.m. Rides must be scheduled in advance.

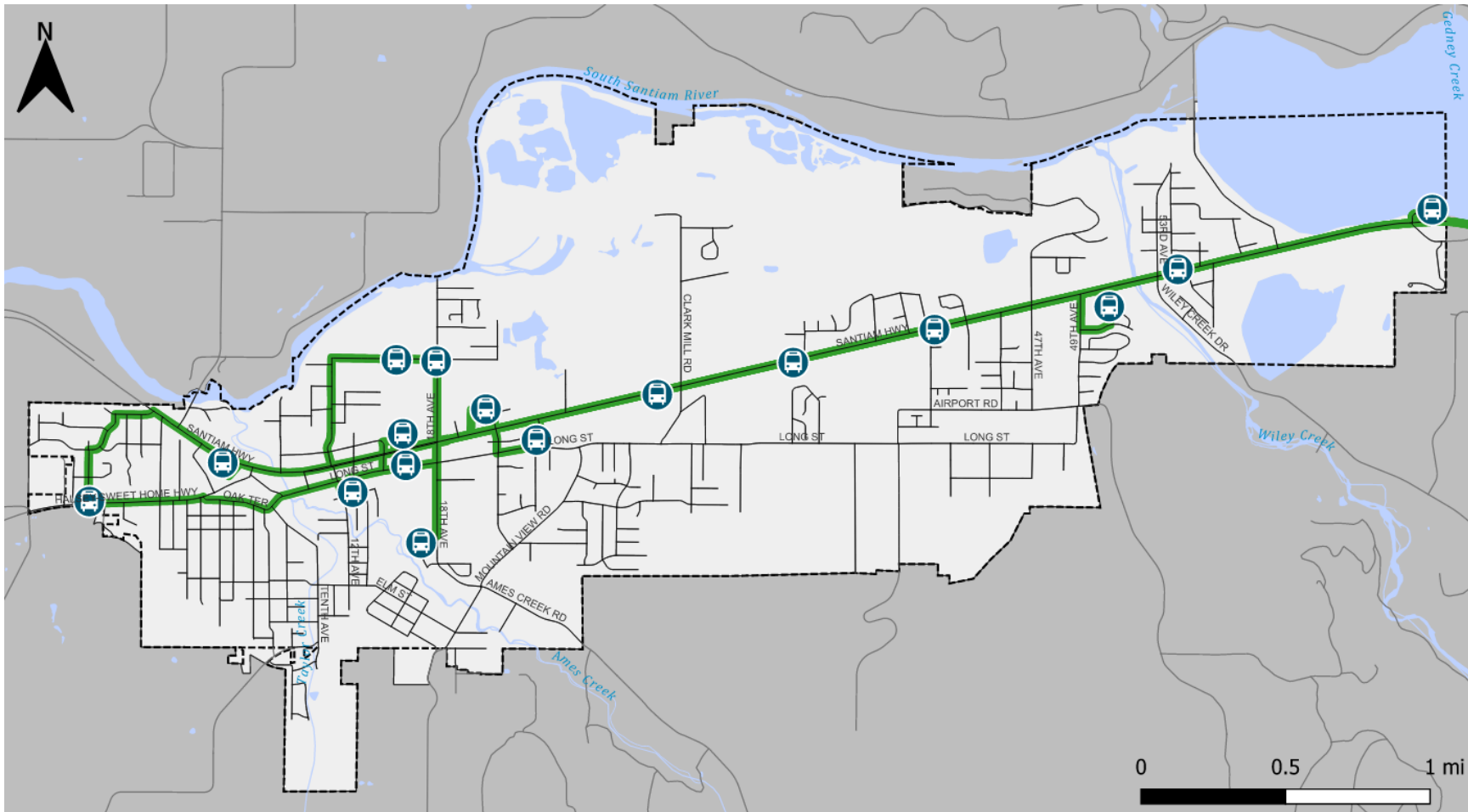


 Stops

Route

 Linn Shuttle

FIGURE 7: LINN SHUTTLE ROUTE





-  Stops
- Route
-  Sweet Home Shopper

FIGURE 8: SWEET HOME SHOPPER ROUTE

SAFETY CONDITIONS

SAFETY ANALYSIS

Transportation infrastructure must be safe for everyone, whether walking, biking, rolling, or driving. Assessing historical collision data helps identify any shortcomings in the system and improve safety conditions for Sweet Home residents. Crash data from 2017 through 2021 (the most recent five years available) was obtained from the Oregon Department of Transportation (ODOT) and reviewed to identify any high-crash locations and trends involving people walking or biking who are typically the most vulnerable to serious injuries. All crashes within Sweet Home are mapped in **Figure 9**. Bicycle and pedestrian only crashes are mapped in **Figure 10**.

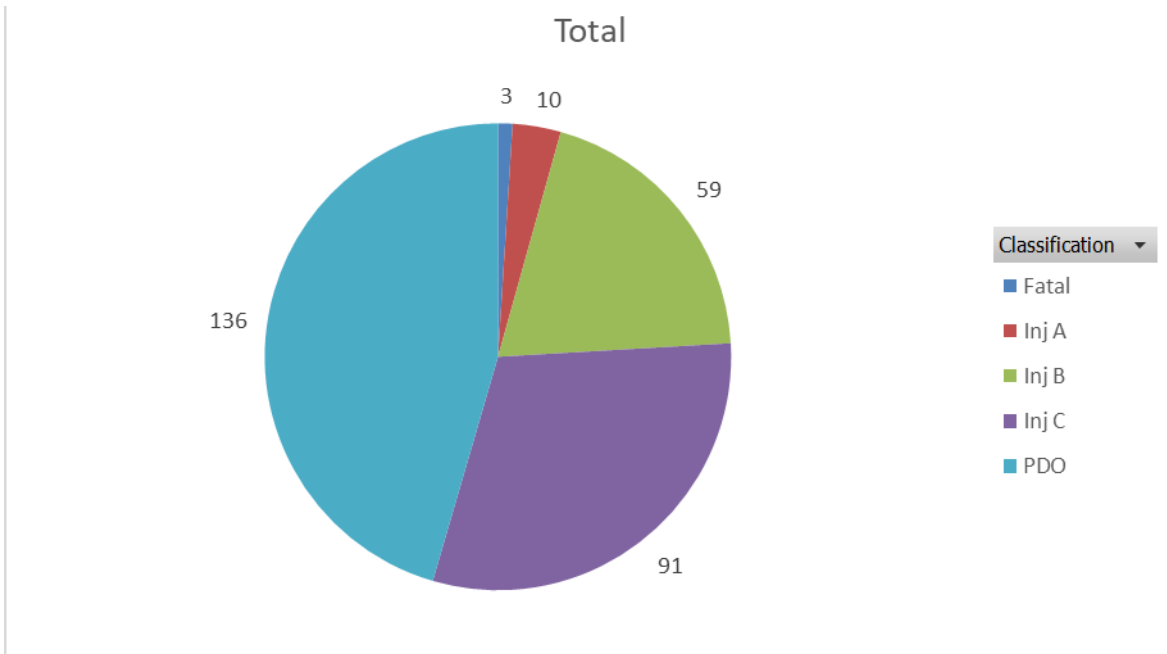
During this five-year period, there were a total of 299 crashes, 13 of which involved a pedestrian, and 9 involved a cyclist. 19 crashes were flagged for drug or alcohol involvement. As seen in Figure 13, there were three fatalities and 69 crashes that resulted in serious injuries during this period. These comprise almost of quarter of all crashes in Sweet Home.

Many crashes occurred along US 20 (Main Street), including 104 at study intersections for the Transportation System Plan. There was one Fatal crash on US 20 (Main Street) at 1st Avenue and four Injury A crashes occurred at the intersections with Holley Road, 12th Avenue, 15th Avenue and 22nd Avenue.

The two other fatal crashes occurred at the intersection of 12th Avenue/Hawthorne Street (involved pedestrian) and at the intersection of Ames Creek Road/Mountain View Road.

The most common collision types, in order of frequency, include turning vehicles, rear-end crashes, crashes with fixed objects and angle crashes (often referred to as "T-bone" crashes). Thirty-one percent of crashes involved turning movements. Over half of these turning crashes resulted in injury. Most of these crashes were caused by a failure to yield at a stop sign. There were 71 rear end collisions, 34 of which resulted in only property damage. There were 50 fixed-object crashes and 33 angle collisions. Many of these crashes occurred at stop-controlled intersections.

FIGURE 13: SEVERITY OF CRASHES IN SWEET HOME (2017-2021)



Of the nine pedestrian crashes most were caused by a failure to yield, one of these resulted in a pedestrian fatality. The fatality occurred at the intersection of Hawthorne Street and 12th Avenue in dry conditions during the day. Of the nine bicycle involved crashes there were no serious injuries.

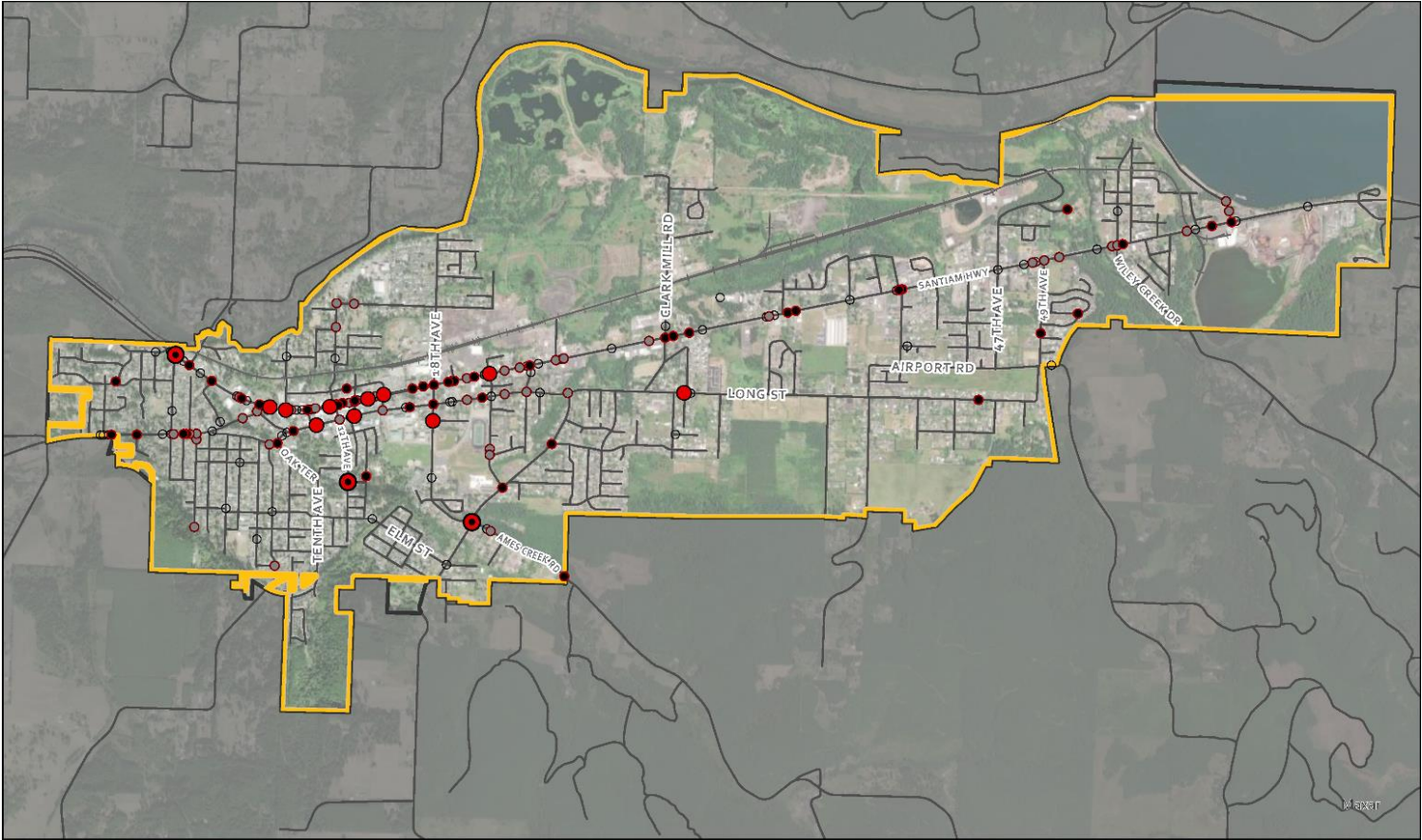
The crash analysis was supplemented by a review of ODOT’s Safety Priority Index System listings for locations in the City that ranked among the state’s top ten percent of hazardous locations. The Safety Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on state highways, with the score based on three years of crash data, considering crash frequency, rate, and severity. ODOT bases its SPIS on 0.10-mile segments to account for variances in how crash locations are reported. This rating provides a general comparison of the overall safety of the highway based on crash information for all highway segments throughout the state.

According to ODOT 2020 SPIS ratings (data reported between 2017 and 2019), the only location within Sweet Home in the top ten percent of segments is along US 20 (Main Street) just east of 9th Avenue.

TABLE: COLLISION TYPE FOR STUDY INTERSECTIONS

STUDY INTERSECTION	ANGLE	BACK	FIXED OBJECT	NCOL	OTHER	PEDESTRIAN	REAR END	SIDE SWIPE OPPOSITE	TURNING
1. MAIN STREET (U.S. 20) AND PLEASANT VALLEY ROAD			2					1	3
2. MAIN STREET (U.S. 20) AND HOLLEY ROAD (HWY 228)							6	1	10
3. MAIN STREET (U.S. 20) AND 12 TH AVENUE	5	1	2				1	2	3
4. MAIN STREET (U.S. 20) AND 15 TH AVENUE	3						1	1	5
5. MAIN STREET (U.S. 20) AND 18 TH AVENUE	2		2			2	3		3
6. MAIN STREET (U.S. 20) AND 22 ND AVENUE	5			1		2	4	1	7
7. MAIN STREET (U.S. 20) AND 24 TH AVENUE			1				1	1	3
8. MAIN STREET (U.S. 20) AND CLARK MILL ROAD	3		1		1		2	1	5
9. MAIN STREET (U.S. 20) AND 44 TH AVENUE			3						3
10. MAIN STREET (U.S. 20) AND 47 TH AVENUE			1						1

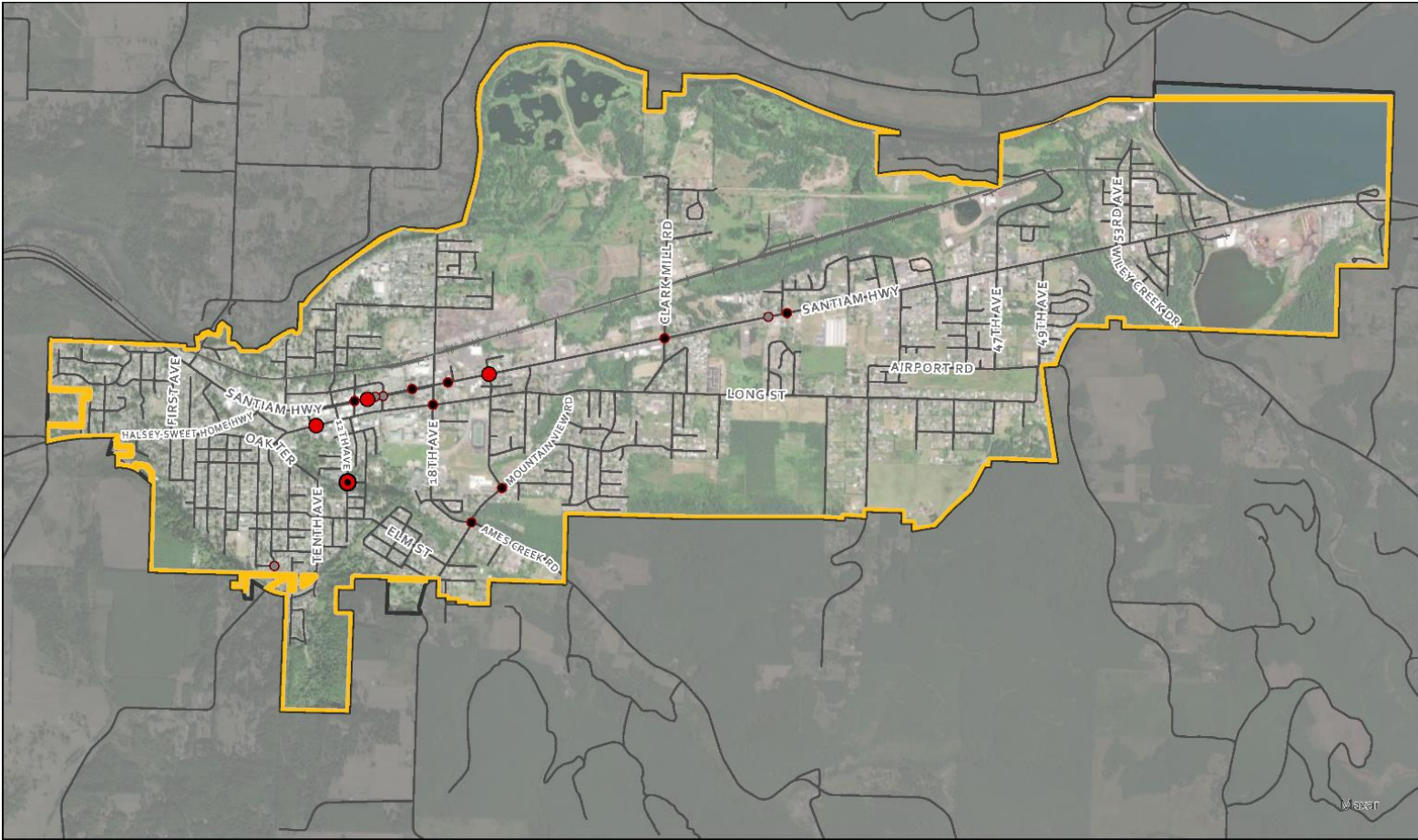
STUDY INTERSECTION	ANGLE	BACK	FIXED OBJECT	NCOL	OTHER	PEDESTRIAN	REAR END	SIDE SWIPE OPPOSITE	TURNING
11. MAIN STREET (U.S. 20) AND 49 TH AVENUE								1	3
12. MAIN STREET (U.S. 20) AND 53 RD AVENUE	1		1				1		2
14. MAIN STREET (U.S. 20) AND 60 TH AVENUE (FOSTER DAM ROAD)			3				1		1
15. HOLLEY ROAD (HWY 228) AND 1 ST AVENUE			1				3	1	
16. HOLLEY ROAD (HWY 228) AND OAK TERRACE									1
17. LONG STREET AND 18 TH AVENUE	4		1			1	1		2
TOTAL	23	1	18	1	1	5	24	10	52



Classification Base Map

- Fatal
- Inj A
- Inj B
- Inj C
- PDO
- City Limits
- ▭ UGB
- Rail
- Streets

FIGURE 9: 2017 TO 2021 CRASH MAP BY SEVERITY



Classification Base Map

- Fatal
- Inj A
- Inj B
- Inj C
- PDO
- City Limits
- ▭ UGB
- Rail
- Streets

FIGURE 10: 2017 TO 2021 BICYCLE AND PEDESTRIAN CRASHES BY SEVERITY

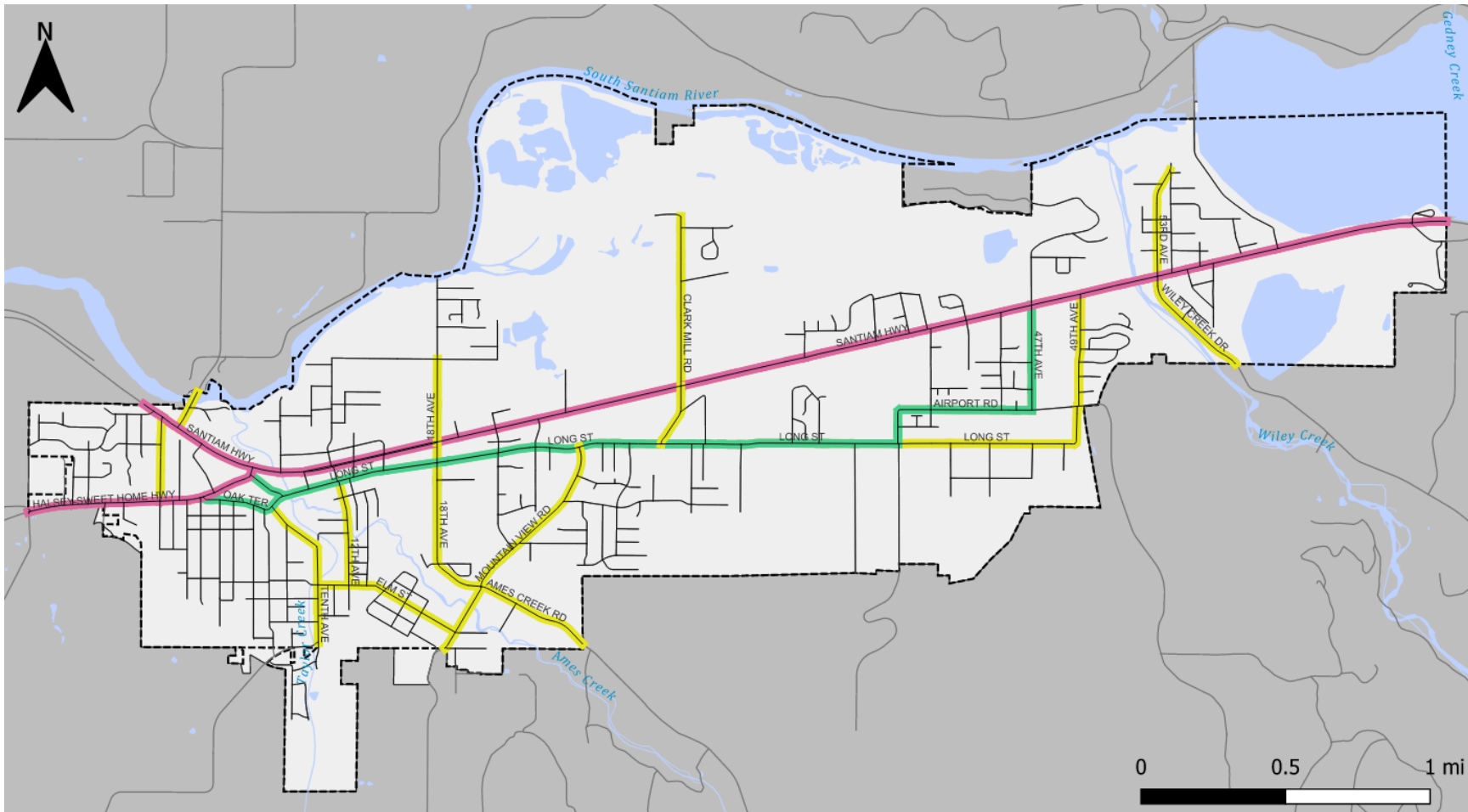
MOTOR VEHICLE CONDITIONS

KEY CORRIDORS

U.S. 20 and Highway 228 are the key arterials in Sweet Home. U.S. 20 is a major east-west highway that runs through Sweet Home. It begins at the Oregon Coast in Newport and travels eastward through the Willamette National Forest before eventually reaching the Idaho border. In Sweet Home, U.S. 20 runs through the center of town along Main Street. It is an important transportation route for local residents, as well as for travelers passing through the area. Highway 228 is a shorter highway that runs north-south through Sweet Home. It begins at U.S. 20 near the eastern edge of town and travels southward through the Willamette National Forest before eventually reaching the city of Brownsville. In Sweet Home, Highway 228 provides access to several recreational areas and natural attractions, including Quartzville Creek and Green Peter Lake.

In addition to the two highways, Long Street serves as the primary east-west arterial in Sweet Home. Long Street begins at Highway 228 to the west, and eventually terminates at Airport Road and connects to U.S. 20 via 47th Avenue.

The arterial and collector road network in Sweet Home is illustrated in **Figure 1111**. The posted speeds on this study road network is illustrated in **Figure 1212**.



Functional Classification --- City Limits
 Collector Outside UGB
 Major Arterial
 Minor Arterial

FIGURE 11: ARTERIAL AND COLLECTOR ROAD NETWORK

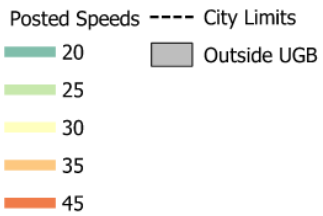
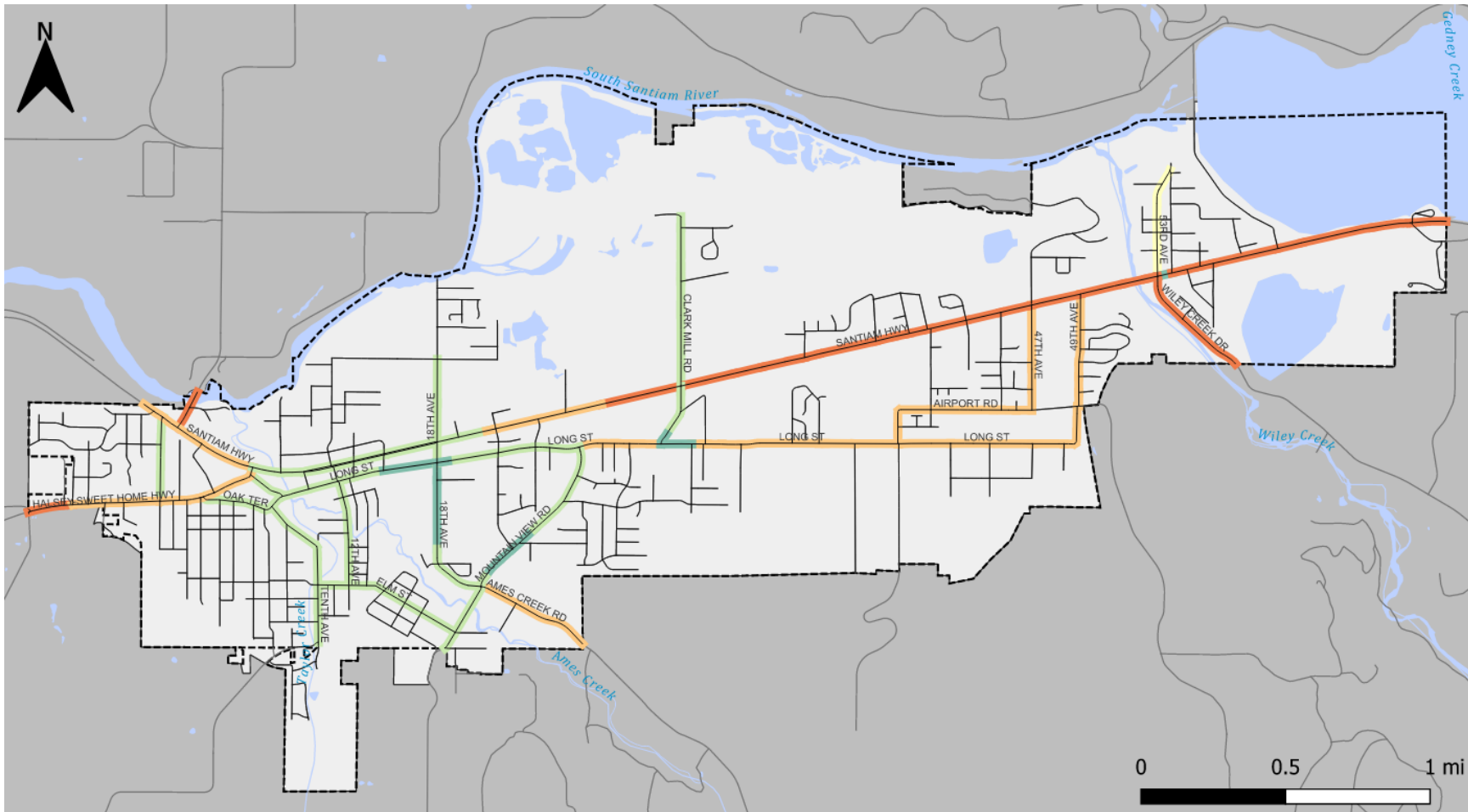


FIGURE 12: POSTED SPEEDS ON ARTERIAL AND COLLECTOR ROAD NETWORK

EXISTING TRAFFIC CONDITIONS AT STUDY INTERSECTIONS

Congestion levels at a selection of key intersections (**Figure 9**) in Sweet Home were evaluated to understand where motorists experience higher delays. The study intersections include five signalized intersections, 12 two-way stop-controlled (TWSC) intersections, and two all-way stop-controlled (AWSC) intersections.

Traffic counts were collected in June 2021 and existing conditions analysis has assumed a base year of 2021. Study intersection traffic operations have been analyzed using estimated 30th highest hour traffic volume (30 HV) conditions. A singular system peak hour has been used to derive intersection traffic volumes for traffic analysis. The peak hour for the study intersections was identified using the Oregon Traffic Monitoring System MS2 platform, which determined the system p.m. peak hour to be 4:15 to 5:15 p.m. A seasonal adjustment factor of 1.04 has been applied to the volumes based on the methodology described in **Task 3.1 Existing Conditions Inventory and Analysis**. Traffic volumes for the weekday p.m. peak hour are shown in **Figures 12 and 13**.

The County and City have adopted vehicle mobility standards. These standards provide a benchmark to measure intersection congestion against and ensure that the transportation system will have adequate capacity to support planned growth. These standards are either measured with level of service (LOS) or volume-to-capacity ratio (v/c ratio). The LOS is an A to F rating of the level of delay the average vehicle will experience at an intersection (similar to a report card, where LOS A has very little delay and LOS F has a lot of delay). The v/c ratio is a proportion from zero to one that measures the approximate amount of an intersection's capacity to move traffic that is being used. For example, a v/c ratio of 0.90 indicates that 90 percent of an intersection's capacity to move traffic is being used. Existing Peak Hour traffic conditions have been compared to ODOT

and City mobility targets/operating standards in

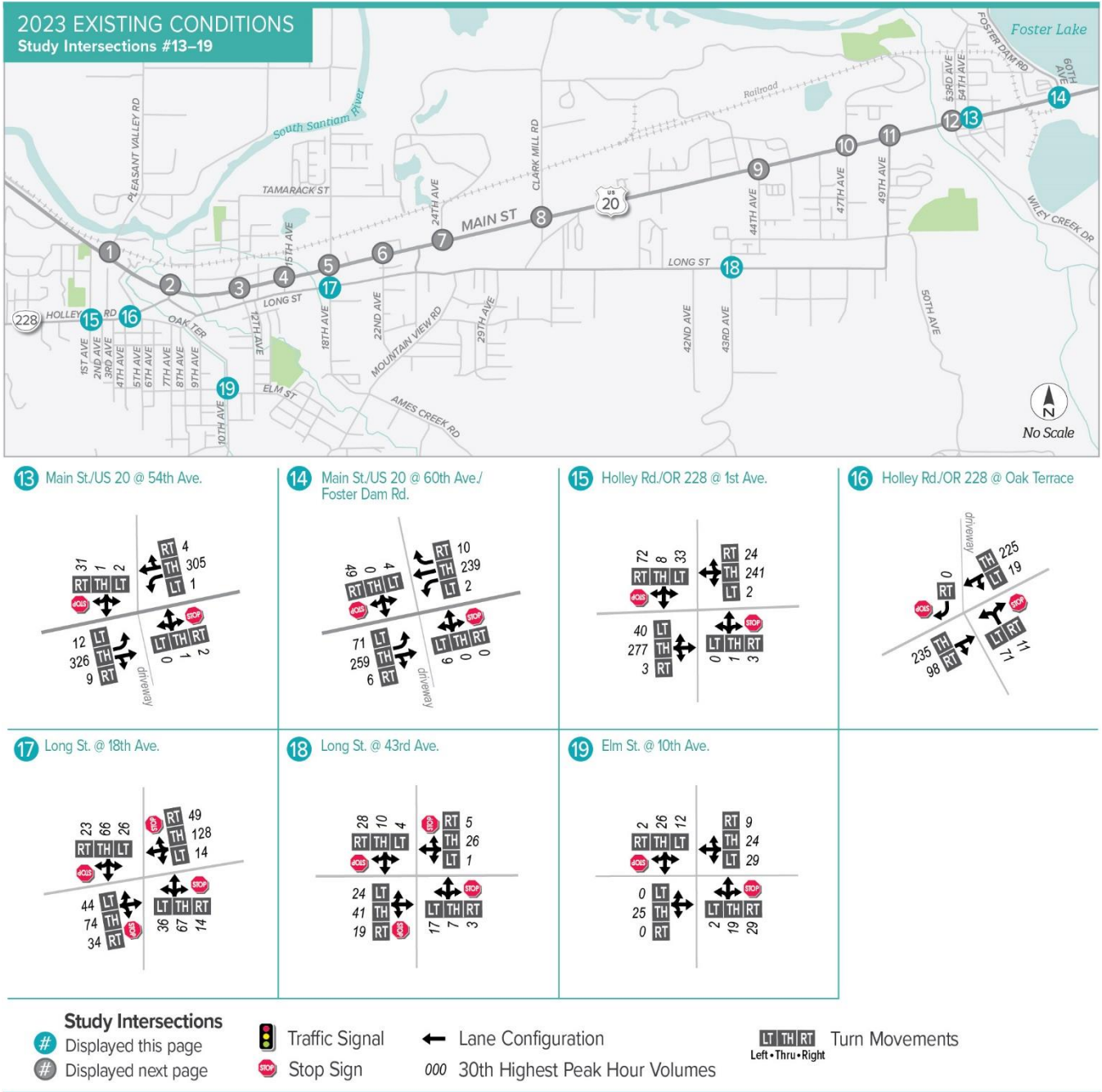


Figure 14: Study Intersection Lane Configuration and Traffic Volume (Part 2)

Table 1.

Results of the traffic operations analysis indicate that all study intersections are operating within analysis thresholds. Results of the traffic operations analysis are summarized in

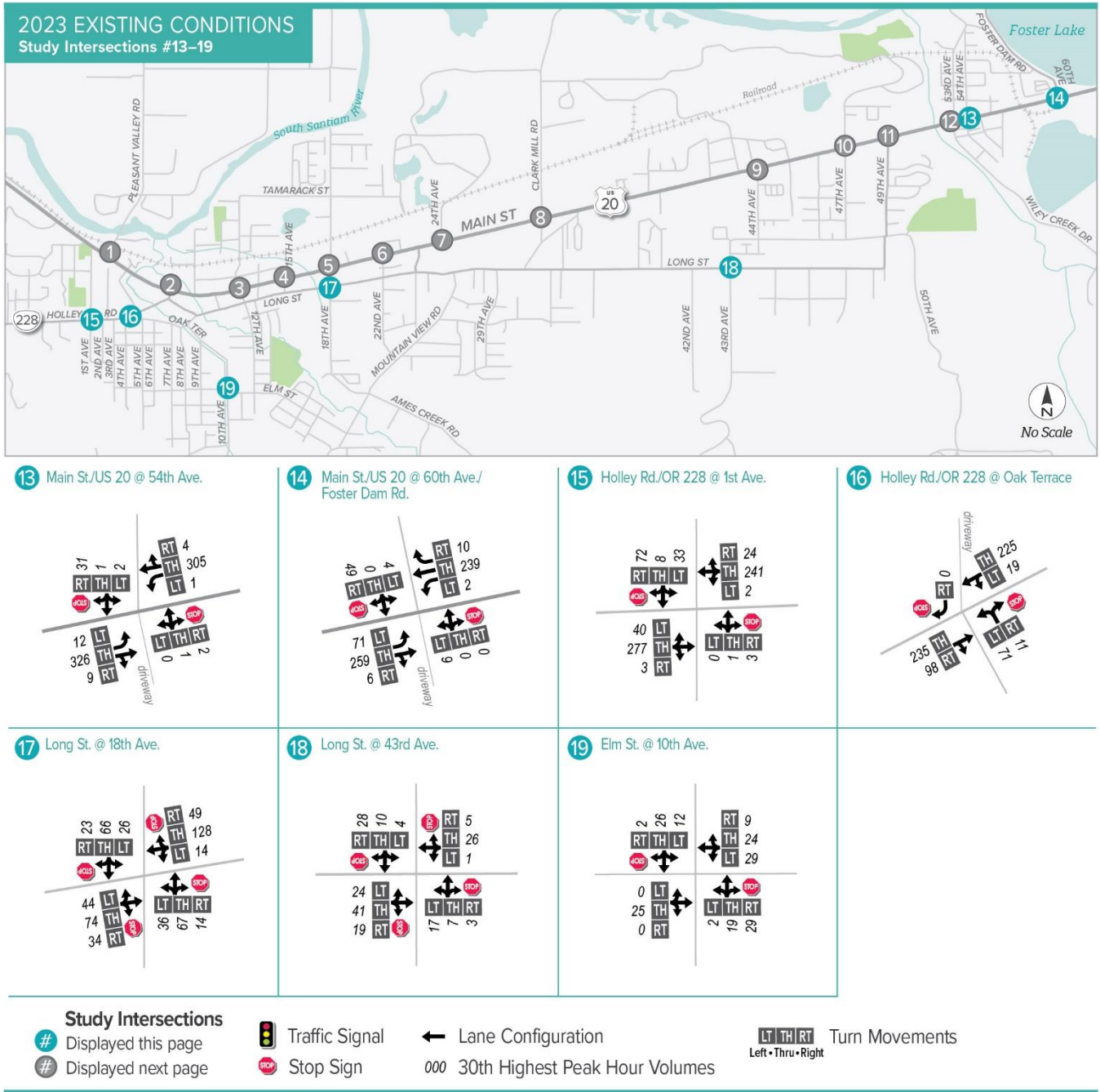


Figure 14: Study Intersection Lane Configuration and Traffic Volume (Part 2)

Table 1.

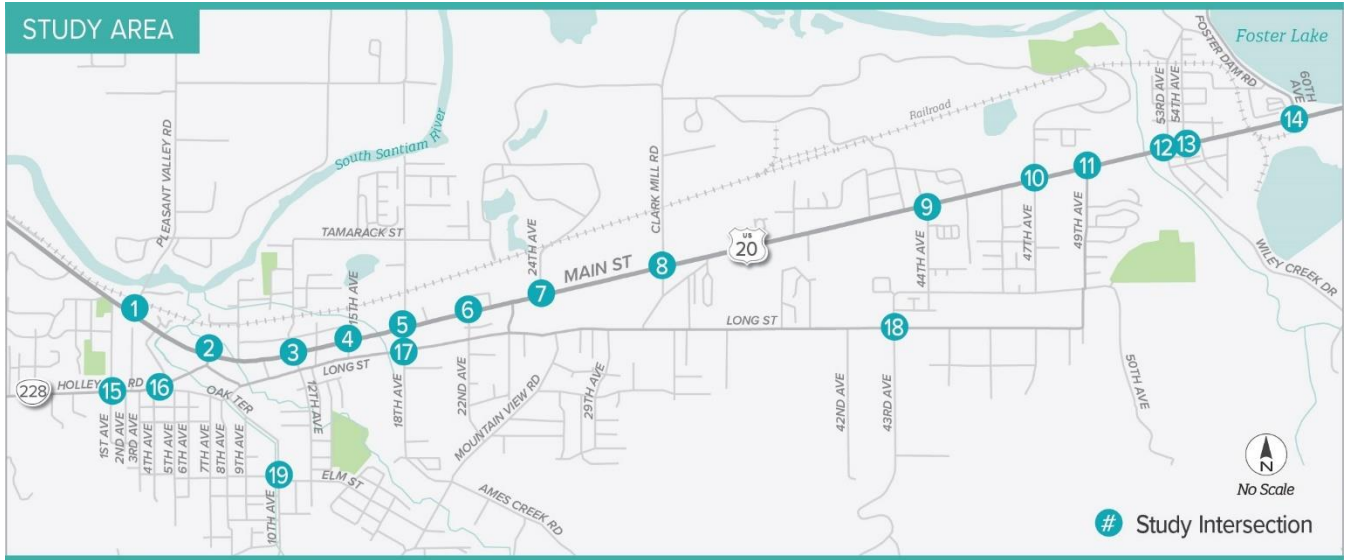
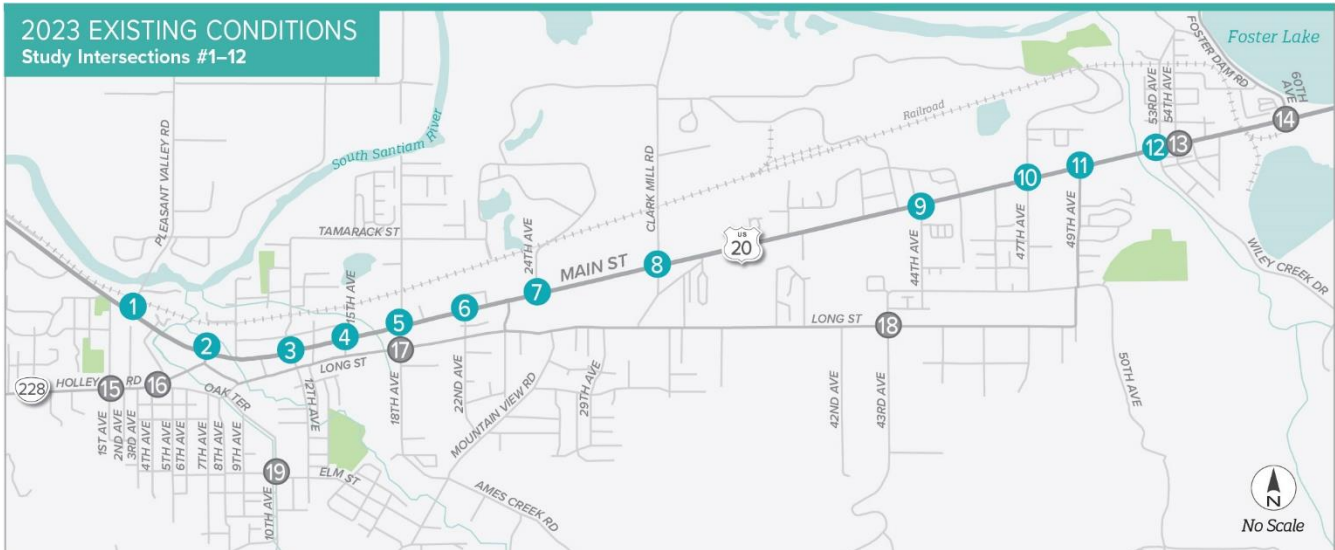
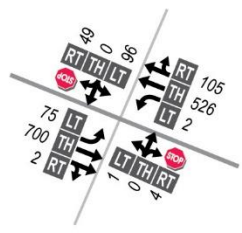


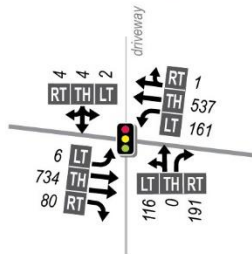
FIGURE 9: STUDY INTERSECTIONS



1 Main St/US 20 @ Pleasant Valley Rd.



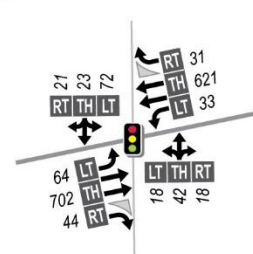
2 Main St/US 20 @ Holley Rd./OR 228



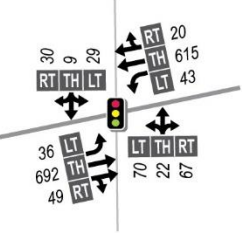
3 Main St/US 20 @ 12th Ave.



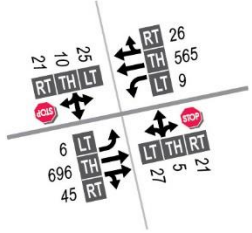
4 Main St/US 20 @ 15th Ave.



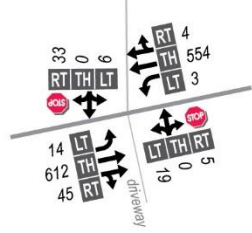
5 Main St/US 20 @ 18th Ave.



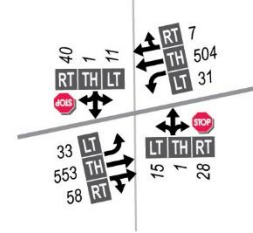
6 Main St/US 20 @ 22nd Ave.



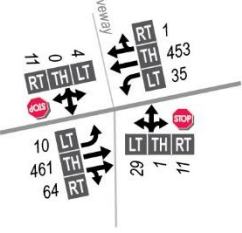
7 Main St/US 20 @ 24th Ave.



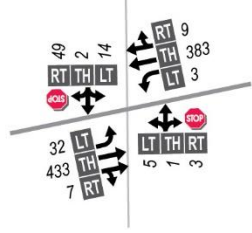
8 Main St/US 20 @ Clark Mill Rd.



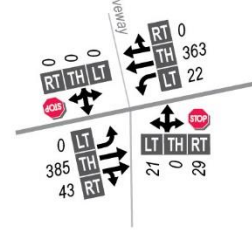
9 Main St/US 20 @ 44th Ave.



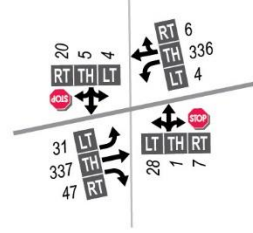
10 Main St/US 20 @ 47th Ave.



11 Main St/US 20 @ 49th Ave.

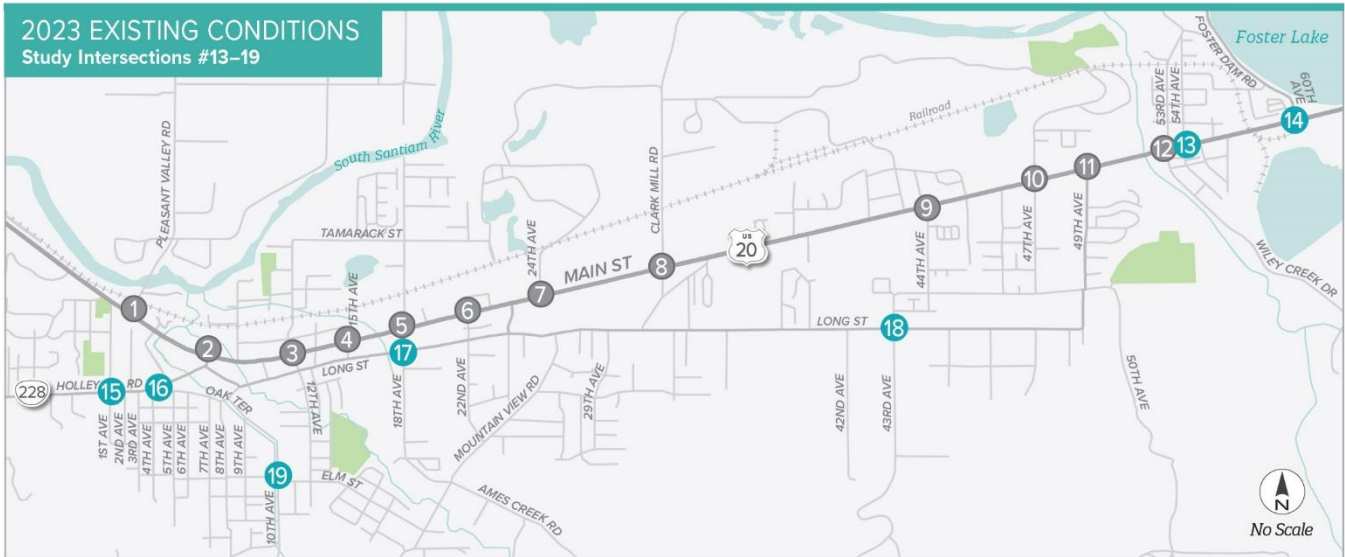


12 Main St/US 20 @ 53rd Ave.

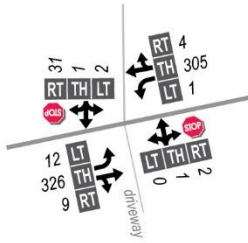


Study Intersections
 # Displayed this page
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 Traffic Signal
 Stop Sign
 Lane Configuration
 000 30th Highest Peak Hour Volumes
 Turn Movements
 Left • Thru • Right

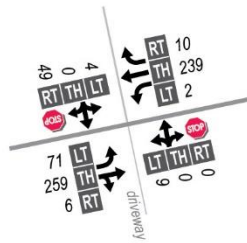
FIGURE 13: STUDY INTERSECTION LANE CONFIGURATION AND TRAFFIC VOLUME (PART 1)



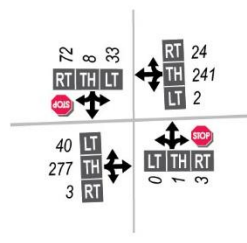
13 Main St/US 20 @ 54th Ave.



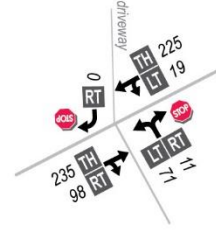
14 Main St/US 20 @ 60th Ave./ Foster Dam Rd.



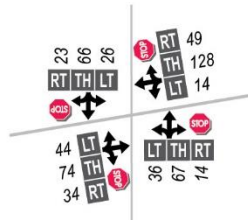
15 Holley Rd/OR 228 @ 1st Ave.



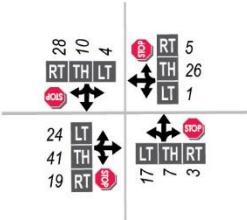
16 Holley Rd/OR 228 @ Oak Terrace



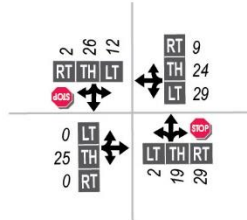
17 Long St. @ 18th Ave.



18 Long St. @ 43rd Ave.



19 Elm St. @ 10th Ave.



Study Intersections

- # Displayed this page
- # Displayed next page

- Traffic Signal
- Stop Sign

← Lane Configuration

000 30th Highest Peak Hour Volumes

LT | TH | RT Turn Movements
Left • Thru • Right

FIGURE 14: STUDY INTERSECTION LANE CONFIGURATION AND TRAFFIC VOLUME (PART 2)

TABLE 1: EXISTING (2021) TRAFFIC OPERATIONS AT STUDY INTERSECTIONS – WEEKDAY PM PEAK HOUR

INTERSECTION	CONTROL TYPE	MOBILITY STANDARD	LOS	DELAY (SECONDS)	V/C RATIO
1. MAIN STREET (U.S. 20) AND PLEASANT VALLEY ROAD	TWSC	$v/c \leq 0.85$	A/F	1/97	0.02/0.91
2. MAIN STREET (U.S. 20) AND HOLLEY ROAD (HWY 228)	Signal	$v/c \leq 0.90$	B	12	0.78
3. MAIN STREET (U.S. 20) AND 12 TH AVENUE	Signal	$v/c \leq 0.90$	A	5	0.43
4. MAIN STREET (U.S. 20) AND 15 TH AVENUE	Signal	$v/c \leq 0.90$	A	5	0.4
5. MAIN STREET (U.S. 20) AND 18 TH AVENUE	Signal	$v/c \leq 0.90$	A	6	0.44
6. MAIN STREET (U.S. 20) AND 22 ND AVENUE	Two-Way Stop	$v/c \leq 0.90$	A/E	0.2/35	0.01/35
7. MAIN STREET (U.S. 20) AND 24 TH AVENUE	Two-Way Stop	$v/c \leq 0.90$	A/D	0.2/27	0.02/0.15
8. MAIN STREET (U.S. 20) AND CLARK MILL ROAD	Two-Way Stop	$v/c \leq 0.85$	A/C	0.5/19	0.04/0.16
9. MAIN STREET (U.S. 20) AND 44 TH AVENUE	Two-Way Stop	$v/c \leq 0.85$	A/C	0.6/22	0.04/0.18
10. MAIN STREET (U.S. 20) AND 47 TH AVENUE	Two-Way Stop	$v/c \leq 0.85$	A/C	0.6/19	0.04/0.16
11. MAIN STREET (U.S. 20) AND 49 TH AVENUE	Two-Way Stop	$v/c \leq 0.85$	A/B	0.5/14	0.02/0.16
12. MAIN STREET (U.S. 20) AND 53 RD AVENUE	Two-Way Stop	$v/c \leq 0.85$	A/C	0.6/20	0.03/0.15
13. MAIN STREET (U.S. 20) AND 54 TH AVENUE	Two-Way Stop	$v/c \leq 0.85$	A/B	0.3/13	0.01/0.07
14. MAIN STREET (U.S. 20) AND 60 TH AVENUE (FOSTER DAM ROAD)	Two-Way Stop	$v/c \leq 0.85$	A/C	2/19	0.07/0.09
15. HOLLEY ROAD (HWY 228) AND 1 ST AVENUE	Two-Way Stop	$v/c \leq 0.95$	A/C	1/16	0.04/0.29
16. HOLLEY ROAD (HWY 228) AND OAK TERRACE	Two-Way Stop	$v/c \leq 0.95$	A/C	1/16	0.02/0.23

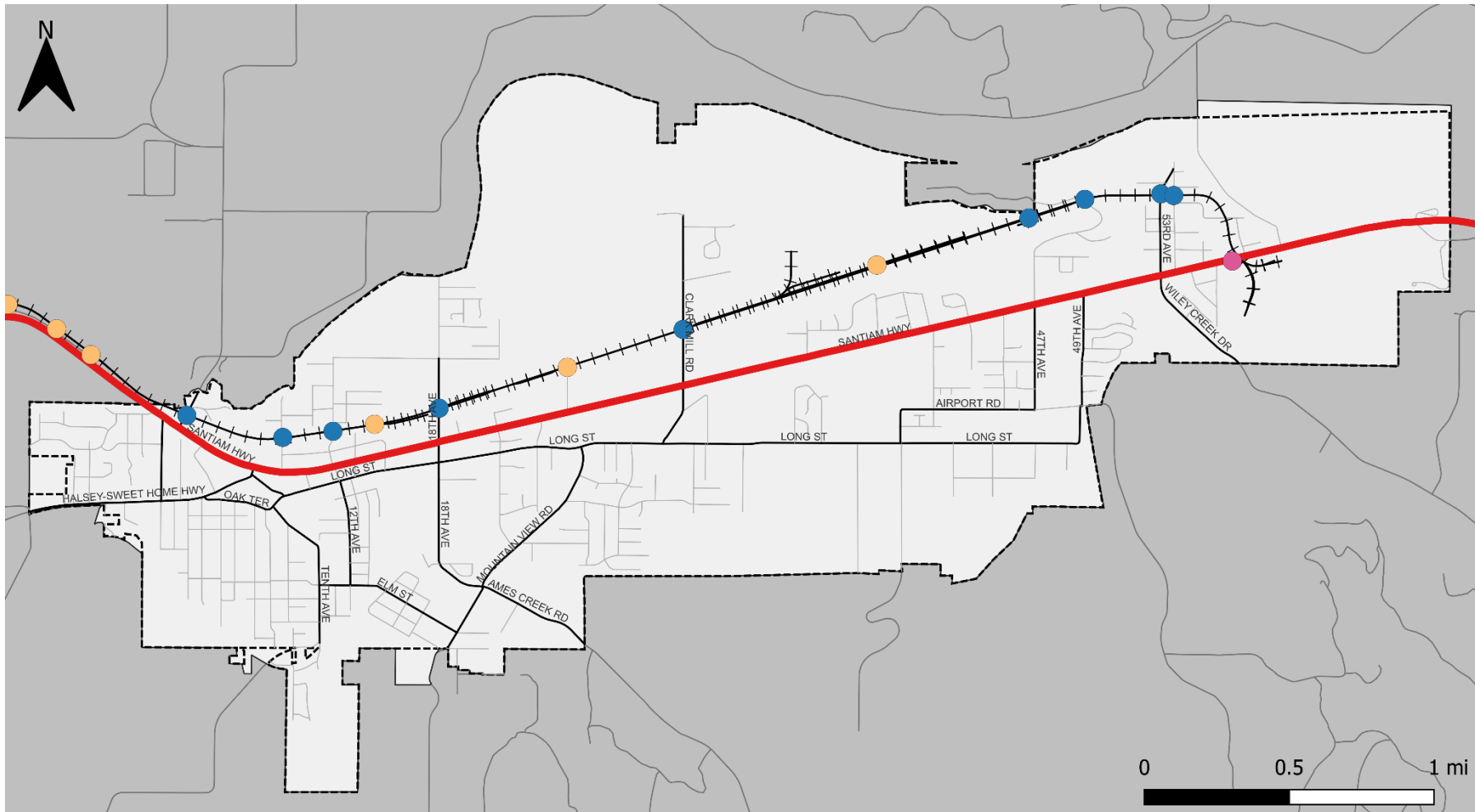
INTERSECTION	CONTROL TYPE	MOBILITY STANDARD	LOS	DELAY (SECONDS)	V/C RATIO
17. LONG STREET AND 18 TH AVENUE	AWSC	LOS D	A	10	0.32
18. LONG STREET AND 43 RD AVENUE	AWSC	LOS D	A	8	0.11
19. ELM STREET AND 10 TH AVENUE	Two-Way Stop	LOS D	A/B	3/11	0.03/0.08

^a Note: Overall intersection measures reported for signal and AWSC intersections. The worst approach for major/minor approaches is reported for TWSC intersections.

FREIGHT NETWORK

The existing freight network, railways and rail crossing locations are shown in **Figure 15**. U.S. 20 is part of the National Highway System and handles moderate truck volumes between Sweet Home and I-5 to the west, with an average daily traffic (ADT) range between 500 and 14,999.

One rail line serves Sweet Home from the west terminating at the Foster Mill site on the east side of the City. The line is operated by Albany and Eastern Railroad Company and connects Sweet Home to Albany. Within the City limits the line is located roughly one block north of U.S. 20 running roughly parallel thereto.



- | | |
|-------------------------------|-------------------------|
| Rail Crossings | National Highway System |
| City Owned | RailRoads |
| Private Crossing | City Limits |
| State-Owned Trestle (Damaged) | Outside UGB |

FIGURE 105: EXISTING FREIGHT NETWORK

APPENDIX A: EXISTING TRAFFIC OPERATIONS ANALYSIS RESULTS

HCM 6th TWSC
1: Pleasant Valley Rd & Main St (US 20)

07/20/2023

Intersection												
Int Delay, s/veh	9.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Vol, veh/h	75	700	2	2	526	105	1	0	4	96	0	49
Future Vol, veh/h	75	700	2	2	526	105	1	0	4	96	0	49
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	4	4	4	0	0	0	1	1	1
Mvmt Flow	83	778	2	2	584	117	1	0	4	107	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	781	0	0	1242	1652	391	1203	1595	352
Stage 1	-	-	-	-	-	-	946	946	-	648	648	-
Stage 2	-	-	-	-	-	-	296	706	-	555	947	-
Critical Hdwy	4.14	-	-	4.18	-	-	7.5	6.5	6.9	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.52	5.52	-
Follow-up Hdwy	2.22	-	-	2.24	-	-	3.5	4	3.3	3.51	4.01	3.31
Pot Cap-1 Maneuver	891	-	-	819	-	-	133	100	614	141	107	647
Stage 1	-	-	-	-	-	-	285	343	-	428	467	-
Stage 2	-	-	-	-	-	-	694	442	-	486	340	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	890	-	-	818	-	-	113	90	613	130	97	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	90	-	130	97	-
Stage 1	-	-	-	-	-	-	258	311	-	388	466	-
Stage 2	-	-	-	-	-	-	634	441	-	437	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	16.3	97.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	325	890	-	-	818	-	-	178
HCM Lane V/C Ratio	0.017	0.094	-	-	0.003	-	-	0.905
HCM Control Delay (s)	16.3	9.5	-	-	9.4	-	-	97.1
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	6.8

HCM 6th Signalized Intersection Summary
 2: Holley Rd (OR 228) & Main St (US 20)

07/20/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↗↗	↶	↶	↗↗			↶	↶		↗↗	
Traffic Volume (veh/h)	6	734	80	161	537	1	116	0	191	2	4	4
Future Volume (veh/h)	6	734	80	161	537	1	116	0	191	2	4	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1709	1709	1709	1709	1709	1709	1709	1709	1750	1750	1750
Adj Flow Rate, veh/h	7	807	88	177	590	1	127	0	210	2	4	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	0	0
Cap, veh/h	9	1497	666	232	1989	3	375	0	454	104	139	108
Arrive On Green	0.01	0.46	0.46	0.14	0.60	0.59	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1628	3247	1445	1628	3326	6	1403	0	1448	132	813	630
Grp Volume(v), veh/h	7	807	88	177	288	303	127	0	210	10	0	0
Grp Sat Flow(s),veh/h/ln	1628	1624	1445	1628	1624	1708	1403	0	1448	1575	0	0
Q Serve(g_s), s	0.2	9.5	1.9	5.6	4.6	4.6	4.1	0.0	6.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	9.5	1.9	5.6	4.6	4.6	4.4	0.0	6.2	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.20		0.40
Lane Grp Cap(c), veh/h	9	1497	666	232	971	1022	375	0	454	350	0	0
V/C Ratio(X)	0.78	0.54	0.13	0.76	0.30	0.30	0.34	0.00	0.46	0.03	0.00	0.00
Avail Cap(c_a), veh/h	367	2472	1100	765	1236	1300	793	0	887	432	0	0
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	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.4	10.3	8.2	21.9	5.2	5.2	20.1	0.0	14.7	18.4	0.0	0.0
Incr Delay (d2), s/veh	39.8	0.4	0.1	3.9	0.2	0.2	0.4	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.9	0.5	2.2	1.2	1.3	1.4	0.0	1.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	10.7	8.4	25.8	5.5	5.5	20.5	0.0	15.2	18.4	0.0	0.0
LnGrp LOS	E	B	A	C	A	A	C	A	B	B	A	A
Approach Vol, veh/h		902			768			337				10
Approach Delay, s/veh		10.9			10.1			17.2				18.4
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	28.5		13.1	4.3	35.8		13.1				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.0	4.5		4.0				
Max Green Setting (Gmax), s	25.0	40.0		12.0	12.0	40.0		25.0				
Max Q Clear Time (g_c+I1), s	7.6	11.5		2.3	2.2	6.6		8.2				
Green Ext Time (p_c), s	0.6	12.5		0.0	0.0	8.3		0.9				

Intersection Summary

HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

3: 12th Ave & Main St (US 20)

07/20/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	756	62	42	620	14	47	18	19	27	26	33
Future Volume (veh/h)	63	756	62	42	620	14	47	18	19	27	26	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1695	1695	1695	1668	1668	1668	1723	1723	1723	1736	1736	1736
Adj Flow Rate, veh/h	70	840	69	47	689	16	52	20	21	30	29	37
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	4	6	6	6	2	2	2	1	1	1
Cap, veh/h	604	1952	160	506	2050	48	242	50	39	181	75	77
Arrive On Green	0.65	0.65	0.63	0.65	0.65	0.63	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	731	3013	248	594	3166	73	661	397	308	376	588	604
Grp Volume(v), veh/h	70	449	460	47	345	360	93	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	731	1611	1650	594	1585	1655	1366	0	0	1568	0	0
Q Serve(g_s), s	1.7	4.8	4.9	1.5	3.5	3.5	0.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.2	4.8	4.9	6.3	3.5	3.5	2.1	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.04	0.56		0.23	0.31		0.39
Lane Grp Cap(c), veh/h	604	1043	1069	506	1026	1072	332	0	0	332	0	0
V/C Ratio(X)	0.12	0.43	0.43	0.09	0.34	0.34	0.28	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	965	1838	1884	800	1809	1888	708	0	0	773	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.0	3.1	3.1	4.6	2.8	2.8	14.4	0.0	0.0	14.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.3	0.3	0.3	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.6	0.1	0.4	0.5	0.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.1	3.5	3.5	4.7	3.1	3.1	14.8	0.0	0.0	14.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		979			752			93			96	
Approach Delay, s/veh		3.5			3.2			14.8			14.7	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		8.5		27.0		8.5				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		40.0		15.0		40.0		15.0				
Max Q Clear Time (g_c+I1), s		7.2		3.9		8.3		4.1				
Green Ext Time (p_c), s		15.3		0.2		11.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				4.5								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
 4: 15th Ave & Main St (US 20)

07/20/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	702	44	33	621	31	18	42	18	72	23	21
Future Volume (veh/h)	64	702	44	33	621	31	18	42	18	72	23	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1723	1695	1695	1695	1736	1736	1736	1736	1736	1736
Adj Flow Rate, veh/h	74	807	0	38	714	0	21	48	21	83	26	24
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	4	4	4	1	1	1	1	1	1
Cap, veh/h	561	1998		515	1966		154	158	59	279	69	42
Arrive On Green	0.61	0.61	0.00	0.61	0.61	0.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	734	3273	1460	663	3221	1437	196	914	338	695	399	241
Grp Volume(v), veh/h	74	807	0	38	714	0	90	0	0	133	0	0
Grp Sat Flow(s),veh/h/ln	734	1637	1460	663	1611	1437	1447	0	0	1336	0	0
Q Serve(g_s), s	2.1	4.7	0.0	1.2	4.1	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	6.2	4.7	0.0	5.9	4.1	0.0	2.0	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.23		0.23	0.62		0.18
Lane Grp Cap(c), veh/h	561	1998		515	1966		371	0	0	390	0	0
V/C Ratio(X)	0.13	0.40		0.07	0.36		0.24	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	917	3583		836	3527		695	0	0	683	0	0
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	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	3.7	0.0	5.2	3.6	0.0	13.5	0.0	0.0	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.1	0.2	0.0	0.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.0	0.1	0.7	0.0	0.6	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.3	3.9	0.0	5.3	3.8	0.0	13.7	0.0	0.0	14.3	0.0	0.0
LnGrp LOS	A	A		A	A		B	A	A	B	A	A
Approach Vol, veh/h		881	A		752	A		90			133	
Approach Delay, s/veh		4.0			3.8			13.7			14.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.6		10.4		26.6		10.4				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		40.0		15.0		40.0		15.0				
Max Q Clear Time (g_c+I1), s		8.2		5.2		7.9		4.0				
Green Ext Time (p_c), s		13.9		0.3		11.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
 5: 18th Ave & Main St (US 20)

07/20/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	692	49	43	615	20	70	22	67	29	9	30
Future Volume (veh/h)	36	692	49	43	615	20	70	22	67	29	9	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1695	1695	1695	1668	1668	1668	1668	1668	1668	1668	1668	1668
Adj Flow Rate, veh/h	40	778	55	48	691	22	79	25	75	33	10	34
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	6	6	6	6	6	6	6	6	6
Cap, veh/h	527	1764	125	471	1812	58	244	67	123	226	84	135
Arrive On Green	0.58	0.58	0.56	0.58	0.58	0.56	0.19	0.21	0.19	0.19	0.21	0.19
Sat Flow, veh/h	725	3051	216	638	3135	100	503	328	599	425	408	659
Grp Volume(v), veh/h	40	411	422	48	349	364	179	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	725	1611	1656	638	1585	1650	1431	0	0	1492	0	0
Q Serve(g_s), s	1.2	5.3	5.4	1.7	4.4	4.4	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	5.3	5.4	7.1	4.4	4.4	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.06	0.44		0.42	0.43		0.44
Lane Grp Cap(c), veh/h	527	931	957	471	916	954	415	0	0	425	0	0
V/C Ratio(X)	0.08	0.44	0.44	0.10	0.38	0.38	0.43	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	904	1767	1817	802	1738	1810	903	0	0	902	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.7	4.4	4.4	6.4	4.2	4.2	13.5	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.4	0.4	1.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0	1.1	0.2	0.8	0.9	1.3	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	4.9	4.9	6.5	4.6	4.6	14.5	0.0	0.0	12.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		873			761			179				77
Approach Delay, s/veh		4.9			4.7			14.5				12.8
Approach LOS		A			A			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.3		11.6		25.3		11.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		40.0		20.0		40.0		20.0				
Max Q Clear Time (g_c+I1), s		7.6		3.6		9.1		6.2				
Green Ext Time (p_c), s		13.3		0.4		11.1		1.0				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔↔			↔			↔	
Traffic Vol, veh/h	6	696	45	9	565	26	27	5	21	25	10	21
Future Vol, veh/h	6	696	45	9	565	26	27	5	21	25	10	21
Conflicting Peds, #/hr	0	0	4	4	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	4	4	4	6	6	6	0	0	0
Mvmt Flow	7	782	51	10	635	29	30	6	24	28	11	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	837	0	0	1171	1510	421	1078	1521	334
Stage 1	-	-	-	-	-	-	826	826	-	670	670	-
Stage 2	-	-	-	-	-	-	345	684	-	408	851	-
Critical Hdwy	4.16	-	-	4.18	-	-	7.62	6.62	7.02	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.62	5.62	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.62	5.62	-	6.5	5.5	-
Follow-up Hdwy	2.23	-	-	2.24	-	-	3.56	4.06	3.36	3.5	4	3.3
Pot Cap-1 Maneuver	914	-	-	780	-	-	143	115	570	176	120	668
Stage 1	-	-	-	-	-	-	324	375	-	417	459	-
Stage 2	-	-	-	-	-	-	633	437	-	596	379	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	914	-	-	777	-	-	124	111	568	159	116	667
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	111	-	159	116	-
Stage 1	-	-	-	-	-	-	318	368	-	411	453	-
Stage 2	-	-	-	-	-	-	587	431	-	555	372	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			35.3			30.3		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	177	914	-	-	777	-	-	204
HCM Lane V/C Ratio	0.336	0.007	-	-	0.013	-	-	0.308
HCM Control Delay (s)	35.3	9	0.1	-	9.7	-	-	30.3
HCM Lane LOS	E	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	1.4	0	-	-	0	-	-	1.2

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Vol, veh/h	14	612	45	3	554	4	19	0	5	6	0	33
Future Vol, veh/h	14	612	45	3	554	4	19	0	5	6	0	33
Conflicting Peds, #/hr	0	0	6	6	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	4	4	4	0	0	0	3	3	3
Mvmt Flow	16	703	52	3	637	5	22	0	6	7	0	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	642	0	0	761	0	0	1092	1415	384	1030	1439	321
Stage 1	-	-	-	-	-	-	767	767	-	646	646	-
Stage 2	-	-	-	-	-	-	325	648	-	384	793	-
Critical Hdwy	4.2	-	-	4.18	-	-	7.5	6.5	6.9	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.56	5.56	-
Follow-up Hdwy	2.25	-	-	2.24	-	-	3.5	4	3.3	3.53	4.03	3.33
Pot Cap-1 Maneuver	918	-	-	834	-	-	172	139	620	186	131	672
Stage 1	-	-	-	-	-	-	365	414	-	424	463	-
Stage 2	-	-	-	-	-	-	667	469	-	608	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	918	-	-	829	-	-	159	135	616	181	127	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	135	-	181	127	-
Stage 1	-	-	-	-	-	-	357	404	-	417	461	-
Stage 2	-	-	-	-	-	-	627	467	-	592	387	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			27.4			13.4		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	188	918	-	-	829	-	-	474
HCM Lane V/C Ratio	0.147	0.018	-	-	0.004	-	-	0.095
HCM Control Delay (s)	27.4	9	-	-	9.4	-	-	13.4
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.3

HCM 6th TWSC
8: Clark Mill Rd & Main St (US 20)

07/20/2023

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	33	553	58	31	504	7	15	1	28	11	1	40
Future Vol, veh/h	33	553	58	31	504	7	15	1	28	11	1	40
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	4	4	4	2	2	2	2	2	2	6	6	6
Mvmt Flow	36	608	64	34	554	8	16	1	31	12	1	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	563	0	0	672	0	0	1058	1343	336	1004	1371	282
Stage 1	-	-	-	-	-	-	712	712	-	627	627	-
Stage 2	-	-	-	-	-	-	346	631	-	377	744	-
Critical Hdwy	4.18	-	-	4.14	-	-	7.54	6.54	6.94	7.62	6.62	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.62	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.62	5.62	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	3.52	4.02	3.32	3.56	4.06	3.36
Pot Cap-1 Maneuver	991	-	-	915	-	-	179	151	660	190	140	703
Stage 1	-	-	-	-	-	-	389	434	-	428	465	-
Stage 2	-	-	-	-	-	-	643	473	-	606	410	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	990	-	-	915	-	-	158	140	660	170	130	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	140	-	170	130	-
Stage 1	-	-	-	-	-	-	375	418	-	412	447	-
Stage 2	-	-	-	-	-	-	579	455	-	555	395	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.5			19.1			15.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	304	990	-	-	915	-	-	402
HCM Lane V/C Ratio	0.159	0.037	-	-	0.037	-	-	0.142
HCM Control Delay (s)	19.1	8.8	-	-	9.1	-	-	15.4
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.5

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	10	461	64	35	453	1	29	1	11	4	0	11
Future Vol, veh/h	10	461	64	35	453	1	29	1	11	4	0	11
Conflicting Peds, #/hr	2	0	1	1	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	4	4	4	4	4	4	0	0	0	0	0	0
Mvmt Flow	11	530	74	40	521	1	33	1	13	5	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	524	0	0	605	0	0	931	1194	303	892	1231	263
Stage 1	-	-	-	-	-	-	590	590	-	604	604	-
Stage 2	-	-	-	-	-	-	341	604	-	288	627	-
Critical Hdwy	4.18	-	-	4.18	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.24	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1025	-	-	955	-	-	225	188	699	240	179	742
Stage 1	-	-	-	-	-	-	466	498	-	457	491	-
Stage 2	-	-	-	-	-	-	653	491	-	701	479	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1023	-	-	954	-	-	212	178	698	225	169	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	178	-	225	169	-
Stage 1	-	-	-	-	-	-	460	492	-	451	469	-
Stage 2	-	-	-	-	-	-	615	469	-	679	473	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			22			13.1		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	1023	-	-	954	-	-	460
HCM Lane V/C Ratio	0.182	0.011	-	-	0.042	-	-	0.037
HCM Control Delay (s)	22	8.6	-	-	8.9	-	-	13.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↗		↙	↑↗			↕			↕	
Traffic Vol, veh/h	32	433	7	3	383	9	5	1	3	14	2	49
Future Vol, veh/h	32	433	7	3	383	9	5	1	3	14	2	49
Conflicting Peds, #/hr	4	0	6	6	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	4	4	4	11	11	11	2	2	2
Mvmt Flow	39	522	8	4	461	11	6	1	4	17	2	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	476	0	0	536	0	0	850	1094	271	819	1093	240
Stage 1	-	-	-	-	-	-	610	610	-	479	479	-
Stage 2	-	-	-	-	-	-	240	484	-	340	614	-
Critical Hdwy	4.16	-	-	4.18	-	-	7.72	6.72	7.12	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.72	5.72	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.72	5.72	-	6.54	5.54	-
Follow-up Hdwy	2.23	-	-	2.24	-	-	3.61	4.11	3.41	3.52	4.02	3.32
Pot Cap-1 Maneuver	1075	-	-	1014	-	-	239	199	700	267	213	761
Stage 1	-	-	-	-	-	-	427	461	-	537	553	-
Stage 2	-	-	-	-	-	-	717	528	-	648	481	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1071	-	-	1008	-	-	211	189	696	255	203	758
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	189	-	255	203	-
Stage 1	-	-	-	-	-	-	409	442	-	516	549	-
Stage 2	-	-	-	-	-	-	656	524	-	619	461	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			18.9			13.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	270	1071	-	-	1008	-	-	502
HCM Lane V/C Ratio	0.04	0.036	-	-	0.004	-	-	0.156
HCM Control Delay (s)	18.9	8.5	-	-	8.6	-	-	13.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	0	385	43	22	363	0	21	0	29	0	0	0
Future Vol, veh/h	0	385	43	22	363	0	21	0	29	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	5	5	5	6	6	6	9	9	9	0	0	0
Mvmt Flow	0	438	49	25	413	0	24	0	33	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	414	0	0	487	0	0	720	927	244	683	951	208
Stage 1	-	-	-	-	-	-	463	463	-	464	464	-
Stage 2	-	-	-	-	-	-	257	464	-	219	487	-
Critical Hdwy	4.2	-	-	4.22	-	-	7.68	6.68	7.08	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.5	5.5	-
Follow-up Hdwy	2.25	-	-	2.26	-	-	3.59	4.09	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1120	-	-	1045	-	-	303	255	736	339	262	804
Stage 1	-	-	-	-	-	-	530	545	-	553	567	-
Stage 2	-	-	-	-	-	-	706	545	-	769	554	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1119	-	-	1045	-	-	298	249	736	318	255	803
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	249	-	318	255	-
Stage 1	-	-	-	-	-	-	530	545	-	552	553	-
Stage 2	-	-	-	-	-	-	689	531	-	735	554	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	14	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	455	1119	-	-	1045	-	-	-
HCM Lane V/C Ratio	0.125	-	-	-	0.024	-	-	-
HCM Control Delay (s)	14	0	-	-	8.5	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↗			↕			↕	
Traffic Vol, veh/h	31	337	47	4	336	6	28	1	7	4	5	20
Future Vol, veh/h	31	337	47	4	336	6	28	1	7	4	5	20
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	7	7	7	3	3	3	7	7	7
Mvmt Flow	36	387	54	5	386	7	32	1	8	5	6	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	394	0	0	444	0	0	876	866	391	893	917	391
Stage 1	-	-	-	-	-	-	462	462	-	401	401	-
Stage 2	-	-	-	-	-	-	414	404	-	492	516	-
Critical Hdwy	4.15	-	-	4.17	-	-	7.13	6.53	6.23	7.17	6.57	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.17	5.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.17	5.57	-
Follow-up Hdwy	2.245	-	-	2.263	-	-	3.527	4.027	3.327	3.563	4.063	3.363
Pot Cap-1 Maneuver	1148	-	-	1090	-	-	268	290	655	257	267	647
Stage 1	-	-	-	-	-	-	578	563	-	616	592	-
Stage 2	-	-	-	-	-	-	614	597	-	549	526	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1147	-	-	1087	-	-	246	278	653	246	256	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	278	-	246	256	-
Stage 1	-	-	-	-	-	-	558	544	-	596	588	-
Stage 2	-	-	-	-	-	-	584	593	-	524	508	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	20	14
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	1147	-	-	1087	-	-	434
HCM Lane V/C Ratio	0.147	0.031	-	-	0.004	-	-	0.077
HCM Control Delay (s)	20	8.2	-	-	8.3	-	-	14
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	12	326	9	1	305	4	0	1	2	2	1	31
Future Vol, veh/h	12	326	9	1	305	4	0	1	2	2	1	31
Conflicting Peds, #/hr	9	0	4	4	0	9	14	0	0	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	6	6	6	0	0	0	0	0	0
Mvmt Flow	15	408	11	1	381	5	0	1	3	3	1	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	423	0	0	868	845	418	841	848	407
Stage 1	-	-	-	-	-	-	448	448	-	395	395	-
Stage 2	-	-	-	-	-	-	420	397	-	446	453	-
Critical Hdwy	4.14	-	-	4.16	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.236	-	-	2.254	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1153	-	-	1115	-	-	275	302	639	287	301	648
Stage 1	-	-	-	-	-	-	594	576	-	634	608	-
Stage 2	-	-	-	-	-	-	615	607	-	595	573	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1143	-	-	1111	-	-	250	294	637	280	293	634
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	294	-	280	293	-
Stage 1	-	-	-	-	-	-	584	566	-	620	602	-
Stage 2	-	-	-	-	-	-	568	601	-	584	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	12.9	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	1143	-	-	1111	-	-	572
HCM Lane V/C Ratio	0.008	0.013	-	-	0.001	-	-	0.074
HCM Control Delay (s)	12.9	8.2	-	-	8.2	-	-	11.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

HCM 6th TWSC
 14: 60th Ave (Foster Dam Rd) & Main St (US 20)

07/20/2023

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖		↔			↔	
Traffic Vol, veh/h	71	259	6	2	239	10	9	0	0	4	0	49
Future Vol, veh/h	71	259	6	2	239	10	9	0	0	4	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	125	-	125	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	7	7	7	0	0	0	4	4	4
Mvmt Flow	83	301	7	2	278	12	10	0	0	5	0	57

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	290	0	0	308	0	0	788	765	305	753	756	278
Stage 1	-	-	-	-	-	-	471	471	-	282	282	-
Stage 2	-	-	-	-	-	-	317	294	-	471	474	-
Critical Hdwy	4.15	-	-	4.17	-	-	7.1	6.5	6.2	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.54	-
Follow-up Hdwy	2.245	-	-	2.263	-	-	3.5	4	3.3	3.536	4.036	3.336
Pot Cap-1 Maneuver	1255	-	-	1225	-	-	311	336	740	324	335	756
Stage 1	-	-	-	-	-	-	577	563	-	721	674	-
Stage 2	-	-	-	-	-	-	698	673	-	570	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1255	-	-	1225	-	-	273	313	740	307	312	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	273	313	-	307	312	-
Stage 1	-	-	-	-	-	-	539	526	-	673	673	-
Stage 2	-	-	-	-	-	-	644	672	-	532	517	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.1			18.7			10.8		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	1255	-	-	1225	-	-	681
HCM Lane V/C Ratio	0.038	0.066	-	-	0.002	-	-	0.09
HCM Control Delay (s)	18.7	8.1	-	-	7.9	-	-	10.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	277	3	2	241	24	0	1	3	33	8	72
Future Vol, veh/h	40	277	3	2	241	24	0	1	3	33	8	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	1	1	1
Mvmt Flow	50	346	4	3	301	30	0	1	4	41	10	90

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	331	0	0	350	0	0	820	785	348	773	772	316
Stage 1	-	-	-	-	-	-	448	448	-	322	322	-
Stage 2	-	-	-	-	-	-	372	337	-	451	450	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	1217	-	-	1203	-	-	296	327	700	317	331	727
Stage 1	-	-	-	-	-	-	594	576	-	692	653	-
Stage 2	-	-	-	-	-	-	653	645	-	590	573	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1217	-	-	1203	-	-	243	309	700	301	313	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	243	309	-	301	313	-
Stage 1	-	-	-	-	-	-	564	547	-	657	651	-
Stage 2	-	-	-	-	-	-	562	643	-	556	544	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			11.8			15.5		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	532	1217	-	-	1203	-	-	482
HCM Lane V/C Ratio	0.009	0.041	-	-	0.002	-	-	0.293
HCM Control Delay (s)	11.8	8.1	0	-	8	0	-	15.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	1.2

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷			↶↷				↷
Traffic Vol, veh/h	0	235	98	19	225	0	71	0	11	0	0	0
Future Vol, veh/h	0	235	98	19	225	0	71	0	11	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	4	4	4	0	0	0	0	0	0
Mvmt Flow	0	270	113	22	259	0	82	0	13	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	383	0	0	630	630	328	-	-	259
Stage 1	-	-	-	-	-	-	327	327	-	-	-	-
Stage 2	-	-	-	-	-	-	303	303	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	7.1	6.5	6.2	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	-	-	-
Follow-up Hdwy	-	-	-	2.236	-	-	3.5	4	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	1165	-	0	397	401	718	0	0	785
Stage 1	0	-	-	-	-	0	690	651	-	0	0	-
Stage 2	0	-	-	-	-	0	711	667	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1165	-	-	390	392	717	-	-	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	390	392	-	-	-	-
Stage 1	-	-	-	-	-	-	690	651	-	-	-	-
Stage 2	-	-	-	-	-	-	695	652	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			16.2			0		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	415	-	-	1165	-	-
HCM Lane V/C Ratio	0.227	-	-	0.019	-	-
HCM Control Delay (s)	16.2	-	-	8.1	0	0
HCM Lane LOS	C	-	-	A	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-	-

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	25	0	29	24	9	2	19	29	12	26	2
Future Vol, veh/h	0	25	0	29	24	9	2	19	29	12	26	2
Conflicting Peds, #/hr	3	0	1	1	0	3	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	0	0	0	2	2	2	0	0	0	3	3	3
Mvmt Flow	0	36	0	42	35	13	3	28	42	17	38	3

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	51	0	0	37	0	0	185	172	38	201	166	47
Stage 1	-	-	-	-	-	-	37	37	-	129	129	-
Stage 2	-	-	-	-	-	-	148	135	-	72	37	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.1	6.5	6.2	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4	3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1568	-	-	1574	-	-	780	725	1040	755	725	1019
Stage 1	-	-	-	-	-	-	984	868	-	872	787	-
Stage 2	-	-	-	-	-	-	859	789	-	935	862	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1564	-	-	1573	-	-	729	703	1038	686	703	1014
Mov Cap-2 Maneuver	-	-	-	-	-	-	729	703	-	686	703	-
Stage 1	-	-	-	-	-	-	983	867	-	869	763	-
Stage 2	-	-	-	-	-	-	791	765	-	868	861	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.4	9.5	10.5
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	866	1564	-	-	1573	-	-	709
HCM Lane V/C Ratio	0.084	-	-	-	0.027	-	-	0.082
HCM Control Delay (s)	9.5	0	-	-	7.4	0	-	10.5
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3

Intersection

Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	74	34	14	128	49	36	67	14	26	66	23
Future Vol, veh/h	44	74	34	14	128	49	36	67	14	26	66	23
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	14	14	14
Mvmt Flow	54	91	42	17	158	60	44	83	17	32	81	28
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.1	9.6	9.8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	29%	7%	23%
Vol Thru, %	57%	49%	67%	57%
Vol Right, %	12%	22%	26%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	152	191	115
LT Vol	36	44	14	26
Through Vol	67	74	128	66
RT Vol	14	34	49	23
Lane Flow Rate	144	188	236	142
Geometry Grp	1	1	1	1
Degree of Util (X)	0.206	0.256	0.314	0.208
Departure Headway (Hd)	5.134	4.906	4.787	5.272
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	690	724	743	673
Service Time	3.227	2.987	2.863	3.366
HCM Lane V/C Ratio	0.209	0.26	0.318	0.211
HCM Control Delay	9.6	9.7	10.1	9.8
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.8	1	1.3	0.8

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	41	19	1	26	5	17	7	3	4	10	28
Future Vol, veh/h	24	41	19	1	26	5	17	7	3	4	10	28
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	6	6	6	12	12	12	3	3	3
Mvmt Flow	28	47	22	1	30	6	20	8	3	5	11	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.4	7.7	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	63%	29%	3%	10%
Vol Thru, %	26%	49%	81%	24%
Vol Right, %	11%	23%	16%	67%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	84	32	42
LT Vol	17	24	1	4
Through Vol	7	41	26	10
RT Vol	3	19	5	28
Lane Flow Rate	31	97	37	48
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.108	0.042	0.051
Departure Headway (Hd)	4.433	4.039	4.127	3.825
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	883	861	925
Service Time	2.501	2.082	2.182	1.894
HCM Lane V/C Ratio	0.039	0.11	0.043	0.052
HCM Control Delay	7.7	7.6	7.4	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.1	0.2