

FOX RIDGE ROAD AREA PLAN

TRANSPORTATION ANALYSIS: EXISTING AND FUTURE CONDITIONS

NOVEMBER 2023



PREPARED FOR THE CITY OF MCMINNVILLE



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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
EXISTING TRAFFIC CONDITIONS (2023)	2
EXISTING TRAFFIC VOLUMES.....	2
INTERSECTION PERFORMANCE MEASURES.....	2
EXISTING INTERSECTION OPERATIONS	3
BICYCLE, PEDESTRIAN, AND TRANSIT NEEDS	5
PRIORITY TSP PROJECTS	5
FUTURE BASELINE CONDITIONS (2041)	6
FUTURE BASELINE TRAFFIC VOLUMES.....	6
FUTURE BASELINE INTERSECTION OPERATIONS	8
PREFERRED LAND USE SCENARIO CONDITIONS (2041)	9
PREFERRED LAND USE ASSUMPTIONS	9
PREFERRED LAND USE SCENARIO TRAFFIC VOLUMES.....	11
PREFERRED LAND USE SCENARIO INTERSECTION OPERATIONS	13
PRIORITY TSP PROJECTS	14
RECOMMENDED TRANSPORTATION IMPROVEMENTS	14
SUMMARY & RECOMMENDATION	16
APPENDIX	17

LIST OF FIGURES

FIGURE 1: EXISTING 2023 TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL	4
FIGURE 2: BASELINE (2041) TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL....	7
FIGURE 3: PREFERRED LAND USE (2041) TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL	12

LIST OF TABLES

TABLE 1: EXISTING (2023) INTERSECTION OPERATIONS	5
TABLE 2: FUTURE BASELINE (2041) INTERSECTION OPERATIONS	8
TABLE 3: LAND USE ASSUMPTIONS	9
TABLE 4: VEHICLE TRIP GENERATION	10
TABLE 5: PREFERRED LAND USE SCENARIO (2041) INTERSECTION OPERATIONS	13
TABLE 6: PREFERRED LAND USE SCENARIO (2041) INTERSECTION OPERATIONS - WITH IMPROVEMENTS	15

This report documents the traffic analysis performed in association with the Fox Ridge Road Area Plan in McMinnville, Oregon. The purpose of this traffic analysis is to help identify and inform transportation issues that would need to be addressed in the City’s Transportation System Plan update.

An executive summary of this transportation analysis is provided below. The following sections of this memorandum document the existing traffic conditions (2023), future baseline and preferred land use traffic conditions (2041), and a list of resulting transportation projects needed to support the build out of the Fox Ridge Road plan area.

EXECUTIVE SUMMARY

To determine existing and future transportation conditions for the Fox Ridge area, a comprehensive traffic analysis was performed. The analysis focused on five key intersections along NW Hill Road.

Fox Ridge Road Plan Area

The Fox Ridge Road Plan Area includes 200+ acres of land that currently contains rural, low density lands and publicly owned lands. The future development of the Plan Area primarily includes a mix of residential housing (low-, medium-, and high-density), parks and open spaces, some neighborhood mixed-use commercial, and 42 acres that are owned by the school district.¹

Analysis Findings & Recommended Improvement Projects

Intersection traffic operations were analyzed for the weekday AM and PM peak hours under the existing 2023 conditions and future 2041 conditions to evaluate if the study intersections meet the City’s desired performance levels under the Preferred Land Use scenario.

Currently, the five study intersections all meet the City’s performance standard.

In the Preferred Land Use 2041 scenario, all but two of the study intersections are expected to continue to meet standards and targets in the future. The suggested improvements are listed below.

- **NW Hill Road at Fox Ridge Road:** Install a single-lane roundabout or traffic signal. This project is not listed in the City’s current TSP (2010).
- **NW Hill Road at 2nd Street:** Install a single-lane roundabout or traffic signal. This is consistent with the priority project identified in the City’s current TSP (2010).

¹ The property owned by the school district is already located within the City limits and is planned to be developed into a high school.

EXISTING TRAFFIC CONDITIONS (2023)

Existing traffic conditions were evaluated for the study area and include traffic volumes; intersection operations; and bike, pedestrian, and transit needs.

EXISTING TRAFFIC VOLUMES

Traffic counts were collected for the AM peak period (7:00 to 9:00 a.m.) and PM peak period (4:00 to 6:00 p.m.) at the following study intersections.³ The AM and PM peak hour traffic volumes (i.e., the highest hourly volumes during the peak period) are shown in Figure 1 and the traffic counts are provided in the appendix.

- NW Hill Road & Baker Creek Road
- NW Hill Road & Wallace Road
- NW Hill Road & Fox Ridge Road
- NW Hill Road & 2nd Street
- NW Hill Road & Fellows Street

INTERSECTION PERFORMANCE MEASURES

Agency mobility standards often require intersections to meet level of service (LOS) or volume-to-capacity (v/c) intersection operation thresholds. Additional operational details are provided in the appendix.

- The intersection LOS is similar to a “report card” rating based upon average vehicle delay. Level of service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of service D and E are progressively worse operating conditions. Level of service F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- The volume-to-capacity (v/c) ratio represents the level of saturation of the intersection or individual movement. It is determined by dividing the peak hour traffic volume by the maximum hourly capacity of an intersection or turn movement. When the V/C ratio approaches 0.95, operations become unstable and small disruptions can cause the traffic flow to break down, resulting in the formation of excessive queues.

The City of McMinnville requires all city intersections to meet the mobility standard, which is a v/c ratio of 0.90 or less.⁴

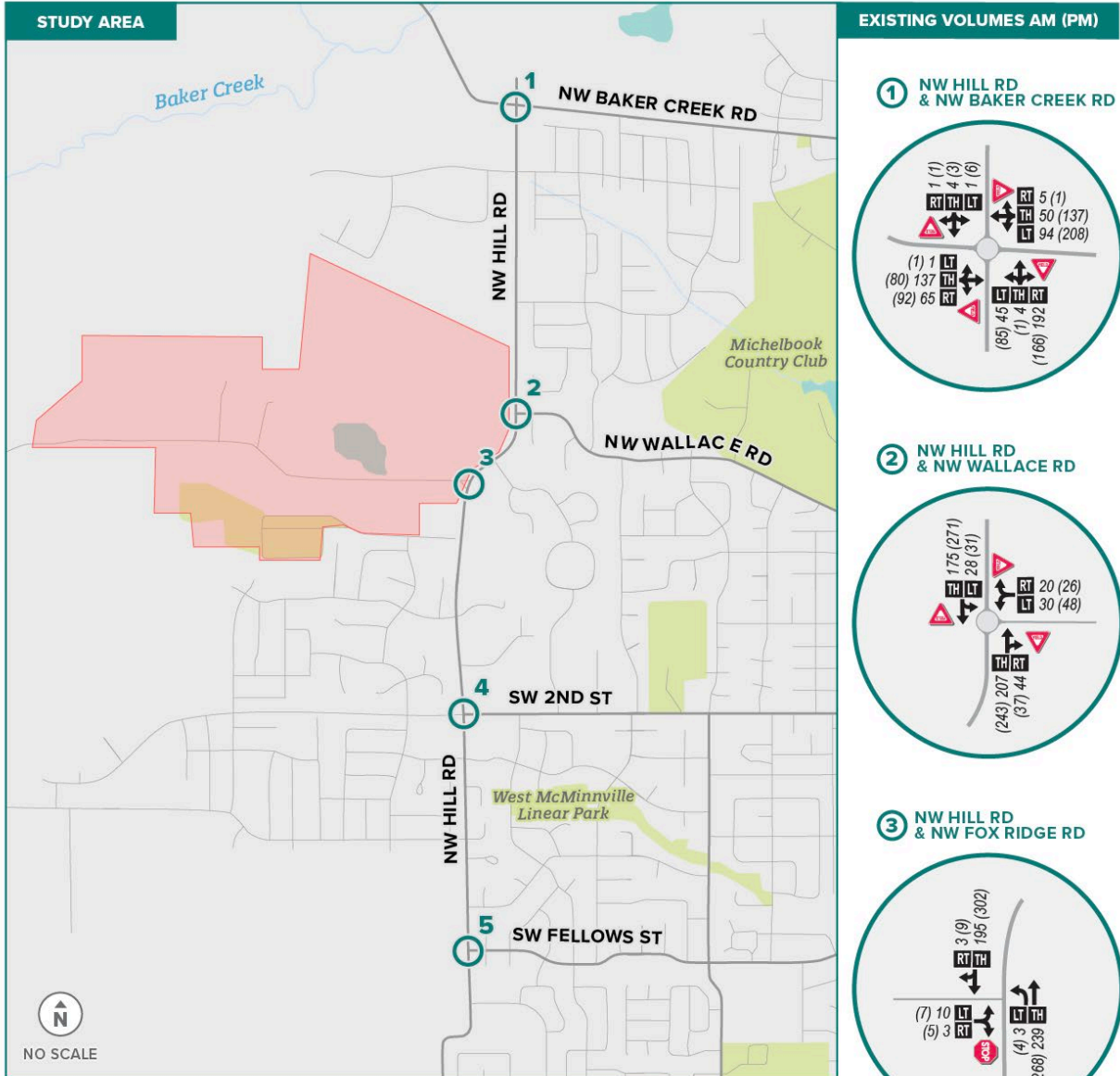
³ The counts were collected on June 1, 2023.

⁴ Table 2-2, McMinnville Transportation System Plan, 2010.

EXISTING INTERSECTION OPERATIONS

Intersection operations were analyzed for the PM peak hour to evaluate whether the transportation network currently operates within desired performance levels as required by the City of McMinnville. Intersections are the focus of the analysis because they are the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity. The existing AM and PM peak hour intersection operations at the study intersection were determined based on the 6th Edition Highway Capacity Manual methodology.⁵ Table 1 lists the estimated average delay (in seconds), level of service (LOS), and volume to capacity (v/c) ratio for each study intersection. As shown, all intersections currently meet the City’s mobility standard.

⁵ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.



- FOX RIDGE ROAD PLAN AREA
- STUDY INTERSECTION
- LANE CONFIGURATION
- TRAFFIC SIGNAL
- ROUNDABOUT
- YIELD SIGN
- STOP SIGN
- AM (PM)** MOTOR VEHICLE PEAK HOUR TRAFFIC VOLUMES
- LT TH RT** LEFT • THRU • RIGHT VOLUME TURN MOVEMENT

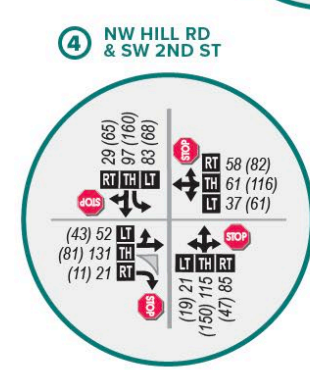
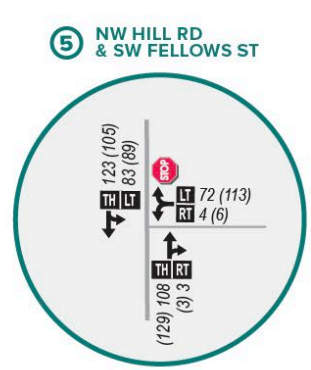


FIGURE 1: EXISTING 2023 TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL

TABLE 1: EXISTING (2023) INTERSECTION OPERATIONS

INTERSECTION	TRAFFIC CONTROL	OPERATING STANDARD	AM PEAK HOUR			PM PEAK HOUR		
			V/C	DELAY	LOS	V/C	DELAY	LOS
NW HILL ROAD AT BAKER CREEK ROAD	Roundabout	v/c ≤ 0.90	0.25	5	A	0.29	5	A
NW HILL ROAD AT WALLACE ROAD	Roundabout	v/c ≤ 0.90	0.29	6	A	0.26	5	A
NW HILL ROAD AT FOX RIDGE ROAD	Two-Way Stop	v/c ≤ 0.90	0.03	12	B	0.03	12	B
NW HILL ROAD AT 2 ND ST	All-Way Stop	v/c ≤ 0.90	0.48	15	C	0.46	15	C
NW HILL ROAD AT FELLOWS ST	Two-Way Stop	v/c ≤ 0.90	0.11	10	A	0.15	10	A

Delay = Critical Approach Delay (secs)
v/c = Critical Approach Volume-to-Capacity Ratio
LOS = Critical Approach Level of Service
BOLD/RED = Does not meet the operating standard

BICYCLE, PEDESTRIAN, AND TRANSIT NEEDS

Bicycle, pedestrian, and transit conditions and needs were considered for the study area.

NW Hill Road between Baker Creek Road and 2nd Street was reconstructed with on-street bike lanes, gutter, curb, sidewalks, and a center turn lane/raised median since the TSP was adopted in 2010. There are still some gaps in the sidewalk along the west side of Hill Road adjacent to the Fox Ridge Road plan area that will be filled in as development and annexation occurs. The segment of NW Hill Road between 2nd Street and Alexandria Street is presently lacking in sidewalks, curb, gutter, and on-street bike lanes (wide paved shoulders for bikes are currently present).

Currently, there are no local transit routes that stop or travel along NW Hill Road. As the Fox Ridge Road area develops, transit routes and stops should be extended to residential and commercial locations along NW Hill Road.

PRIORITY TSP PROJECTS

The priority vehicle, pedestrian, and bicycle projects identified in the McMinnville TSP (2010) that are applicable to the Fox Ridge study area include the following. These improvements were not included in either of the future 2041 scenarios.

- Complete Streets Upgrade – NW Hill Road South (between 2nd Street and Alexandria Street) includes addition of on-street bicycle lanes and sidewalks
- Installation of a roundabout or traffic signal at NW Hill Road & 2nd Street

FUTURE BASELINE CONDITIONS (2041)

Future baseline (2041) traffic conditions were evaluated for the study area and include the forecasted baseline traffic volumes and intersection operations.

FUTURE BASELINE TRAFFIC VOLUMES

Future traffic volumes were forecasted for the study intersections using the travel forecast models developed specifically for McMinnville and maintained by the Transportation Planning Analysis Unit (TPAU).⁶ The existing year and future year volumes from the models were used to estimate an average annual vehicle growth rate on NW Hill Road. The growth was estimated to be approximately 4% per year along NW Hill Road, which is consistent with the current urban growth boundary and population estimates through 2041. This growth rate was applied to all study intersections and includes expected growth in the future Southwest area west of NW Hill Road near 2nd Street and Fellows Street, the mixed-use area on the northeast corner of Baker Creek Road and NW Hill Road, and the planned high school⁷ and elementary school⁸ near Wallace Road. A fourth leg was assumed at the Wallace Road intersection and the Fellows Street intersection to provide access to these future growth areas.

Figure 2 shows the AM and PM peak hour traffic volumes for the study intersections based on the model assumptions. Because these forecasts are consistent with the current McMinnville land use assumptions, this scenario is referred to as the 2041 “Baseline” scenario. This scenario already accounts for a small amount of low-density residential land use in the Fox Ridge Road plan area by 2041 (213 residential units) as well as the planned high school.

⁶ 2015 and 2041 Travel demand models maintained by ODOT TPAU.

⁷ The high school is assumed to support up to 1,160 students, consistent with the NW Hill Road: Traffic Analysis Study by CH2M Hill (March 1, 2016)

⁸ The elementary school is assumed to support up to 382 students, consistent with the NW Hill Road: Traffic Analysis Study by CH2M Hill (March 1, 2016).

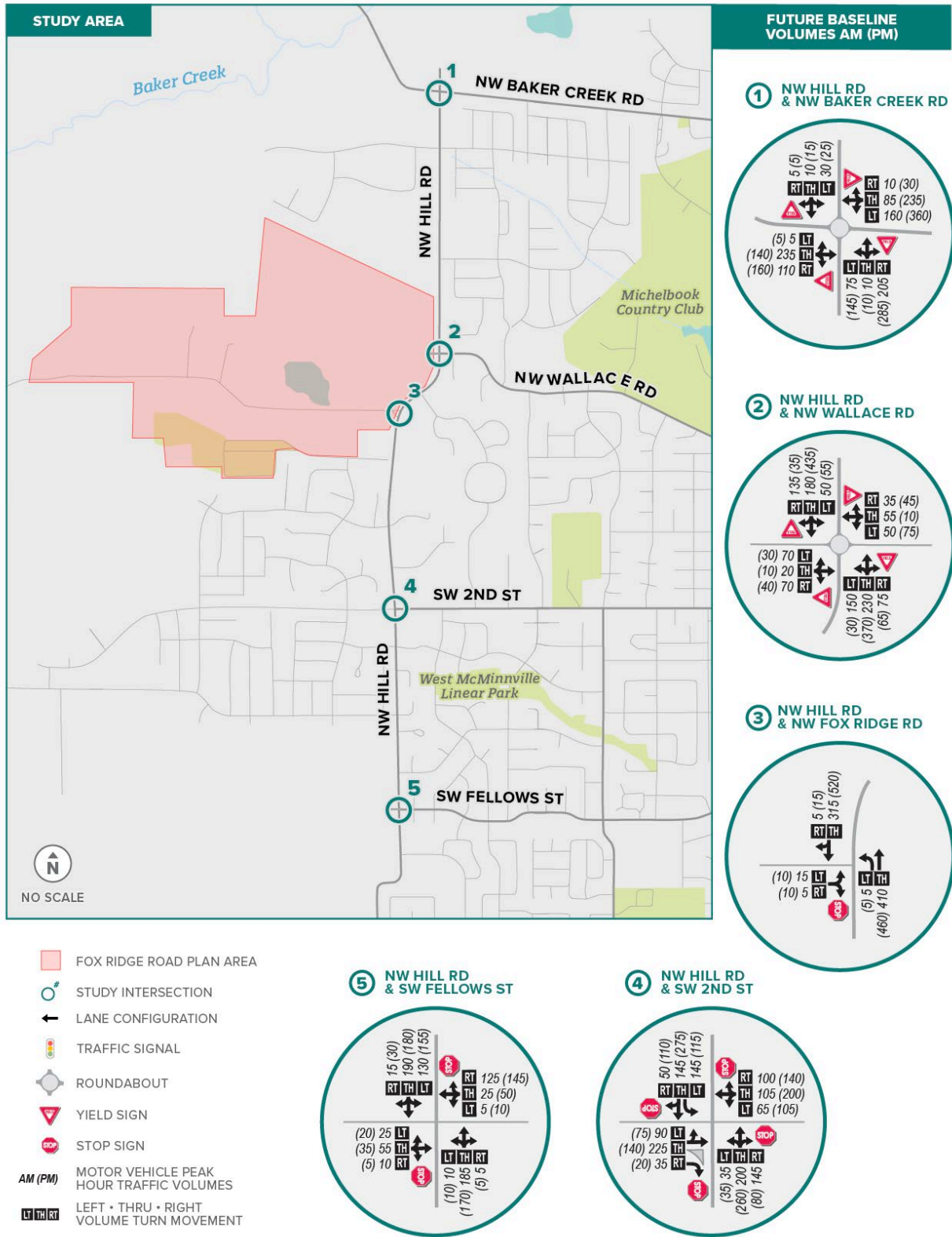


FIGURE 2: BASELINE (2041) TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL

FUTURE BASELINE INTERSECTION OPERATIONS

Intersection traffic operations under the future 2041 Baseline scenario were analyzed for the AM and PM peak hour to evaluate whether the transportation network is expected to remain within desired performance levels as required by the City of McMinnville.

Table 2 lists the estimated average delay (in seconds), level of service (LOS), and volume to capacity (v/c) ratio that each study intersection and future access is expected to experience.

As shown, all intersections are expected to meet operating standards and targets under Baseline conditions with the exception of the NW Hill Road/2nd Street intersection. This intersection is estimated to experience high delays and operate over capacity by 2041 as an all-way stop-controlled intersection. The McMinnville TSP identified the need for a traffic control upgrade at this intersection.

TABLE 2: FUTURE BASELINE (2041) INTERSECTION OPERATIONS

INTERSECTION	TRAFFIC CONTROL	OPERATING STANDARD	AM PEAK HOUR			PM PEAK HOUR		
			V/C	DELAY	LOS	V/C	DELAY	LOS
NW HILL ROAD AT BAKER CREEK ROAD	Roundabout	v/c ≤ 0.90	0.37	7	A	0.56	9	A
NW HILL ROAD AT WALLACE ROAD	Roundabout	v/c ≤ 0.90	0.44	7	A	0.48	7	A
NW HILL ROAD AT FOX RIDGE ROAD	Two-Way Stop	v/c ≤ 0.90	0.06	15	B	0.07	17	C
NW HILL ROAD AT 2 ND ST	All-Way Stop	v/c ≤ 0.90	1.02	84	F	1.30	168	F
NW HILL ROAD AT FELLOWS ST	Two-Way Stop	v/c ≤ 0.90	0.35	25	C	0.28	26	D

Delay = Critical Approach Delay (secs)

v/c = Critical Approach Volume-to-Capacity Ratio

LOS = Critical Approach Level of Service

BOLD/RED = Does not meet the operating standard

PREFERRED LAND USE SCENARIO CONDITIONS (2041)

Preferred Land Use Scenario (2041) traffic conditions were evaluated for the study area and include the land use assumptions for the preferred scenario for the development of Fox Ridge Area, anticipated intersection operations, and identified transportation improvements.

PREFERRED LAND USE ASSUMPTIONS

As mentioned previously, the future year 2041 McMinnville Travel Demand model currently assumes some amount of low-density residential development and the planned high school⁹ within the Fox Ridge Road plan area. It also included the expected growth in the future Southwest area west of NW Hill Road near 2nd Street and Fellows Street, the mixed-use area on the northeast corner of Baker Creek Road and NW Hill Road, and the planned elementary school¹⁰ near Wallace Road.

Based on the Preferred Land Use scenario, the quantity of anticipated housing units and size of commercial-retail space in the Fox Ridge Road plan area exceeds what is currently assumed in the travel demand model. Therefore, additional vehicle trips representing the additional land uses must be estimated and added to the Baseline scenario to represent the Preferred Land Use scenario.

The table below shows the estimated residential units and commercial-retail space for both the 2041 Baseline scenario and the 2041 Preferred Land Use Scenario. As shown, under the Preferred Land Use Scenario concept, the estimated reasonable number of housing units is 710 (mix of low-, medium-, and high-density) and approximately 23,000 square feet of commercial-retail gross floor area.

Because the Baseline scenario already accounted for 213 residential units, the net increase is 497 residential units and 23 KSF of commercial-retail gross floor area due to the full buildout of the Preferred Land Use scenario.

TABLE 3: LAND USE ASSUMPTIONS

SCENARIO	RESIDENTIAL (UNITS)	COMMERCIAL-RETAIL (KSF) ^a
2041 BASELINE	213	0
2041 PREFERRED LAND USE SCENARIO	710	23
NET INCREASE	+497	+23

^a KSF = 1,000 square feet

To analyze the impacts of the Preferred Land Use scenario on the study area, DKS obtained trip generation rates from the McMinnville Travel Demand model for the residential vehicle trips to

⁹ The high school is assumed to support up to 1,160 students, consistent with the NW Hill Road: Traffic Analysis Study by CH2M Hill (March 1, 2016)

¹⁰ The elementary school is assumed to support up to 382 students, consistent with the NW Hill Road: Traffic Analysis Study by CH2M Hill (March 1, 2016).

estimate the additional amount of vehicle traffic generated by the Preferred Land Use scenario. The commercial-retail trip generation was estimated using trip rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual for Land Use 822. These assumptions were coordinated with the City of McMinnville and ODOT staff.

The trip generation rates for residential and commercial-retail land use were then applied to the estimated net increase of housing units and square feet of commercial-retail land use (Table 3). The resulting trip generation for the AM and PM peak hours is presented in Table 4.

TABLE 4: VEHICLE TRIP GENERATION

LAND USE	SIZE	AM TRIP RATE	PM TRIP RATE	TRIP RATE SOURCE	AM PEAK HOUR			PM PEAK HOUR		
					IN	OUT	TOTAL	IN	OUT	TOTAL
RESIDENTIAL	497 units	0.55 trips/unit	0.74 trips/unit	McMinnville Travel Demand Model	68	205	273	232	136	368
COMMERCIAL-RETAIL	23 KSF	2.36 trips/KSF	6.59 trips/KSF	ITE Trip Generation Manual	32	22	54	76	76	152
TRIP GENERATION					100	227	327	308	212	520

It should be noted that no internal trip reduction was applied to the trip generation estimates above. While it is common practice to apply a reduction factor to account for internal trips within a mixed-use development, the land use within the mixed-use area is only conceptual at this point in time and detailed land use breakdowns (i.e., office space vs retail space vs hotel) are not known. The number of housing units and overall building square footages within the mixed-use area were estimated based on typical land use densities, and accounting for internal trip capture would introduce another layer of uncertainty to the trip generation estimates. Because of this, it was not practical or appropriate to calculate an internal trip reduction factor based on the NCHRP 684 methodology in this traffic study, of which the main goal is to help identify and inform high-level transportation issues that would need to be addressed in the City’s Transportation System Plan update. Internal trip reductions should be included in the future traffic studies that will be required as development occurs within the Fox Ridge Road plan area.

These vehicle trips were then distributed through the study area based on distribution data from the McMinnville Travel Demand model. The trip distribution was as follows. The trip distribution assumptions were coordinated with City and ODOT staff.

- 5% of trips via NW Baker Creek Road (west of city limits)
- 30% of trips via NW Baker Creek Road (east of NW Hill Rd)
- 15% of trips via NW Wallace Road
- 30% of trips via SW 2nd Street (east)
- 5% of trips via SW 2nd Street (west)
- 10% of trips via SW Fellows Street
- 5% of trips via SW NW Hill Road south of SW Fellows Street

PREFERRED LAND USE SCENARIO TRAFFIC VOLUMES

The future 2041 Preferred Scenario traffic volumes were estimated by adding the 2041 Future Baseline volumes and the vehicle trips as shown in Table 4.

Intersection operations were then evaluated to determine how sufficiently the City’s future transportation system would support the long-term estimated build-out of the Fox Ridge Road area, therefore determining what improvements might be needed. The AM and PM peak hour traffic volumes, lane geometries, and intersection operating conditions are shown in Figure 3.

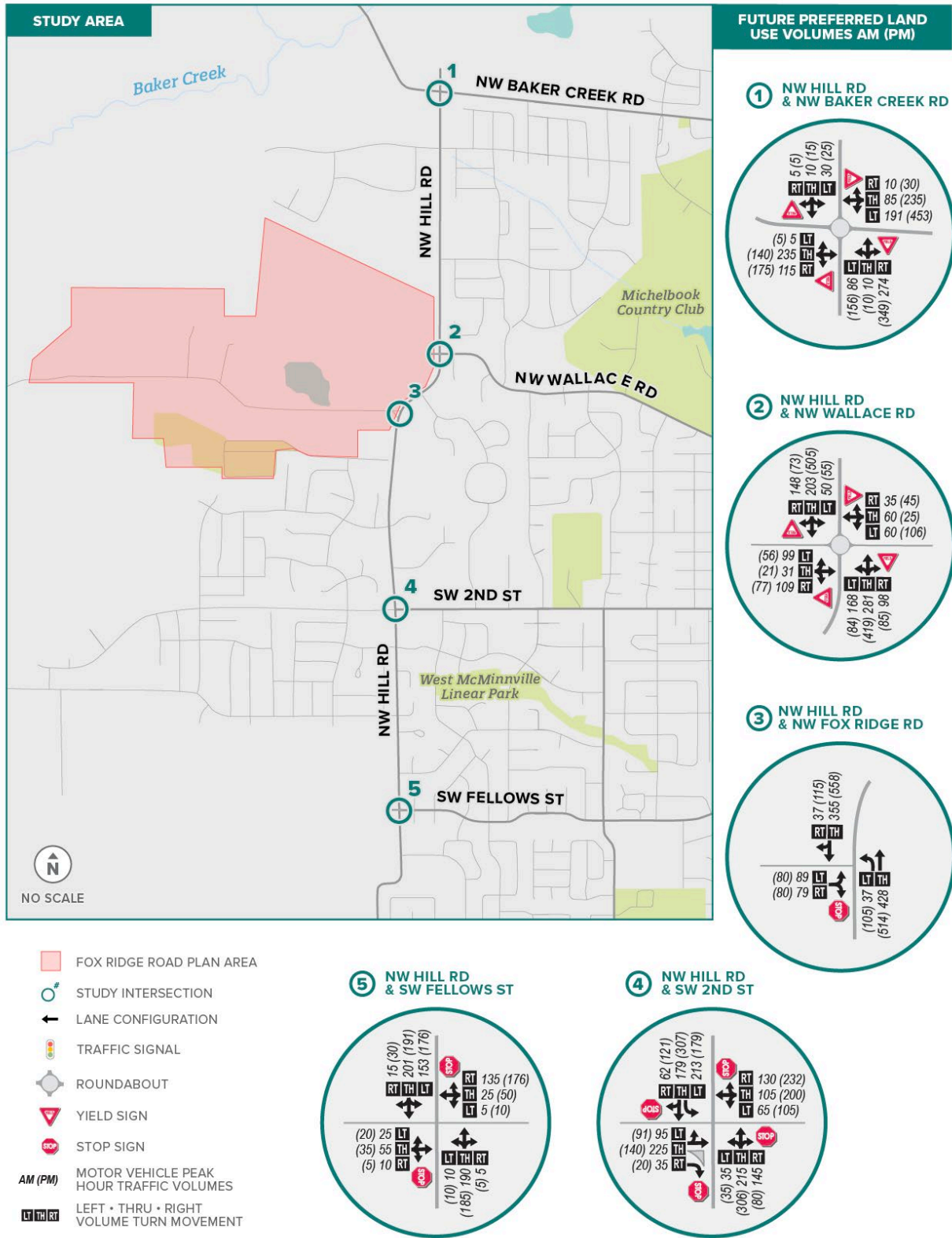


FIGURE 3: PREFERRED LAND USE (2041) TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL

PREFERRED LAND USE SCENARIO INTERSECTION OPERATIONS

Intersection traffic operations under the future 2041 Preferred Land Use scenario were analyzed for the AM and PM peak hours with the same intersection geometries that were assumed in the Baseline scenario. Table 5 the estimated average delay (in seconds), level of service (LOS), and volume to capacity (v/c) ratio for each study intersection.

TABLE 5: PREFERRED LAND USE SCENARIO (2041) INTERSECTION OPERATIONS

INTERSECTION	TRAFFIC CONTROL	OPERATING STANDARD	AM PEAK HOUR			PM PEAK HOUR		
			V/C	DELAY	LOS	V/C	DELAY	LOS
NW HILL ROAD AT BAKER CREEK ROAD	Roundabout	v/c ≤ 0.90	0.42	7	A	0.65	10	B
NW HILL ROAD AT WALLACE ROAD	Roundabout	v/c ≤ 0.90	0.55	9	A	0.65	10	B
NW HILL ROAD AT FOX RIDGE ROAD	Two-Way Stop	v/c ≤ 0.90	0.51	25	C	0.91	92	F
NW HILL ROAD AT 2 ND ST	All-Way Stop	v/c ≤ 0.90	1.16	134	F	1.64	276	F
NW HILL ROAD AT FELLOWS ST	Two-Way Stop	v/c ≤ 0.90	0.40	29	D	0.34	33	D

Delay = Critical Approach Delay (secs)
v/c = Critical Approach Volume-to-Capacity Ratio
LOS = Critical Approach Level of Service
BOLD/RED = Does not meet the operating standard

As shown, the stop-controlled intersections of Fox Ridge Road and 2nd Street along NW Hill Road are expected to exceed the City’s mobility standard.

Under the 2041 Baseline conditions, the intersection of 2nd Street was also shown to fail to meet the City’s mobility standard (Table 2). This is due to the high level of growth and development that is expected along Hill Road through 2041. The comparison of Baseline to Preferred Land Use scenarios shows that the failure of 2nd Street is not just attributed to the Fox Ridge Road growth, but due also in part to the growth in the Southwest area, the Baker Creek mixed-use area, and the planned elementary school.

The Fox Ridge Road intersection does not meet the City’s mobility standard under the full buildout of the Preferred Land Use scenario only.

PRIORITY TSP PROJECTS

As previously noted in an earlier section of the report, the priority vehicle, pedestrian, and bicycle projects identified in the McMinnville TSP (2010) that are applicable to the Fox Ridge study area include the following. These improvements were not included in any of the future 2041 scenarios.

- Complete Streets Upgrade – NW Hill Road South (between 2nd Street and Alexandria Street) includes addition of on-street bicycle lanes and sidewalks
- Installation of a roundabout or traffic signal at NW Hill Road & 2nd Street

RECOMMENDED TRANSPORTATION IMPROVEMENTS

The following improvement projects have been identified to address the vehicle operations at the two intersections along NW Hill Road to meet the City's v/c ratio performance standard. The recommended improvements are described below.

NW HILL ROAD AT FOX RIDGE ROAD

At this intersection, install a single-lane roundabout or traffic signal. In addition to meeting capacity needs and improving vehicle delay, the proposed roundabout or traffic signal would provide safe pedestrian, bicycle, and vehicle access to the Fox Ridge Road plan area. The single-lane roundabout would calm vehicle traffic on NW Hill Road near the planned schools and also provide higher safety benefits compared to the traffic signal. See the list of *Advantages of Installing A Roundabout*.

The intersection was initially analyzed with a stop-control on the minor street approach (Fox Ridge Road) with two separate left and right turn approach lanes. This lane configuration would reduce the v/c ratio to within the City's performance standard; however, the average delay would still exceed an average of 85 seconds on the Fox Ridge Road approach (LOS F). Often, high vehicle delays associated with LOS F result in impatient drivers that accept smaller gaps in traffic when making left turns which can increase vehicle crashes and cause safety issues for all modes of travel. Therefore, it is recommended that a single-lane roundabout or traffic signal be included as part of the transportation improvements for the Fox Ridge Road Area Plan.

NW HILL ROAD AT 2ND STREET

At this intersection, install a single-lane roundabout or traffic signal. A single lane-roundabout and a traffic signal with northbound left turn lane both provide adequate vehicular capacity and reduce vehicle delay through 2041. The current TSP (2010) indicates the need for a roundabout or traffic signal at this intersection. The single-lane roundabout would calm vehicle traffic on NW Hill Road by slowing vehicle speeds and provide higher safety benefits compared to the traffic signal. See the list of *Advantages of Installing A Roundabout*.

IMPROVED OPERATING CONDITIONS

The table below shows the intersection operations for the two intersections with the identified transportation improvements in place. As shown, the intersections will meet the City LOS standard while providing safe multimodal improvements for pedestrians and bicycles.

TABLE 6: PREFERRED LAND USE SCENARIO (2041) INTERSECTION OPERATIONS – WITH IMPROVEMENTS

INTERSECTION	IMPROVEMENT	OPERATING STANDARD	AM PEAK HOUR			PM PEAK HOUR		
			V/C	DELAY	LOS	V/C	DELAY	LOS
NW HILL ROAD AT FOX RIDGE ROAD	Roundabout	v/c ≤ 0.90	0.42	6	A	0.61	9	A
	Traffic Signal	v/c ≤ 0.90	0.46	8	A	0.58	7	A
NW HILL ROAD AT 2 ND ST	Roundabout	v/c ≤ 0.90	0.63	12	B	0.74	16	C
	Traffic Signal	v/c ≤ 0.90	0.77	32	C	0.89	40	D

Delay = Critical Movement Delay (secs)
v/c = Critical Movement Volume-to-Capacity Ratio
LOS = Critical Levels of Service (Major/Minor Road)

Advantages of Installing a Roundabout

- Roundabouts can reduce delay for side street traffic because no approach is given more priority than another.
- Roundabouts can help to slow traffic speeds on the major roadway. Typical circulating speeds for a roundabout are 15 – 20 miles per hour (mph), which would help to calm traffic in the vicinity of the Fox Ridge Road plan area and near the planned schools.
- Converting a stop-controlled intersection to a single-lane roundabout can reduce fatal and injury crashes by 82%.
- Roundabouts reduce the number of conflict points between vehicles and between vehicles and pedestrians/bicycles.

Disadvantages of Installing a Roundabout

- Because all approaches are treated the same and must yield to traffic within the roundabout, this would introduce delay for traffic on the major approaches (NW Hill Road).
- Roundabouts are more difficult for large trucks and agricultural vehicles to navigate and may result in complaints from the freight and agricultural community.

- Roundabouts can be difficult for school aged pedestrians and bicyclists to cross because there is no exclusive stop phase (as is provided with a traffic signal). The lack of straight paths and clear turns can also be difficult for people who are visually impaired.
- Roundabouts often require a larger footprint, which can require additional right-of-way dedication or acquisition.

SUMMARY & RECOMMENDATION

A summary of the transportation analysis and recommendations is provided below:

- The Fox Ridge Road Plan Area includes over 200 acres of land and the preferred development plan for the area primarily includes a mix of residential housing (low-, medium-, and high-density), parks and open spaces, some neighborhood mixed-use development, and a high school.
- The transportation analysis focused on five major intersections along NW Hill Road.
- Today, vehicle operations at the five study intersections meet the City's standard.
- New sidewalks, on-street bicycle lanes, and a raised center median were recently constructed along NW Hill Road between Baker Creek Road and 2nd Street, providing sufficient multimodal facilities along that northern half of NW Hill Road. However, the southern half of NW Hill Road south of 2nd Street is lacking in sidewalks, bicycle facilities, curb, and gutter.
- Currently, there are no local transit routes that stop or travel along NW Hill Road. As the Fox Ridge Road area develops, transit routes and stops should be extended to residential and commercial locations along NW Hill Road.
- Under the Preferred Land Use scenario, two of the study intersections on NW Hill Road fail to meet the City's operating standard, NW Hill Road & Fox Ridge Road and NW Hill Road & 2nd Street.
- The recommended intersection improvements at the two intersections are listed below:
 - **NW Hill Road at Fox Ridge Road:** Install a single-lane roundabout or traffic signal. This project is not listed in the City's current TSP (2010).
 - **NW Hill Road at 2nd Street:** Install a single-lane roundabout or traffic signal. This is consistent with the priority project identified in the City's current TSP (2010).

APPENDIX

CONTENTS

TRAFFIC COUNT DATA

LOS DESCRIPTION

EXISTING 2023 HCM REPORTS

FUTURE BASELINE 2041 HCM REPORTS

PREFERRED SCENARIO 2041 HCM REPORTS

RECOMMENDED IMPROVEMENTS HCM REPORTS

TRAVEL DEMAND MODEL OUTPUTS & ODOT CORRESPONDENCE

TRIP GENERATION VOLUME FIGURE

TRAFFIC COUNT DATA



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

Location: 1 NW HILL RD & NW BAKER CREEK RD AM

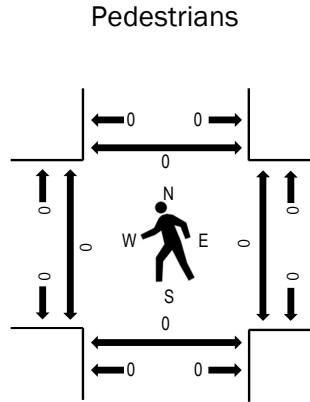
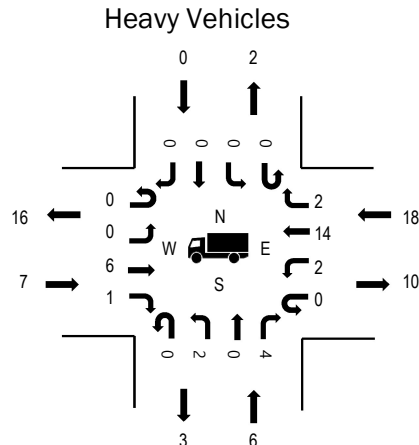
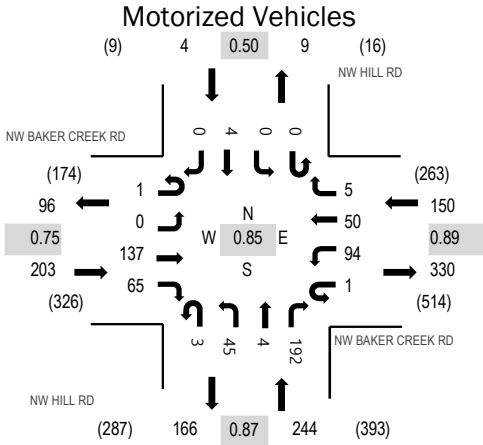
Date: Thursday, June 1, 2023

Peak Hour: 07:20 AM - 08:20 AM

Peak 15-Minutes: 07:50 AM - 08:05 AM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.4%	0.75
WB	12.0%	0.89
NB	2.5%	0.87
SB	0.0%	0.50
All	5.2%	0.85

Traffic Counts - Motorized Vehicles

Interval Start Time	NW BAKER CREEK RD Eastbound				NW BAKER CREEK RD Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	5	3	0	3	1	0	0	4	1	8	0	0	0	0	25	517
7:05 AM	0	0	3	4	0	6	1	0	0	1	0	11	0	0	0	0	26	547
7:10 AM	0	0	5	8	0	4	1	1	0	3	1	8	0	0	0	0	31	569
7:15 AM	0	0	9	3	0	4	0	2	0	5	0	13	0	0	0	0	36	591
7:20 AM	1	0	5	6	0	9	6	1	1	3	1	14	0	0	0	0	47	601
7:25 AM	0	0	7	5	0	4	3	0	0	3	0	14	0	0	0	0	36	594
7:30 AM	0	0	11	1	0	6	3	0	0	4	0	10	0	0	1	0	36	592
7:35 AM	0	0	19	6	0	9	3	0	0	6	0	17	0	0	2	0	62	585
7:40 AM	0	0	10	5	0	9	2	0	0	7	0	13	0	0	0	0	46	557
7:45 AM	0	0	11	9	0	5	4	0	0	2	0	19	0	0	0	0	50	549
7:50 AM	0	0	20	5	0	6	4	0	1	4	1	19	0	0	0	0	60	532
7:55 AM	0	0	14	5	1	13	4	0	1	4	0	20	0	0	0	0	62	507
8:00 AM	0	0	13	11	0	7	5	1	0	1	0	17	0	0	0	0	55	474
8:05 AM	0	0	7	6	0	11	2	0	0	3	1	18	0	0	0	0	48	
8:10 AM	0	0	10	3	0	9	5	2	0	4	0	20	0	0	0	0	53	
8:15 AM	0	0	10	3	0	6	9	1	0	4	1	11	0	0	1	0	46	
8:20 AM	0	0	8	6	1	7	6	0	0	3	0	8	0	0	1	0	40	
8:25 AM	0	0	5	3	0	7	3	0	0	4	1	10	0	1	0	0	34	
8:30 AM	0	0	8	2	0	4	4	0	0	3	0	8	0	0	0	0	29	
8:35 AM	0	0	8	3	0	8	6	0	0	2	0	6	0	0	0	1	34	
8:40 AM	0	0	5	5	0	7	7	1	0	3	0	8	0	1	1	0	38	
8:45 AM	0	0	6	3	0	12	5	0	1	2	0	4	0	0	0	0	33	
8:50 AM	0	0	9	4	0	4	2	0	0	7	0	9	0	0	0	0	35	
8:55 AM	0	0	4	4	0	4	2	0	0	2	0	13	0	0	0	0	29	
Count Total	1	0	212	113	2	164	88	9	4	84	7	298	0	2	6	1	991	
Peak Hour	1	0	137	65	1	94	50	5	3	45	4	192	0	0	4	0	601	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	1	0	1	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	2	2	0	4	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	2	0	1	0	3	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	2	0	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	0	0	0	1	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	1	0	1	0	2	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	1	3	0	4	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	0	1	0	1	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	1	0	0	1	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	1	1	2	0	4	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	2	2	0	4	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	1	3	0	4	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	4	0	4	0	8	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	2	0	0	0	2	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	1	0	0	1	2	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	1	0	1	0	2	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	1	1	2	8:35 AM	0	0	0	0	0	8:35 AM	0	1	0	1	2
8:40 AM	1	0	1	0	2	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	1	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	1	0	0	0	1	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	16	9	25	2	52	Count Total	0	0	0	0	0	Count Total	0	1	0	1	2
Peak Hour	7	6	18	0	31	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0



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Location: 2 NW HILL RD & NW WALLACE RD AM

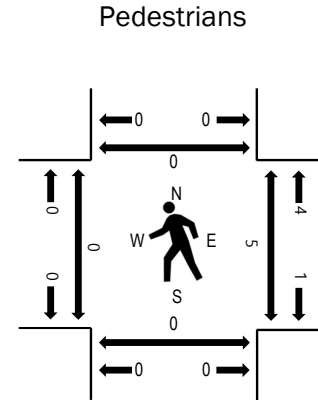
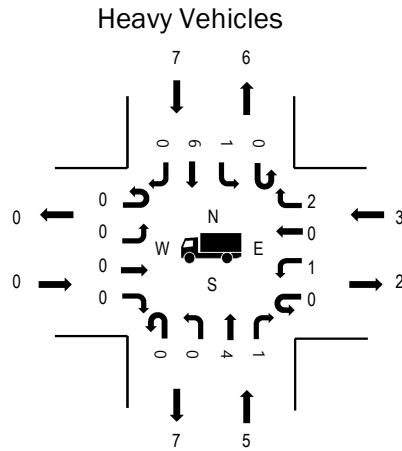
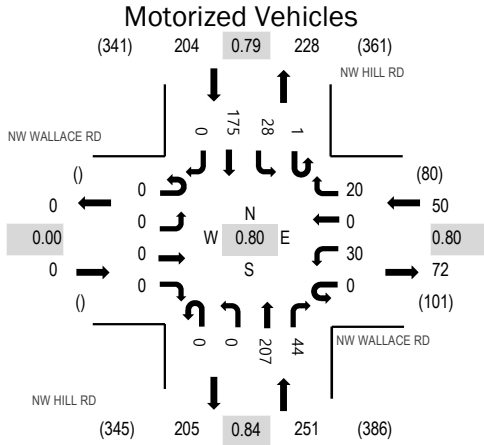
Date: Thursday, June 1, 2023

Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:50 AM - 08:05 AM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	6.0%	0.80
NB	2.0%	0.84
SB	3.4%	0.79
All	3.0%	0.80

Traffic Counts - Motorized Vehicles

Interval Start Time	NW WALLACE RD Eastbound				NW WALLACE RD Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	3	0	0	6	2	0	1	7	0	19	427
7:05 AM	0	0	0	0	0	3	0	0	0	0	12	1	0	0	5	0	21	462
7:10 AM	0	0	0	0	0	1	0	1	0	0	6	1	0	0	14	0	23	484
7:15 AM	0	0	0	0	0	0	0	2	0	0	14	3	0	1	14	0	34	505
7:20 AM	0	0	0	0	0	2	0	0	0	0	17	4	0	1	12	0	36	503
7:25 AM	0	0	0	0	0	1	0	0	0	0	9	2	0	3	9	0	24	494
7:30 AM	0	0	0	0	0	5	0	1	0	0	16	4	0	0	12	0	38	503
7:35 AM	0	0	0	0	0	0	0	3	0	0	18	5	0	0	13	0	39	491
7:40 AM	0	0	0	0	0	2	0	2	0	0	15	3	0	3	18	0	43	469
7:45 AM	0	0	0	0	0	3	0	1	0	0	17	3	0	5	18	0	47	446
7:50 AM	0	0	0	0	0	3	0	3	0	0	20	7	0	3	15	0	51	425
7:55 AM	0	0	0	0	0	4	0	2	0	0	20	4	1	3	18	0	52	400
8:00 AM	0	0	0	0	0	2	0	3	0	0	19	5	0	5	20	0	54	380
8:05 AM	0	0	0	0	0	7	0	1	0	0	16	2	0	4	13	0	43	
8:10 AM	0	0	0	0	0	1	0	2	0	0	26	2	0	0	13	0	44	
8:15 AM	0	0	0	0	0	5	0	0	0	0	15	2	0	1	9	0	32	
8:20 AM	0	0	0	0	0	2	0	2	0	0	8	1	0	1	13	0	27	
8:25 AM	0	0	0	0	0	4	0	3	0	0	11	0	0	5	10	0	33	
8:30 AM	0	0	0	0	0	0	0	1	0	0	10	4	0	1	10	0	26	
8:35 AM	0	0	0	0	0	1	0	1	1	0	6	1	0	1	6	0	17	
8:40 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	1	13	0	20	
8:45 AM	0	0	0	0	0	1	0	0	0	0	6	1	1	0	17	0	26	
8:50 AM	0	0	0	0	0	0	0	2	0	0	17	0	1	1	5	0	26	
8:55 AM	0	0	0	0	0	0	0	0	0	0	15	3	0	1	13	0	32	
Count Total	0	0	0	0	0	47	0	33	1	0	325	60	3	41	297	0	807	
Peak Hour	0	0	0	0	0	30	0	20	0	0	207	44	1	28	175	0	505	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	3	3	7:15 AM	0	0	0	0	0	7:15 AM	0	0	2	0	2
7:20 AM	0	0	0	1	1	7:20 AM	0	0	0	0	0	7:20 AM	0	0	2	0	2
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	1	1	0	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	1	1	7:50 AM	0	0	0	0	0	7:50 AM	0	0	1	0	1
7:55 AM	0	1	1	1	3	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	2	0	0	2	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	1	0	0	1	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	1	1	2	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	1	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	2	0	2
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0	8:40 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	1	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	0	7	3	9	19	Count Total	0	0	0	0	0	Count Total	0	0	9	0	9
Peak Hour	0	5	3	7	15	Peak Hour	0	0	0	0	0	Peak Hour	0	0	5	0	5



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Location: 3 NW HILL RD & SW 2ND ST AM

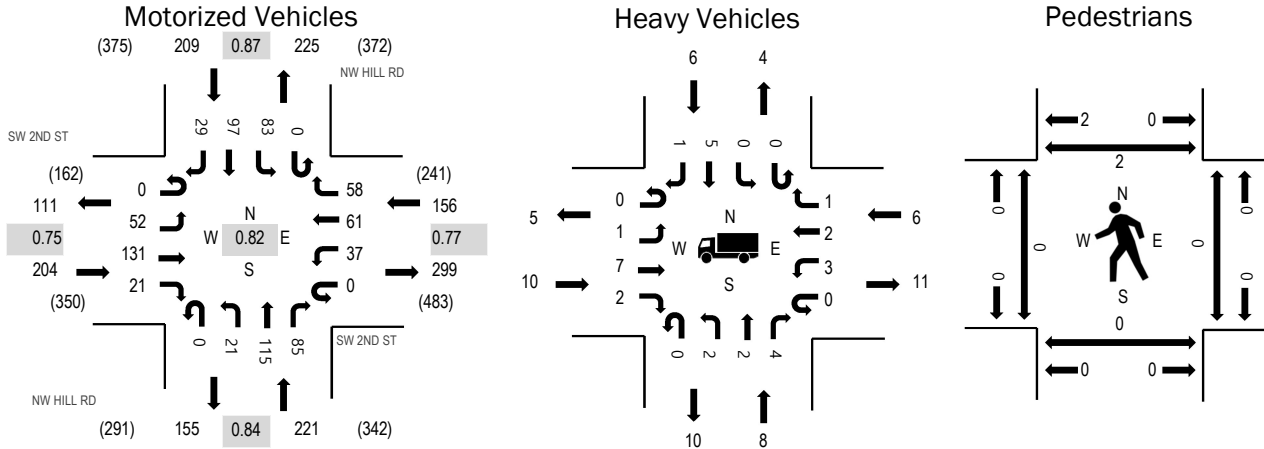
Date: Thursday, June 1, 2023

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:40 AM - 07:55 AM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.9%	0.75
WB	3.8%	0.77
NB	3.6%	0.84
SB	2.9%	0.87
All	3.8%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	SW 2ND ST Eastbound				SW 2ND ST Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	1	3	0	1	1	3	0	0	2	4	0	1	9	0	25	673
7:05 AM	0	5	7	0	0	1	1	3	0	0	7	0	0	4	4	1	33	715
7:10 AM	0	1	7	1	0	1	0	1	0	1	4	3	0	4	14	2	39	757
7:15 AM	0	7	12	1	0	1	1	4	0	0	7	5	0	8	7	0	53	786
7:20 AM	0	3	8	3	0	1	0	2	0	1	12	3	0	7	7	2	49	781
7:25 AM	0	4	15	2	0	1	2	5	0	0	5	3	0	6	3	3	49	785
7:30 AM	0	6	12	0	0	3	2	2	0	0	7	3	0	3	8	1	47	790
7:35 AM	0	2	11	1	0	3	5	3	0	0	12	8	0	10	7	4	66	787
7:40 AM	0	6	17	3	0	1	3	4	0	3	12	8	0	4	12	3	76	762
7:45 AM	0	5	23	2	0	4	5	3	0	4	7	10	0	14	6	2	85	721
7:50 AM	0	4	12	3	0	6	4	8	0	1	17	3	0	8	11	3	80	685
7:55 AM	0	8	11	0	0	3	3	7	0	4	11	9	0	7	4	4	71	657
8:00 AM	0	7	7	2	0	2	1	5	0	2	6	9	0	13	11	2	67	635
8:05 AM	0	3	13	1	0	1	13	9	0	2	9	6	0	3	12	3	75	
8:10 AM	0	3	7	1	0	5	7	6	0	1	11	11	0	10	5	1	68	
8:15 AM	0	3	8	3	0	5	3	3	0	1	7	5	0	2	7	1	48	
8:20 AM	0	3	5	2	0	1	8	3	0	3	4	8	0	6	6	4	53	
8:25 AM	0	2	5	3	0	3	7	5	0	0	12	5	0	3	8	1	54	
8:30 AM	0	1	8	2	0	4	4	4	0	1	4	5	0	3	5	3	44	
8:35 AM	0	3	10	4	0	2	2	1	0	0	4	3	0	4	5	3	41	
8:40 AM	0	0	5	1	0	6	0	4	0	1	2	3	0	2	9	2	35	
8:45 AM	0	4	8	1	0	3	3	2	0	0	10	0	0	5	11	2	49	
8:50 AM	0	2	4	1	0	5	3	5	0	2	11	5	0	5	5	4	52	
8:55 AM	0	2	7	3	0	1	4	3	0	1	10	2	0	7	8	1	49	
Count Total	0	84	223	43	0	64	82	95	0	28	193	121	0	139	184	52	1,308	
Peak Hour	0	52	131	21	0	37	61	58	0	21	115	85	0	83	97	29	790	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	1	1
7:05 AM	0	0	1	0	1	7:05 AM	0	0	0	1	1	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	1	2	3	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	1	1	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	2	0	0	0	2	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	1	1	0	2	7:35 AM	0	0	0	0	0	7:35 AM	0	1	0	0	1
7:40 AM	1	1	0	0	2	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	1	0	2	1	4	7:45 AM	1	0	0	0	1	7:45 AM	0	1	0	0	1
7:50 AM	1	0	0	1	2	7:50 AM	1	0	0	0	1	7:50 AM	0	0	0	0	0
7:55 AM	2	2	0	0	4	7:55 AM	0	0	0	0	0	7:55 AM	0	1	0	0	1
8:00 AM	1	1	2	0	4	8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	2	2
8:05 AM	1	0	1	0	2	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	2	0	1	3	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	2	0	0	2	4	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	1	1	0	1	3	8:20 AM	0	1	0	0	1	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	1	1	1	3	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	2	2	0	4	8:40 AM	0	0	0	0	0	8:40 AM	0	2	0	0	2
8:45 AM	1	0	0	0	1	8:45 AM	0	0	0	1	1	8:45 AM	0	1	0	0	1
8:50 AM	0	1	1	0	2	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	1	0	1	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	13	12	14	10	49	Count Total	3	1	0	2	6	Count Total	0	6	0	3	9
Peak Hour	10	8	6	6	30	Peak Hour	3	1	0	0	4	Peak Hour	0	3	0	2	5



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Location: 4 NW HILL RD & SW FELLOWS ST AM

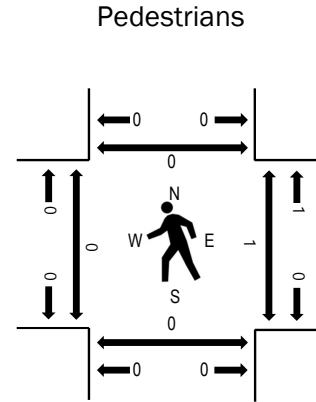
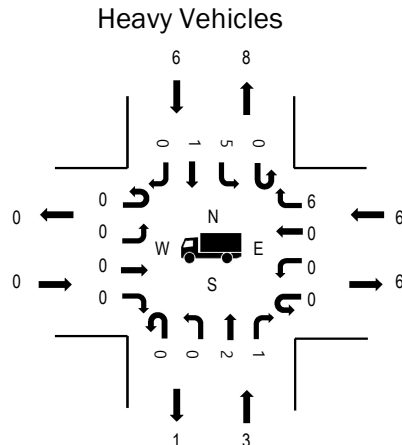
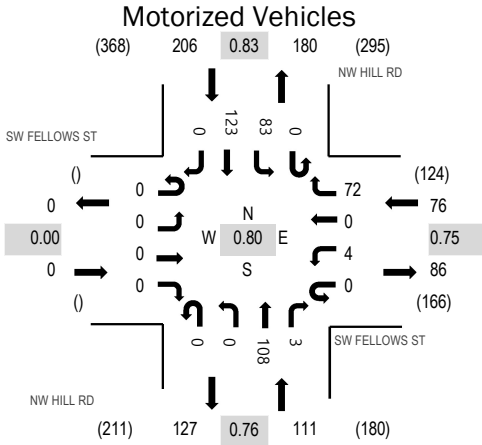
Date: Thursday, June 1, 2023

Peak Hour: 07:10 AM - 08:10 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	7.9%	0.75
NB	2.7%	0.76
SB	2.9%	0.83
All	3.8%	0.80

Traffic Counts - Motorized Vehicles

Interval Start Time	SW FELLOWS ST Eastbound				SW FELLOWS ST Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	0	0	4	0	0	1	0	0	5	12	0	22	369
7:05 AM	0	0	0	0	0	0	0	0	0	0	4	1	0	6	6	0	17	380
7:10 AM	0	0	0	0	0	0	0	5	0	0	9	0	0	6	12	0	32	393
7:15 AM	0	0	0	0	0	0	0	7	0	0	4	0	0	6	7	0	24	381
7:20 AM	0	0	0	0	0	0	0	2	0	0	9	0	0	4	16	0	31	386
7:25 AM	0	0	0	0	0	0	0	2	0	0	3	0	0	10	6	0	21	377
7:30 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	4	9	0	23	389
7:35 AM	0	0	0	0	0	0	0	10	0	0	8	1	0	6	11	0	36	389
7:40 AM	0	0	0	0	0	0	0	9	0	0	10	0	0	8	13	0	40	367
7:45 AM	0	0	0	0	0	1	0	6	0	0	11	1	0	9	9	0	37	347
7:50 AM	0	0	0	0	0	1	0	6	0	0	10	1	0	13	10	0	41	338
7:55 AM	0	0	0	0	0	0	0	14	0	0	15	0	0	10	6	0	45	325
8:00 AM	0	0	0	0	0	2	0	6	0	0	9	0	0	2	14	0	33	303
8:05 AM	0	0	0	0	0	0	0	5	0	0	10	0	0	5	10	0	30	
8:10 AM	0	0	0	0	0	0	0	4	0	0	4	0	0	7	5	0	20	
8:15 AM	0	0	0	0	0	1	0	5	0	0	12	0	0	5	6	0	29	
8:20 AM	0	0	0	0	0	0	0	5	0	0	6	0	0	4	7	0	22	
8:25 AM	0	0	0	0	0	0	0	11	0	0	7	0	0	6	9	0	33	
8:30 AM	0	0	0	0	0	0	0	1	0	0	6	0	0	8	8	0	23	
8:35 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	7	3	0	14	
8:40 AM	0	0	0	0	0	0	0	4	0	0	2	0	0	9	5	0	20	
8:45 AM	0	0	0	0	0	0	0	4	0	0	5	0	0	7	12	0	28	
8:50 AM	0	0	0	0	0	0	0	4	0	0	11	0	0	8	5	0	28	
8:55 AM	0	0	0	0	0	0	0	3	0	0	8	0	0	7	5	0	23	
Count Total	0	0	0	0	0	5	0	119	0	0	176	4	0	162	206	0	672	
Peak Hour	0	0	0	0	0	4	0	72	0	0	108	3	0	83	123	0	393	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	1	0	0	1	7:10 AM	0	0	0	1	1	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	1	2	3	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	2	2	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	1	0	1	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1	7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0
7:50 AM	0	0	1	1	2	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	1	3	1	5	7:55 AM	0	0	0	0	0	7:55 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	0	1	1	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	2	2	8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:20 AM	0	0	1	0	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	1	2	3	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	2	0	2	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	1	1	8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	0	4	10	11	25	Count Total	0	1	0	3	4	Count Total	0	0	1	0	1
Peak Hour	0	3	6	6	15	Peak Hour	0	0	0	2	2	Peak Hour	0	0	1	0	1



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Location: 5 NW HILL RD & NW FOX RIDGE RD AM

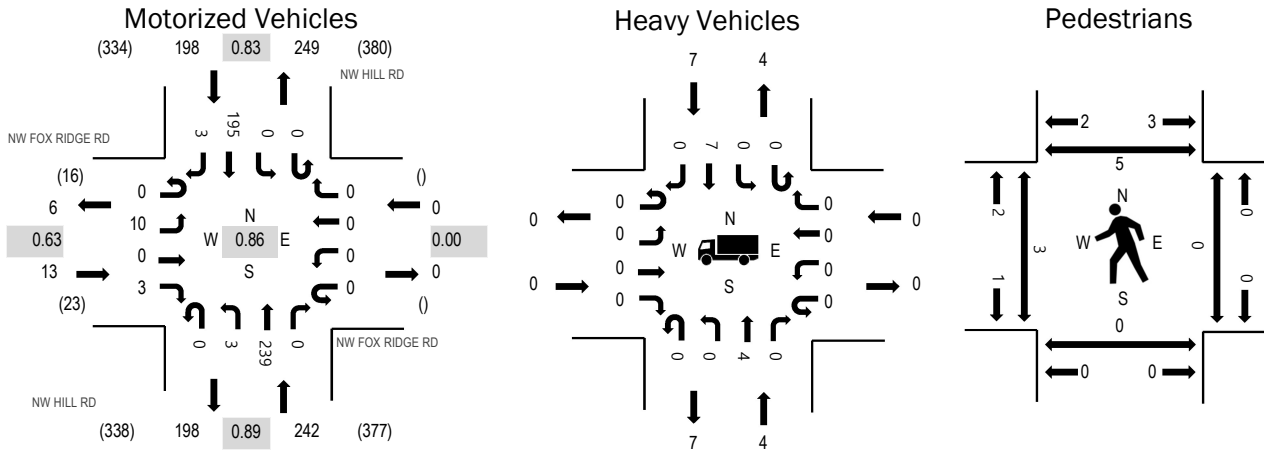
Date: Thursday, June 1, 2023

Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.63
WB	0.0%	0.00
NB	1.7%	0.89
SB	3.5%	0.83
All	2.4%	0.86

Traffic Counts - Motorized Vehicles

Interval Start Time	NW FOX RIDGE RD Eastbound				NW FOX RIDGE RD Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	2	0	0	0	0	0	0	0	1	5	0	0	0	8	0	16	388
7:05 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	10	0	24	412
7:10 AM	0	1	0	0	0	0	0	0	0	1	5	0	0	0	13	0	20	431
7:15 AM	0	2	0	0	0	0	0	0	0	0	16	0	0	0	15	0	33	453
7:20 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	11	0	29	442
7:25 AM	0	1	0	0	0	0	0	0	0	0	14	0	0	0	10	0	25	444
7:30 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	17	0	39	451
7:35 AM	0	0	0	0	0	0	0	0	0	0	20	0	0	0	12	0	32	433
7:40 AM	0	0	0	1	0	0	0	0	0	0	19	0	0	0	18	1	39	414
7:45 AM	0	0	0	1	0	0	0	0	0	1	19	0	0	0	21	0	42	393
7:50 AM	0	1	0	0	0	0	0	0	0	0	24	0	0	0	18	1	44	378
7:55 AM	0	1	0	0	0	0	0	0	0	0	24	0	0	0	20	0	45	361
8:00 AM	0	1	0	0	0	0	0	0	0	0	18	0	0	0	21	0	40	346
8:05 AM	0	2	0	1	0	0	0	0	0	1	22	0	0	0	16	1	43	
8:10 AM	0	2	0	0	0	0	0	0	0	1	23	0	0	0	16	0	42	
8:15 AM	0	0	0	1	0	0	0	0	0	0	10	0	0	0	11	0	22	
8:20 AM	0	1	0	2	0	0	0	0	0	2	11	0	0	0	15	0	31	
8:25 AM	0	0	0	0	0	0	0	0	0	3	17	0	0	0	12	0	32	
8:30 AM	0	0	0	0	0	0	0	0	0	1	10	0	0	0	10	0	21	
8:35 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	8	0	13	
8:40 AM	0	1	0	0	0	0	0	0	0	0	5	0	0	0	12	0	18	
8:45 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	17	0	27	
8:50 AM	0	0	0	1	0	0	0	0	0	0	18	0	0	0	8	0	27	
8:55 AM	0	0	0	1	0	0	0	0	0	1	16	0	0	0	11	1	30	
Count Total	0	15	0	8	0	0	0	0	0	12	365	0	0	0	330	4	734	
Peak Hour	0	10	0	3	0	0	0	0	0	3	239	0	0	0	195	3	453	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	1	0	0	1	7:05 AM	0	0	0	1	1	7:05 AM	1	0	0	0	1
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	2	2
7:15 AM	0	0	0	3	3	7:15 AM	0	0	0	0	0	7:15 AM	2	0	0	3	5
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	1	0	1	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	1	0	1	2	7:50 AM	0	0	0	0	0	7:50 AM	1	0	0	1	2
7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	2	0	0	2	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	1	1
8:10 AM	0	0	0	2	2	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	1	0	1	2	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	1	1
8:35 AM	0	0	0	1	1	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0	8:40 AM	2	0	0	2	4
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	1	1	8:45 AM	2	0	0	0	2
8:50 AM	0	1	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	0	7	0	10	17	Count Total	0	0	0	2	2	Count Total	8	0	0	10	18
Peak Hour	0	4	0	7	11	Peak Hour	0	0	0	0	0	Peak Hour	3	0	0	5	8



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Location: 1 NW HILL RD & NW BAKER CREEK RD PM

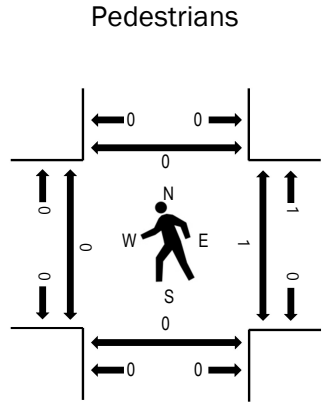
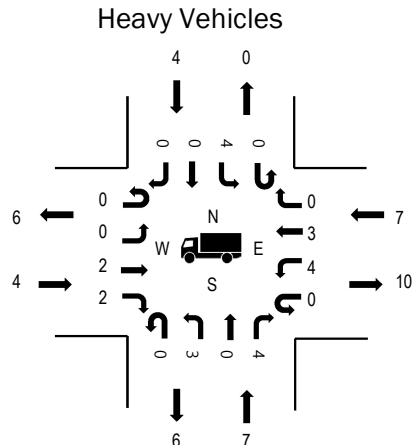
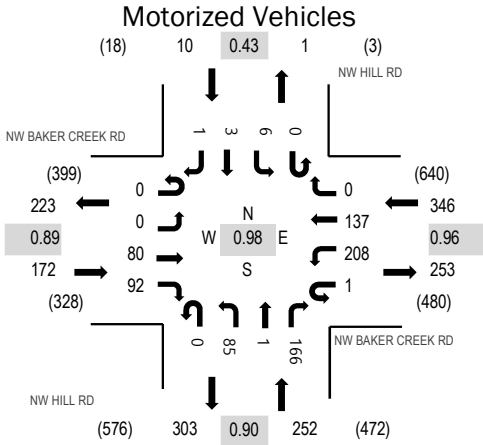
Date: Thursday, June 1, 2023

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.3%	0.89
WB	2.0%	0.96
NB	2.8%	0.90
SB	40.0%	0.43
All	2.8%	0.98

Traffic Counts - Motorized Vehicles

Interval Start Time	NW BAKER CREEK RD Eastbound				NW BAKER CREEK RD Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	7	6	0	19	11	0	0	6	0	13	0	2	1	0	65	762
4:05 PM	0	0	3	9	0	17	8	0	0	9	0	15	0	0	1	1	63	759
4:10 PM	0	0	13	6	0	20	7	0	0	9	0	10	0	0	0	0	65	760
4:15 PM	0	0	7	8	0	16	6	0	0	7	0	11	0	0	0	0	55	755
4:20 PM	0	0	6	5	0	19	8	0	0	6	0	21	0	1	0	0	66	750
4:25 PM	0	0	6	5	0	12	7	1	0	6	0	10	0	0	0	2	49	753
4:30 PM	0	0	7	7	0	22	12	0	0	9	0	13	0	0	0	0	70	780
4:35 PM	0	0	9	6	0	20	11	0	0	7	0	12	0	0	1	0	66	764
4:40 PM	0	0	4	15	0	14	6	0	0	4	0	20	0	0	0	0	63	747
4:45 PM	0	0	8	6	0	17	15	0	0	7	0	11	0	0	0	0	64	740
4:50 PM	0	0	4	9	0	14	10	0	0	12	0	17	0	1	0	0	67	728
4:55 PM	0	0	12	6	0	18	13	0	0	4	0	16	0	0	0	0	69	726
5:00 PM	0	0	5	8	0	14	16	0	0	8	0	11	0	0	0	0	62	696
5:05 PM	0	0	11	9	0	15	9	0	0	6	1	10	0	1	1	1	64	
5:10 PM	0	0	5	6	0	20	10	0	0	7	0	11	0	1	0	0	60	
5:15 PM	0	0	6	3	1	15	6	0	0	2	0	14	0	3	0	0	50	
5:20 PM	0	0	6	11	0	17	11	0	0	8	0	16	0	0	0	0	69	
5:25 PM	0	0	3	6	0	22	18	0	0	11	0	15	0	0	1	0	76	
5:30 PM	0	0	10	10	0	15	3	0	0	4	0	12	0	0	0	0	54	
5:35 PM	0	0	5	3	0	21	6	0	0	4	0	10	0	0	0	0	49	
5:40 PM	0	0	4	2	0	14	11	0	0	11	1	13	0	0	0	0	56	
5:45 PM	0	0	6	8	0	15	9	0	0	6	0	8	0	0	0	0	52	
5:50 PM	0	0	9	8	0	18	12	0	0	6	0	12	0	0	0	0	65	
5:55 PM	0	0	6	4	0	11	8	0	0	3	0	7	0	0	0	0	39	
Count Total	0	0	162	166	1	405	233	1	0	162	2	308	0	9	5	4	1,458	
Peak Hour	0	0	80	92	1	208	137	0	0	85	1	166	0	6	3	1	780	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	1	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	1	1	0	4	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	1	0	0	1	4:20 PM	0	0	1	0	1	4:20 PM	0	0	0	0	0
4:25 PM	1	0	1	0	2	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	2	2	0	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	1	0	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	1	0	0	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	2	0	2	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	1	1	0	3	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	0	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	1	1	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	1	0	1
5:15 PM	0	0	0	3	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	1	0	2	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	1	0	2	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	1	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0
Count Total	9	10	14	5	38	Count Total	0	1	1	0	2	Count Total	0	0	1	0	1
Peak Hour	4	7	7	4	22	Peak Hour	0	0	0	0	0	Peak Hour	0	0	1	0	1

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	1	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	1	1	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	1	1	3	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	1	1	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	1	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	1	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	2	0	0	2	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	1	1	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	1	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	4	5	12	21	Count Total	0	2	0	0	2	Count Total	0	0	3	0	3
Peak Hour	0	2	2	4	8	Peak Hour	0	2	0	0	2	Peak Hour	0	0	3	0	3



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Location: 3 NW HILL RD & SW 2ND ST PM

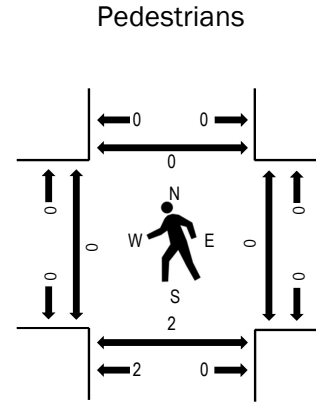
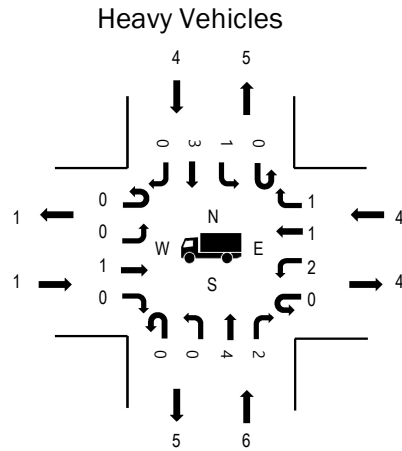
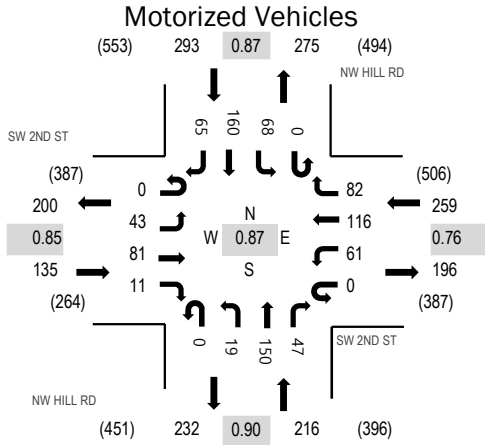
Date: Thursday, June 1, 2023

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:10 PM - 05:25 PM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.7%	0.85
WB	1.5%	0.76
NB	2.8%	0.90
SB	1.4%	0.87
All	1.7%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	SW 2ND ST Eastbound				SW 2ND ST Westbound				NW HILL RD Northbound			NW HILL RD Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
4:00 PM	0	4	6	4	0	5	12	2	0	1	13	6	0	3	10	2	68	859
4:05 PM	0	2	6	3	0	5	7	7	0	1	13	0	0	7	10	3	64	858
4:10 PM	0	1	6	1	0	5	11	8	0	3	10	5	0	6	14	7	77	862
4:15 PM	0	4	7	3	0	2	6	10	0	1	11	6	0	9	14	5	78	874
4:20 PM	0	3	9	1	0	7	13	8	0	3	6	4	0	6	13	4	77	884
4:25 PM	0	2	5	2	0	2	8	5	0	2	13	5	0	4	8	5	61	890
4:30 PM	0	2	4	1	0	7	12	7	0	2	11	7	0	5	12	4	74	903
4:35 PM	0	1	4	1	0	9	9	6	0	0	13	5	0	3	19	9	79	899
4:40 PM	0	6	7	1	0	5	12	3	0	3	12	7	0	3	19	10	88	899
4:45 PM	0	3	4	1	0	3	5	7	0	0	7	4	0	4	8	6	52	861
4:50 PM	0	1	9	0	0	5	4	8	0	1	17	3	0	2	8	5	63	874
4:55 PM	0	5	6	3	0	4	7	7	0	4	15	2	0	5	14	6	78	870
5:00 PM	0	0	11	2	0	3	6	7	0	1	14	2	0	6	13	2	67	860
5:05 PM	0	4	7	0	0	5	9	3	0	2	10	2	0	8	12	6	68	
5:10 PM	0	1	8	0	0	5	21	10	0	1	13	3	0	10	14	3	89	
5:15 PM	0	6	8	1	0	6	15	7	0	3	11	3	0	9	14	5	88	
5:20 PM	0	6	6	0	0	5	8	9	0	0	13	6	0	7	18	5	83	
5:25 PM	0	8	7	1	0	4	8	8	0	2	14	3	0	6	9	4	74	
5:30 PM	0	2	5	1	0	6	14	0	0	3	10	5	0	8	12	4	70	
5:35 PM	0	8	8	1	0	10	14	5	0	1	7	2	0	4	16	3	79	
5:40 PM	0	2	1	0	0	2	8	7	0	2	11	3	0	3	9	2	50	
5:45 PM	0	5	3	1	0	9	10	4	0	1	8	3	0	6	10	5	65	
5:50 PM	0	2	9	0	0	2	3	8	0	1	4	7	0	8	11	4	59	
5:55 PM	0	5	7	0	0	8	10	4	0	1	5	3	0	6	12	7	68	
Count Total	0	83	153	28	0	124	232	150	0	39	261	96	0	138	299	116	1,719	
Peak Hour	0	43	81	11	0	61	116	82	0	19	150	47	0	68	160	65	903	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	1	1	1	5	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:05 PM	0	0	1	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	1	0	0	1
4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	2	1	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	1	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	1	0	0	0	1	4:40 PM	0	3	0	0	3
4:45 PM	0	0	1	1	2	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	1	0	0	1
4:55 PM	0	1	0	1	2	4:55 PM	0	0	0	0	0	4:55 PM	0	1	0	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	1	1
5:20 PM	0	2	0	0	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	1	0	0	1	2
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	2	1	3	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	2	0	0	1	3	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	1	0	2	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	6	9	9	9	33	Count Total	1	0	0	0	1	Count Total	1	7	0	2	10
Peak Hour	1	6	4	4	15	Peak Hour	1	0	0	0	1	Peak Hour	1	5	0	2	8



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Location: 4 NW HILL RD & SW FELLOWS ST PM

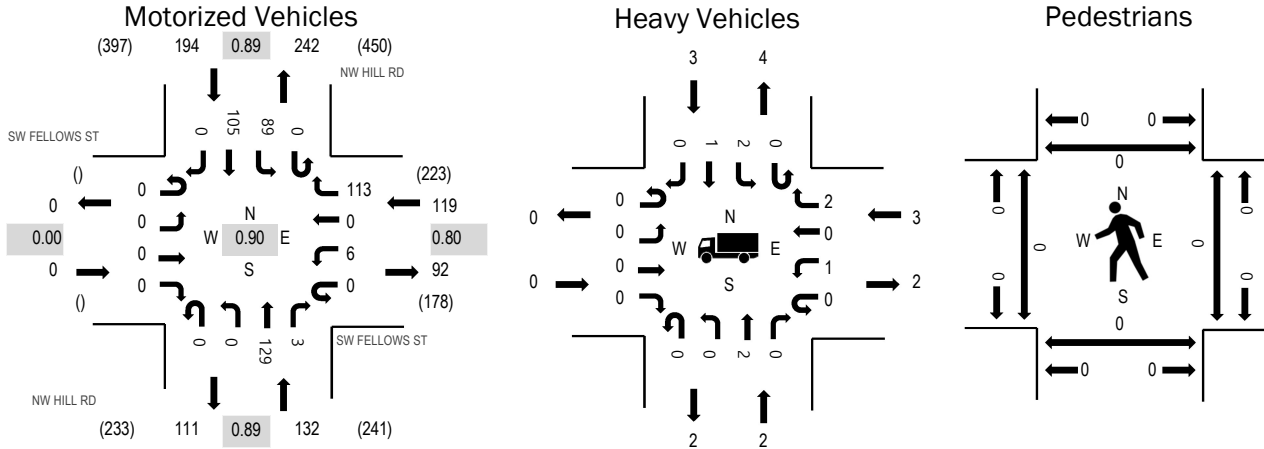
Date: Thursday, June 1, 2023

Peak Hour: 04:20 PM - 05:20 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	2.5%	0.80
NB	1.5%	0.89
SB	1.5%	0.89
All	1.8%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	SW FELLOWS ST Eastbound				SW FELLOWS ST Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	10	0	0	13	1	0	11	5	0	40	435
4:05 PM	0	0	0	0	0	0	0	10	0	0	5	0	0	8	12	0	35	429
4:10 PM	0	0	0	0	0	0	0	12	0	0	7	1	0	7	8	0	35	434
4:15 PM	0	0	0	0	0	1	0	5	0	0	12	0	0	10	9	0	37	441
4:20 PM	0	0	0	0	0	0	0	14	0	0	7	0	0	7	16	0	44	445
4:25 PM	0	0	0	0	0	0	0	6	0	0	13	0	0	4	10	0	33	432
4:30 PM	0	0	0	0	0	0	0	10	0	0	11	1	0	4	5	0	31	428
4:35 PM	0	0	0	0	0	1	0	7	0	0	12	0	0	7	11	0	38	436
4:40 PM	0	0	0	0	0	0	0	5	0	0	13	0	0	9	13	0	40	435
4:45 PM	0	0	0	0	0	2	0	6	0	0	8	1	0	5	8	0	30	429
4:50 PM	0	0	0	0	0	1	0	14	0	0	10	0	0	8	5	0	38	430
4:55 PM	0	0	0	0	0	0	0	9	0	0	12	0	0	4	9	0	34	426
5:00 PM	0	0	0	0	0	1	0	10	0	0	8	0	0	8	7	0	34	426
5:05 PM	0	0	0	0	0	1	0	11	0	0	10	0	0	7	11	0	40	445
5:10 PM	0	0	0	0	0	0	0	14	0	0	12	1	0	11	4	0	42	445
5:15 PM	0	0	0	0	0	0	0	7	0	0	13	0	0	15	6	0	41	445
5:20 PM	0	0	0	0	0	0	0	9	0	0	7	0	0	6	9	0	31	445
5:25 PM	0	0	0	0	0	0	0	5	0	0	11	0	0	5	8	0	29	445
5:30 PM	0	0	0	0	0	0	0	10	0	0	11	0	0	8	10	0	39	445
5:35 PM	0	0	0	0	0	0	0	8	0	0	7	0	0	6	16	0	37	445
5:40 PM	0	0	0	0	0	0	0	7	0	0	9	1	0	8	9	0	34	445
5:45 PM	0	0	0	0	0	0	0	6	0	0	10	0	0	4	11	0	31	445
5:50 PM	0	0	0	0	0	0	0	11	0	0	8	0	0	3	12	0	34	445
5:55 PM	0	0	0	0	0	0	0	10	0	0	5	1	0	6	12	0	34	445
Count Total	0	0	0	0	0	7	0	216	0	0	234	7	0	171	226	0	861	
Peak Hour	0	0	0	0	0	6	0	113	0	0	129	3	0	89	105	0	445	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	1	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	2	1	3	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	1	1	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	1	1	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	2	0	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	2	0	0	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	1	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	4	5	8	17	Count Total	0	0	0	2	2	Count Total	0	0	0	0	0
Peak Hour	0	2	3	3	8	Peak Hour	0	0	0	1	1	Peak Hour	0	0	0	0	0



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Location: 5 NW HILL RD & NW FOX RIDGE RD PM

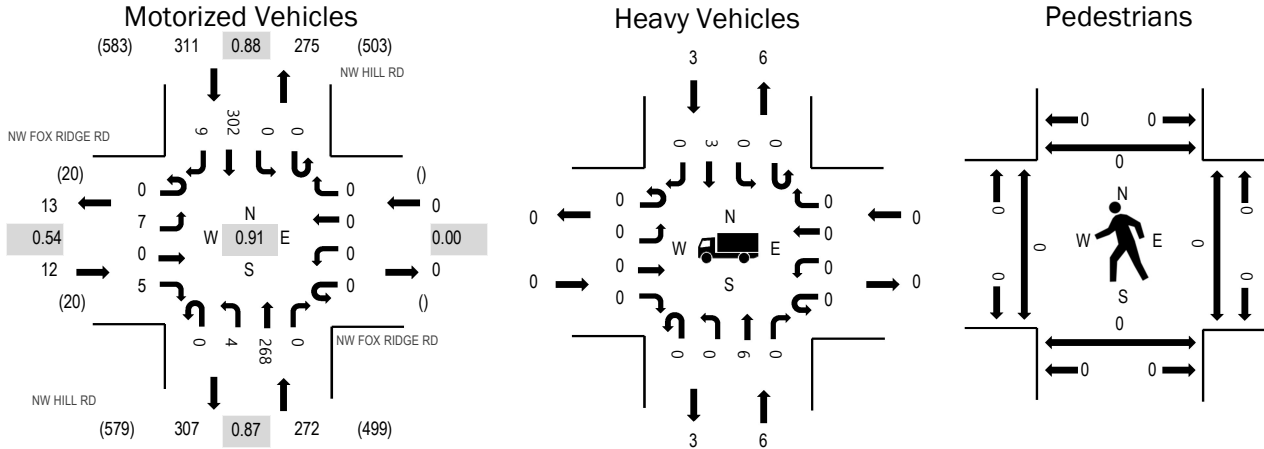
Date: Thursday, June 1, 2023

Peak Hour: 04:35 PM - 05:35 PM

Peak 15-Minutes: 05:20 PM - 05:35 PM

DRAFT

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.54
WB	0.0%	0.00
NB	2.2%	0.87
SB	1.0%	0.88
All	1.5%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	NW FOX RIDGE RD Eastbound				NW FOX RIDGE RD Westbound				NW HILL RD Northbound				NW HILL RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	0	0	0	0	0	23	0	0	0	14	0	37	552
4:05 PM	0	0	0	0	0	0	0	0	0	0	23	0	0	0	21	0	44	566
4:10 PM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	30	0	48	572
4:15 PM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	23	1	45	569
4:20 PM	0	0	0	0	0	0	0	0	0	0	20	0	0	0	31	0	51	570
4:25 PM	0	1	0	0	0	0	0	0	0	0	20	0	0	0	16	1	38	576
4:30 PM	0	0	0	2	0	0	0	0	0	0	18	0	0	0	28	1	49	593
4:35 PM	0	0	0	1	0	0	0	0	0	0	22	0	0	0	26	0	49	595
4:40 PM	0	1	0	0	0	0	0	0	0	0	21	0	0	0	27	1	50	588
4:45 PM	0	1	0	0	0	0	0	0	0	0	19	0	0	0	22	1	43	578
4:50 PM	0	0	0	0	0	0	0	0	0	0	31	0	0	0	14	1	46	573
4:55 PM	0	1	0	0	0	0	0	0	0	2	20	0	0	0	29	0	52	567
5:00 PM	0	1	0	1	0	0	0	0	0	0	25	0	0	0	23	1	51	550
5:05 PM	0	0	0	0	0	0	0	0	0	1	17	0	0	0	31	1	50	
5:10 PM	0	0	0	0	0	0	0	0	0	1	20	0	0	0	23	1	45	
5:15 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	21	1	46	
5:20 PM	0	2	0	1	0	0	0	0	0	0	23	0	0	0	30	1	57	
5:25 PM	0	1	0	1	0	0	0	0	0	0	25	0	0	0	27	1	55	
5:30 PM	0	0	0	1	0	0	0	0	0	0	21	0	0	0	29	0	51	
5:35 PM	0	1	0	0	0	0	0	0	0	1	21	0	0	0	19	0	42	
5:40 PM	0	0	0	0	0	0	0	0	0	1	20	0	0	0	19	0	40	
5:45 PM	0	0	0	2	0	0	0	0	0	0	15	0	0	0	21	0	38	
5:50 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	25	2	40	
5:55 PM	0	1	0	1	0	0	0	0	0	0	13	0	0	0	20	0	35	
Count Total	0	10	0	10	0	0	0	0	0	6	493	0	0	0	569	14	1,102	
Peak Hour	0	7	0	5	0	0	0	0	0	4	268	0	0	0	302	9	595	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	2	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	1	0	1	3	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	2	2
4:35 PM	0	2	0	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	2	2
5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	2	0	0	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	1	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	1	8	0	11	20	Count Total	0	1	0	0	1	Count Total	0	0	0	4	4
Peak Hour	0	6	0	3	9	Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	2	2

LOS DESCRIPTION

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials¹. The following two sections provide interpretations of the analysis approaches.

¹ *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	Approaching Unstable/Tolerable Delays: The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	Forced Flow/Excessive Delays: Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: 2000 Highway Capacity Manual, Transportation Research Board, Washington D.C.

EXISTING 2023 HCM REPORTS

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Baker Creek Rd - AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing Year 2023 Scenario AM Peak Hour

Site Category: Existing Design

Roundabout

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]					
			veh/h	%	veh/h	%	v/c	sec			veh	ft				mph
South: Hill Rd																
3	L2	All MCs	53	4.0	53	4.0	0.251	5.6	LOS A	1.3	32.3	0.37	0.20	0.37	34.5	
8	T1	All MCs	5	0.0	5	0.0	0.251	5.3	LOS A	1.3	32.3	0.37	0.20	0.37	36.0	
18	R2	All MCs	226	2.0	226	2.0	0.251	5.4	LOS A	1.3	32.3	0.37	0.20	0.37	35.3	
Approach			284	2.3	284	2.3	0.251	5.4	LOS A	1.3	32.3	0.37	0.20	0.37	35.2	
East: Baker Creek Rd																
1	L2	All MCs	111	2.0	111	2.0	0.151	3.7	LOS A	0.7	18.0	0.19	0.07	0.19	33.9	
6	T1	All MCs	59	28.0	59	28.0	0.151	5.4	LOS A	0.7	18.0	0.19	0.07	0.19	31.8	
16	R2	All MCs	6	40.0	6	40.0	0.151	6.2	LOS A	0.7	18.0	0.19	0.07	0.19	30.1	
Approach			175	12.0	175	12.0	0.151	4.3	LOS A	0.7	18.0	0.19	0.07	0.19	33.1	
North: Hill Rd																
7	L2	All MCs	1	0.0	1	0.0	0.007	3.4	LOS A	0.0	0.7	0.36	0.18	0.36	36.4	
4	T1	All MCs	5	0.0	5	0.0	0.007	3.4	LOS A	0.0	0.7	0.36	0.18	0.36	37.3	
14	R2	All MCs	1	0.0	1	0.0	0.007	3.4	LOS A	0.0	0.7	0.36	0.18	0.36	36.9	
Approach			7	0.0	7	0.0	0.007	3.4	LOS A	0.0	0.7	0.36	0.18	0.36	37.1	
West: Baker Creek Rd																
5	L2	All MCs	1	0.0	1	0.0	0.202	4.5	LOS A	1.0	25.2	0.29	0.14	0.29	36.2	
2	T1	All MCs	161	4.0	161	4.0	0.202	4.8	LOS A	1.0	25.2	0.29	0.14	0.29	36.5	
12	R2	All MCs	76	2.0	76	2.0	0.202	4.7	LOS A	1.0	25.2	0.29	0.14	0.29	36.4	
Approach			239	3.3	239	3.3	0.202	4.8	LOS A	1.0	25.2	0.29	0.14	0.29	36.4	
All Vehicles			705	5.1	705	5.1	0.251	4.9	LOS A	1.3	32.3	0.30	0.15	0.30	35.0	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing Year 2023 Scenario AM Peak Hour

Site Category: Existing Design

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] ft				
South: Hill Rd															
8	T1	All MCs	259	2.0	259	2.0	0.294	6.2	LOS A	1.5	38.5	0.45	0.27	0.45	32.7
18	R2	All MCs	55	2.0	55	2.0	0.294	6.2	LOS A	1.5	38.5	0.45	0.27	0.45	26.1
Approach			314	2.0	314	2.0	0.294	6.2	LOS A	1.5	38.5	0.45	0.27	0.45	31.4
East: Wallace Rd															
1	L2	All MCs	38	3.0	38	3.0	0.063	4.0	LOS A	0.3	6.6	0.39	0.25	0.39	25.7
16	R2	All MCs	25	10.0	25	10.0	0.063	4.6	LOS A	0.3	6.6	0.39	0.25	0.39	26.9
Approach			63	5.8	63	5.8	0.063	4.2	LOS A	0.3	6.6	0.39	0.25	0.39	26.2
North: Hill Rd															
7	L2	All MCs	219	4.0	219	4.0	0.198	4.4	LOS A	1.0	25.4	0.16	0.05	0.16	27.0
4	T1	All MCs	35	3.0	35	3.0	0.198	4.3	LOS A	1.0	25.4	0.16	0.05	0.16	31.6
Approach			254	3.9	254	3.9	0.198	4.3	LOS A	1.0	25.4	0.16	0.05	0.16	27.6
All Vehicles			630	3.1	630	3.1	0.294	5.2	LOS A	1.5	38.5	0.32	0.18	0.32	29.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoptime Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

HCM 6th TWSC
3: Fox Ridge Rd & Hill Rd

Intersection

Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	10	3	3	239	195	3
Future Vol, veh/h	10	3	3	239	195	3
Conflicting Peds, #/hr	5	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	2	4	0
Mvmt Flow	12	3	3	278	227	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	521	232	233	0	0
Stage 1	232	-	-	-	-
Stage 2	289	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	519	812	1346	-	-
Stage 1	811	-	-	-	-
Stage 2	765	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	515	810	1342	-	-
Mov Cap-2 Maneuver	515	-	-	-	-
Stage 1	807	-	-	-	-
Stage 2	763	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1342	-	562	-	-
HCM Lane V/C Ratio	0.003	-	0.027	-	-
HCM Control Delay (s)	7.7	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔			↔		↖	↗	
Traffic Vol, veh/h	52	131	21	37	61	58	21	115	85	83	97	29
Future Vol, veh/h	52	131	21	37	61	58	21	115	85	83	97	29
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	5	10	8	3	2	10	2	5	0	5	3
Mvmt Flow	63	160	26	45	74	71	26	140	104	101	118	35
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	13.6	13.2	15.2	11.5
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	28%	0%	24%	100%	0%
Vol Thru, %	52%	72%	0%	39%	0%	77%
Vol Right, %	38%	0%	100%	37%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	183	21	156	83	126
LT Vol	21	52	0	37	83	0
Through Vol	115	131	0	61	0	97
RT Vol	85	0	21	58	0	29
Lane Flow Rate	270	223	26	190	101	154
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.477	0.413	0.042	0.349	0.195	0.27
Departure Headway (Hd)	6.372	6.656	5.851	6.609	6.918	6.331
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	563	538	608	540	516	564
Service Time	4.448	4.434	3.628	4.695	4.698	4.112
HCM Lane V/C Ratio	0.48	0.414	0.043	0.352	0.196	0.273
HCM Control Delay	15.2	14.1	8.9	13.2	11.4	11.5
HCM Lane LOS	C	B	A	B	B	B
HCM 95th-tile Q	2.6	2	0.1	1.6	0.7	1.1

HCM 6th TWSC
5: Hill Rd & Fellows St

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	72	108	3	83	123
Future Vol, veh/h	4	72	108	3	83	123
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	8	2	33	6	1
Mvmt Flow	5	90	135	4	104	154

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	500	138	0	0	140
Stage 1	138	-	-	-	-
Stage 2	362	-	-	-	-
Critical Hdwy	6.4	6.28	-	-	4.16
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.372	-	-	2.254
Pot Cap-1 Maneuver	534	895	-	-	1419
Stage 1	894	-	-	-	-
Stage 2	709	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	491	894	-	-	1418
Mov Cap-2 Maneuver	491	-	-	-	-
Stage 1	893	-	-	-	-
Stage 2	652	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	857	1418
HCM Lane V/C Ratio	-	-	0.111	0.073
HCM Control Delay (s)	-	-	9.7	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Baker Creek Rd - PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing Year 2023 Scenario PM Peak Hour

Site Category: Existing Design

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] ft				
South: Hill Rd															
3	L2	All MCs	87	4.0	87	4.0	0.210	4.8	LOS A	1.0	26.7	0.26	0.11	0.26	34.5
8	T1	All MCs	1	0.0	1	0.0	0.210	4.5	LOS A	1.0	26.7	0.26	0.11	0.26	35.9
18	R2	All MCs	169	2.0	169	2.0	0.210	4.7	LOS A	1.0	26.7	0.26	0.11	0.26	35.3
Approach			257	2.7	257	2.7	0.210	4.7	LOS A	1.0	26.7	0.26	0.11	0.26	35.0
East: Baker Creek Rd															
1	L2	All MCs	212	2.0	212	2.0	0.287	5.4	LOS A	1.6	40.0	0.28	0.12	0.28	33.7
6	T1	All MCs	140	2.0	140	2.0	0.287	5.4	LOS A	1.6	40.0	0.28	0.12	0.28	34.5
16	R2	All MCs	1	0.0	1	0.0	0.287	5.3	LOS A	1.6	40.0	0.28	0.12	0.28	34.4
Approach			353	2.0	353	2.0	0.287	5.4	LOS A	1.6	40.0	0.28	0.12	0.28	34.0
North: Hill Rd															
7	L2	All MCs	6	0.0	6	0.0	0.012	4.2	LOS A	0.0	1.2	0.48	0.32	0.48	34.6
4	T1	All MCs	3	0.0	3	0.0	0.012	4.2	LOS A	0.0	1.2	0.48	0.32	0.48	35.4
14	R2	All MCs	1	0.0	1	0.0	0.012	4.2	LOS A	0.0	1.2	0.48	0.32	0.48	35.0
Approach			10	0.0	10	0.0	0.012	4.2	LOS A	0.0	1.2	0.48	0.32	0.48	34.8
West: Baker Creek Rd															
5	L2	All MCs	1	0.0	1	0.0	0.166	4.6	LOS A	0.8	19.2	0.39	0.24	0.39	36.1
2	T1	All MCs	82	3.0	82	3.0	0.166	4.9	LOS A	0.8	19.2	0.39	0.24	0.39	36.5
12	R2	All MCs	94	2.0	94	2.0	0.166	4.8	LOS A	0.8	19.2	0.39	0.24	0.39	36.3
Approach			177	2.5	177	2.5	0.166	4.8	LOS A	0.8	19.2	0.39	0.24	0.39	36.4
All Vehicles			797	2.3	797	2.3	0.287	5.0	LOS A	1.6	40.0	0.30	0.15	0.30	34.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing Year 2023 Scenario PM Peak Hour

Site Category: Existing Design

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh.]	[Dist]				mph
			veh/h	%	veh/h	%				veh	ft				
South: Hill Rd															
8	T1	All MCs	267	1.0	267	1.0	0.234	4.5	LOS A	1.2	31.4	0.16	0.05	0.16	33.7
18	R2	All MCs	41	0.0	41	0.0	0.234	4.5	LOS A	1.2	31.4	0.16	0.05	0.16	26.7
Approach			308	0.9	308	0.9	0.234	4.5	LOS A	1.2	31.4	0.16	0.05	0.16	32.5
East: Wallace Rd															
1	L2	All MCs	53	0.0	53	0.0	0.080	4.0	LOS A	0.3	8.5	0.40	0.26	0.40	25.6
16	R2	All MCs	29	8.0	29	8.0	0.080	4.7	LOS A	0.3	8.5	0.40	0.26	0.40	27.0
Approach			81	2.8	81	2.8	0.080	4.3	LOS A	0.3	8.5	0.40	0.26	0.40	26.1
North: Hill Rd															
7	L2	All MCs	34	7.0	34	7.0	0.258	5.3	LOS A	1.4	35.4	0.20	0.07	0.20	28.0
4	T1	All MCs	298	1.0	298	1.0	0.258	4.9	LOS A	1.4	35.4	0.20	0.07	0.20	33.2
Approach			332	1.6	332	1.6	0.258	4.9	LOS A	1.4	35.4	0.20	0.07	0.20	32.6
All Vehicles			721	1.4	721	1.4	0.258	4.7	LOS A	1.4	35.4	0.20	0.08	0.20	31.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoptime Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

HCM 6th TWSC
3: Fox Ridge Rd & Hill Rd

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	7	5	4	268	302	9
Future Vol, veh/h	7	5	4	268	302	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	8	5	4	295	332	10

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	640	337	342	0	-	0
Stage 1	337	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	443	710	1228	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	442	710	1228	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1228	-	524	-	-
HCM Lane V/C Ratio	0.004	-	0.025	-	-
HCM Control Delay (s)	7.9	-	12	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔			↔		↖	↗	
Traffic Vol, veh/h	43	81	11	61	116	82	19	150	47	68	160	65
Future Vol, veh/h	43	81	11	61	116	82	19	150	47	68	160	65
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, %	0	1	0	3	1	1	0	3	4	1	2	0
Mvmt Flow	49	93	13	70	133	94	22	172	54	78	184	75
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	12.5	17.5	15.2	13.7
HCM LOS	B	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	35%	0%	24%	100%	0%
Vol Thru, %	69%	65%	0%	45%	0%	71%
Vol Right, %	22%	0%	100%	32%	0%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	124	11	259	68	225
LT Vol	19	43	0	61	68	0
Through Vol	150	81	0	116	0	160
RT Vol	47	0	11	82	0	65
Lane Flow Rate	248	143	13	298	78	259
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.458	0.284	0.022	0.55	0.154	0.46
Departure Headway (Hd)	6.647	7.173	6.297	6.645	7.106	6.407
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	541	500	568	545	506	564
Service Time	4.688	4.918	4.041	4.66	4.827	4.129
HCM Lane V/C Ratio	0.458	0.286	0.023	0.547	0.154	0.459
HCM Control Delay	15.2	12.8	9.2	17.5	11.1	14.5
HCM Lane LOS	C	B	A	C	B	B
HCM 95th-tile Q	2.4	1.2	0.1	3.3	0.5	2.4

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	6	113	129	3	89	105
Future Vol, veh/h	6	113	129	3	89	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	17	2	2	0	2	1
Mvmt Flow	7	126	143	3	99	117

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	460	145	0	0	146
Stage 1	145	-	-	-	-
Stage 2	315	-	-	-	-
Critical Hdwy	6.57	6.22	-	-	4.12
Critical Hdwy Stg 1	5.57	-	-	-	-
Critical Hdwy Stg 2	5.57	-	-	-	-
Follow-up Hdwy	3.653	3.318	-	-	2.218
Pot Cap-1 Maneuver	533	902	-	-	1436
Stage 1	847	-	-	-	-
Stage 2	707	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	494	902	-	-	1436
Mov Cap-2 Maneuver	494	-	-	-	-
Stage 1	847	-	-	-	-
Stage 2	655	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	3.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	866	1436
HCM Lane V/C Ratio	-	-	0.153	0.069
HCM Control Delay (s)	-	-	9.9	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

FUTURE BASELINE 2041 HCM REPORTS

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Baker Creek Rd - AM (Site Folder: Future Baseline 2041)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Baseline AM Peak Hour
 Site Category: Existing Design
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: Hill Rd															
3	L2	All MCs	83	4.0	83	4.0	0.331	7.3	LOS A	1.7	43.1	0.53	0.36	0.53	33.5
8	T1	All MCs	11	0.0	11	0.0	0.331	6.8	LOS A	1.7	43.1	0.53	0.36	0.53	34.8
18	R2	All MCs	228	2.0	228	2.0	0.331	7.1	LOS A	1.7	43.1	0.53	0.36	0.53	34.2
Approach			322	2.4	322	2.4	0.331	7.1	LOS A	1.7	43.1	0.53	0.36	0.53	34.0
East: Baker Creek Rd															
1	L2	All MCs	178	2.0	178	2.0	0.257	4.9	LOS A	1.2	33.6	0.29	0.13	0.29	33.3
6	T1	All MCs	94	28.0	94	28.0	0.257	6.8	LOS A	1.2	33.6	0.29	0.13	0.29	31.3
16	R2	All MCs	11	40.0	11	40.0	0.257	7.8	LOS A	1.2	33.6	0.29	0.13	0.29	29.6
Approach			283	12.2	283	12.2	0.257	5.6	LOS A	1.2	33.6	0.29	0.13	0.29	32.5
North: Hill Rd															
7	L2	All MCs	33	0.0	33	0.0	0.054	4.4	LOS A	0.2	5.5	0.46	0.34	0.46	34.3
4	T1	All MCs	11	0.0	11	0.0	0.054	4.4	LOS A	0.2	5.5	0.46	0.34	0.46	35.1
14	R2	All MCs	6	0.0	6	0.0	0.054	4.4	LOS A	0.2	5.5	0.46	0.34	0.46	34.7
Approach			50	0.0	50	0.0	0.054	4.4	LOS A	0.2	5.5	0.46	0.34	0.46	34.5
West: Baker Creek Rd															
5	L2	All MCs	6	0.0	6	0.0	0.369	6.8	LOS A	2.0	52.2	0.48	0.29	0.48	34.8
2	T1	All MCs	261	4.0	261	4.0	0.369	7.2	LOS A	2.0	52.2	0.48	0.29	0.48	35.1
12	R2	All MCs	122	2.0	122	2.0	0.369	7.0	LOS A	2.0	52.2	0.48	0.29	0.48	35.0
Approach			389	3.3	389	3.3	0.369	7.2	LOS A	2.0	52.2	0.48	0.29	0.48	35.1
All Vehicles			1044	5.3	1044	5.3	0.369	6.6	LOS A	2.0	52.2	0.44	0.27	0.44	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - AM (Site Folder: Future Baseline 2041)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Baseline AM Peak Hour
 Site Category: Existing Design
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: Hill Rd															
3	L2	All MCs	167	1.0	167	1.0	0.439	7.5	LOS A	2.8	71.4	0.45	0.24	0.45	30.3
8	T1	All MCs	256	2.0	256	2.0	0.439	7.6	LOS A	2.8	71.4	0.45	0.24	0.45	31.8
18	R2	All MCs	83	2.0	83	2.0	0.439	7.6	LOS A	2.8	71.4	0.45	0.24	0.45	25.6
Approach			506	1.7	506	1.7	0.439	7.6	LOS A	2.8	71.4	0.45	0.24	0.45	30.1
East: Wallace Rd															
1	L2	All MCs	56	3.0	56	3.0	0.200	6.6	LOS A	0.8	21.5	0.57	0.46	0.57	27.1
6	T1	All MCs	61	1.0	61	1.0	0.200	6.4	LOS A	0.8	21.5	0.57	0.46	0.57	28.7
16	R2	All MCs	39	10.0	39	10.0	0.200	7.7	LOS A	0.8	21.5	0.57	0.46	0.57	28.5
Approach			156	4.0	156	4.0	0.200	6.8	LOS A	0.8	21.5	0.57	0.46	0.57	28.1
North: Hill Rd															
7	L2	All MCs	56	4.0	56	4.0	0.406	8.2	LOS A	2.3	57.8	0.55	0.36	0.55	26.6
4	T1	All MCs	200	3.0	200	3.0	0.406	8.1	LOS A	2.3	57.8	0.55	0.36	0.55	31.2
14	R2	All MCs	150	1.0	150	1.0	0.406	7.8	LOS A	2.3	57.8	0.55	0.36	0.55	32.5
Approach			406	2.4	406	2.4	0.406	8.0	LOS A	2.3	57.8	0.55	0.36	0.55	30.9
West: Wallace Road															
5	L2	All MCs	78	1.0	78	1.0	0.181	5.4	LOS A	0.8	20.7	0.47	0.32	0.47	31.9
2	T1	All MCs	22	1.0	22	1.0	0.181	5.4	LOS A	0.8	20.7	0.47	0.32	0.47	32.5
12	R2	All MCs	78	1.0	78	1.0	0.181	5.4	LOS A	0.8	20.7	0.47	0.32	0.47	32.3
Approach			178	1.0	178	1.0	0.181	5.4	LOS A	0.8	20.7	0.47	0.32	0.47	32.1
All Vehicles			1244	2.1	1244	2.1	0.439	7.3	LOS A	2.8	71.4	0.50	0.32	0.50	30.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Traffic Vol, veh/h	15	5	5	410	315	5
Future Vol, veh/h	15	5	5	410	315	5
Conflicting Peds, #/hr	5	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	2	4	0
Mvmt Flow	17	6	6	456	350	6

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	829	356	359	0	-	0
Stage 1	356	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	343	693	1211	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	339	691	1208	-	-	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	629	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1208	-	388	-	-
HCM Lane V/C Ratio	0.005	-	0.057	-	-
HCM Control Delay (s)	8	-	14.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	48
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔			↔		↖	↗	
Traffic Vol, veh/h	90	225	35	65	105	100	35	200	145	145	145	50
Future Vol, veh/h	90	225	35	65	105	100	35	200	145	145	145	50
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
Heavy Vehicles, %	2	5	10	8	3	2	10	2	5	0	5	3
Mvmt Flow	100	250	39	72	117	111	39	222	161	161	161	56
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	43.9	36.9	84.3	20.5
HCM LOS	E	E	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	29%	0%	24%	100%	0%
Vol Thru, %	53%	71%	0%	39%	0%	74%
Vol Right, %	38%	0%	100%	37%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	380	315	35	270	145	195
LT Vol	35	90	0	65	145	0
Through Vol	200	225	0	105	0	145
RT Vol	145	0	35	100	0	50
Lane Flow Rate	422	350	39	300	161	217
Geometry Grp	4b	5	5	4b	5	5
Degree of Util (X)	1.035	0.859	0.087	0.76	0.42	0.527
Departure Headway (Hd)	8.823	9.134	8.309	9.469	9.701	9.081
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	414	399	434	384	374	399
Service Time	6.823	6.834	6.009	7.469	7.401	6.781
HCM Lane V/C Ratio	1.019	0.877	0.09	0.781	0.43	0.544
HCM Control Delay	84.3	47.5	11.8	36.9	19.2	21.5
HCM Lane LOS	F	E	B	E	C	C
HCM 95th-tile Q	13.5	8.3	0.3	6.2	2	3

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	55	10	5	25	125	10	185	5	130	190	15
Future Vol, veh/h	25	55	10	5	25	125	10	185	5	130	190	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	8	0	2	33	6	1	0
Mvmt Flow	28	61	11	6	28	139	11	206	6	144	211	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	823	743	220	776	748	210	228	0	0	213	0	0
Stage 1	508	508	-	232	232	-	-	-	-	-	-	-
Stage 2	315	235	-	544	516	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.28	4.1	-	-	4.16	-	-
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	3.5	4	3.3	3.5	4	3.372	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	295	346	825	317	343	815	1352	-	-	1334	-	-
Stage 1	551	542	-	775	716	-	-	-	-	-	-	-
Stage 2	700	714	-	527	538	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	204	300	825	238	297	814	1352	-	-	1333	-	-
Mov Cap-2 Maneuver	204	300	-	238	297	-	-	-	-	-	-	-
Stage 1	546	475	-	767	709	-	-	-	-	-	-	-
Stage 2	553	707	-	397	471	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	24.5		13.4		0.4		3.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1352	-	-	283	599	1333	-	-
HCM Lane V/C Ratio	0.008	-	-	0.353	0.288	0.108	-	-
HCM Control Delay (s)	7.7	0	-	24.5	13.4	8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.5	1.2	0.4	-	-

MOVEMENT SUMMARY

 Site: 1 [Hill Rd at Baker Creek Rd - PM (Site Folder: Future Baseline 2041)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Baseline PM Peak Hour

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: Hill Rd															
3	L2	All MCs	148	4.0	148	4.0	0.402	7.4	LOS A	2.4	61.2	0.45	0.25	0.45	33.2
8	T1	All MCs	10	0.0	10	0.0	0.402	7.0	LOS A	2.4	61.2	0.45	0.25	0.45	34.5
18	R2	All MCs	291	2.0	291	2.0	0.402	7.2	LOS A	2.4	61.2	0.45	0.25	0.45	33.9
Approach			449	2.6	449	2.6	0.402	7.3	LOS A	2.4	61.2	0.45	0.25	0.45	33.7
East: Baker Creek Rd															
1	L2	All MCs	367	2.0	367	2.0	0.561	9.7	LOS A	4.3	108.1	0.56	0.30	0.56	31.8
6	T1	All MCs	240	2.0	240	2.0	0.561	9.7	LOS A	4.3	108.1	0.56	0.30	0.56	32.5
16	R2	All MCs	31	0.0	31	0.0	0.561	9.5	LOS A	4.3	108.1	0.56	0.30	0.56	32.4
Approach			638	1.9	638	1.9	0.561	9.7	LOS A	4.3	108.1	0.56	0.30	0.56	32.1
North: Hill Rd															
7	L2	All MCs	26	0.0	26	0.0	0.073	6.6	LOS A	0.3	7.0	0.61	0.56	0.61	33.5
4	T1	All MCs	15	0.0	15	0.0	0.073	6.6	LOS A	0.3	7.0	0.61	0.56	0.61	34.3
14	R2	All MCs	5	0.0	5	0.0	0.073	6.6	LOS A	0.3	7.0	0.61	0.56	0.61	34.0
Approach			46	0.0	46	0.0	0.073	6.6	LOS A	0.3	7.0	0.61	0.56	0.61	33.8
West: Baker Creek Rd															
5	L2	All MCs	5	0.0	5	0.0	0.356	7.8	LOS A	1.8	45.1	0.60	0.45	0.60	34.3
2	T1	All MCs	143	3.0	143	3.0	0.356	8.2	LOS A	1.8	45.1	0.60	0.45	0.60	34.7
12	R2	All MCs	163	2.0	163	2.0	0.356	8.1	LOS A	1.8	45.1	0.60	0.45	0.60	34.5
Approach			311	2.4	311	2.4	0.356	8.1	LOS A	1.8	45.1	0.60	0.45	0.60	34.6
All Vehicles			1444	2.2	1444	2.2	0.561	8.5	LOS A	4.3	108.1	0.54	0.33	0.54	33.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\5_Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - PM (Site Folder: Future Baseline 2041)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Baseline PM Peak Hour

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: Hill Rd															
3	L2	All MCs	33	0.0	33	0.0	0.417	6.9	LOSA	2.7	68.6	0.37	0.17	0.37	30.9
8	T1	All MCs	407	1.0	407	1.0	0.417	7.0	LOSA	2.7	68.6	0.37	0.17	0.37	32.5
18	R2	All MCs	71	0.0	71	0.0	0.417	6.9	LOSA	2.7	68.6	0.37	0.17	0.37	25.9
Approach			511	0.8	511	0.8	0.417	6.9	LOSA	2.7	68.6	0.37	0.17	0.37	31.3
East: Wallace Rd															
1	L2	All MCs	82	0.0	82	0.0	0.175	5.8	LOSA	0.7	18.8	0.55	0.43	0.55	25.5
6	T1	All MCs	11	0.0	11	0.0	0.175	5.8	LOSA	0.7	18.8	0.55	0.43	0.55	26.9
16	R2	All MCs	49	8.0	49	8.0	0.175	6.9	LOSA	0.7	18.8	0.55	0.43	0.55	26.9
Approach			143	2.8	143	2.8	0.175	6.2	LOSA	0.7	18.8	0.55	0.43	0.55	26.1
North: Hill Rd															
7	L2	All MCs	60	6.0	60	6.0	0.483	8.4	LOSA	3.4	86.1	0.43	0.21	0.43	26.9
4	T1	All MCs	478	1.0	478	1.0	0.483	8.0	LOSA	3.4	86.1	0.43	0.21	0.43	31.6
14	R2	All MCs	38	0.0	38	0.0	0.483	7.9	LOSA	3.4	86.1	0.43	0.21	0.43	32.9
Approach			577	1.5	577	1.5	0.483	8.0	LOSA	3.4	86.1	0.43	0.21	0.43	31.1
West: Wallace Road															
5	L2	All MCs	33	0.0	33	0.0	0.121	6.2	LOSA	0.5	12.3	0.59	0.51	0.59	31.7
2	T1	All MCs	11	0.0	11	0.0	0.121	6.2	LOSA	0.5	12.3	0.59	0.51	0.59	32.3
12	R2	All MCs	44	0.0	44	0.0	0.121	6.2	LOSA	0.5	12.3	0.59	0.51	0.59	32.0
Approach			88	0.0	88	0.0	0.121	6.2	LOSA	0.5	12.3	0.59	0.51	0.59	31.9
All Vehicles			1319	1.2	1319	1.2	0.483	7.3	LOSA	3.4	86.1	0.43	0.24	0.43	30.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\5_Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	10	10	5	460	520	15
Future Vol, veh/h	10	10	5	460	520	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	11	11	5	505	571	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1094	579	587	0	-	0
Stage 1	579	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	239	519	998	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	519	998	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	604	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	998	-	326	-	-
HCM Lane V/C Ratio	0.006	-	0.067	-	-
HCM Control Delay (s)	8.6	-	16.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	100.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕		↕	↕	
Traffic Vol, veh/h	75	140	20	105	200	140	35	260	80	115	275	110
Future Vol, veh/h	75	140	20	105	200	140	35	260	80	115	275	110
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
Heavy Vehicles, %	0	1	0	3	1	1	0	3	4	1	2	0
Mvmt Flow	83	156	22	117	222	156	39	289	89	128	306	122
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	30.5	167.6	99.1	75
HCM LOS	D	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	35%	0%	24%	100%	0%
Vol Thru, %	69%	65%	0%	45%	0%	71%
Vol Right, %	21%	0%	100%	31%	0%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	375	215	20	445	115	385
LT Vol	35	75	0	105	115	0
Through Vol	260	140	0	200	0	275
RT Vol	80	0	20	140	0	110
Lane Flow Rate	417	239	22	494	128	428
Geometry Grp	4b	5	5	4b	5	5
Degree of Util (X)	1.064	0.655	0.056	1.265	0.337	1.047
Departure Headway (Hd)	10.24	10.907	10.002	9.701	10.523	9.806
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	358	334	360	381	344	372
Service Time	8.24	8.607	7.702	7.701	8.223	7.506
HCM Lane V/C Ratio	1.165	0.716	0.061	1.297	0.372	1.151
HCM Control Delay	99.1	32.1	13.3	167.6	18.5	91.9
HCM Lane LOS	F	D	B	F	C	F
HCM 95th-tile Q	13.3	4.4	0.2	20.8	1.5	13.1

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	35	5	10	50	145	10	170	5	155	180	30
Future Vol, veh/h	20	35	5	10	50	145	10	170	5	155	180	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	17	0	2	0	2	0	2	1	0
Mvmt Flow	22	39	6	11	56	161	11	189	6	172	200	33

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	884	778	217	797	791	192	233	0	0	195	0	0
Stage 1	561	561	-	214	214	-	-	-	-	-	-	-
Stage 2	323	217	-	583	577	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.27	6.5	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.653	4	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	268	330	828	287	324	850	1346	-	-	1378	-	-
Stage 1	516	513	-	755	729	-	-	-	-	-	-	-
Stage 2	693	727	-	473	505	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	163	280	828	226	275	850	1346	-	-	1378	-	-
Mov Cap-2 Maneuver	163	280	-	226	275	-	-	-	-	-	-	-
Stage 1	511	439	-	748	722	-	-	-	-	-	-	-
Stage 2	514	720	-	367	432	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	26.2		17.3			0.4			3.4		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1346	-	-	236	517	1378	-	-
HCM Lane V/C Ratio	0.008	-	-	0.282	0.441	0.125	-	-
HCM Control Delay (s)	7.7	0	-	26.2	17.3	8	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.1	2.2	0.4	-	-

PREFERRED SCENARIO 2041 HCM REPORTS

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Baker Creek Rd - AM (Site Folder: Future Preferred Scenario 2044)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred AM Peak Hour
 Site Category: Existing Design
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: Hill Rd															
3	L2	All MCs	96	4.0	96	4.0	0.422	8.6	LOS A	2.4	60.2	0.58	0.39	0.58	32.9
8	T1	All MCs	11	0.0	11	0.0	0.422	8.1	LOS A	2.4	60.2	0.58	0.39	0.58	34.2
18	R2	All MCs	304	2.0	304	2.0	0.422	8.3	LOS A	2.4	60.2	0.58	0.39	0.58	33.6
Approach			411	2.4	411	2.4	0.422	8.4	LOS A	2.4	60.2	0.58	0.39	0.58	33.5
East: Baker Creek Rd															
1	L2	All MCs	212	2.0	212	2.0	0.289	5.3	LOS A	1.4	39.2	0.32	0.15	0.32	33.1
6	T1	All MCs	94	28.0	94	28.0	0.289	7.3	LOS A	1.4	39.2	0.32	0.15	0.32	31.0
16	R2	All MCs	11	40.0	11	40.0	0.289	8.3	LOS A	1.4	39.2	0.32	0.15	0.32	29.4
Approach			318	11.1	318	11.1	0.289	5.9	LOS A	1.4	39.2	0.32	0.15	0.32	32.3
North: Hill Rd															
7	L2	All MCs	33	0.0	33	0.0	0.057	4.6	LOS A	0.2	5.8	0.49	0.37	0.49	34.2
4	T1	All MCs	11	0.0	11	0.0	0.057	4.6	LOS A	0.2	5.8	0.49	0.37	0.49	34.9
14	R2	All MCs	6	0.0	6	0.0	0.057	4.6	LOS A	0.2	5.8	0.49	0.37	0.49	34.6
Approach			50	0.0	50	0.0	0.057	4.6	LOS A	0.2	5.8	0.49	0.37	0.49	34.4
West: Baker Creek Rd															
5	L2	All MCs	6	0.0	6	0.0	0.388	7.3	LOS A	2.1	54.9	0.52	0.33	0.52	34.5
2	T1	All MCs	261	4.0	261	4.0	0.388	7.7	LOS A	2.1	54.9	0.52	0.33	0.52	34.8
12	R2	All MCs	128	2.0	128	2.0	0.388	7.5	LOS A	2.1	54.9	0.52	0.33	0.52	34.8
Approach			394	3.3	394	3.3	0.388	7.6	LOS A	2.1	54.9	0.52	0.33	0.52	34.8
All Vehicles			1173	4.9	1173	4.9	0.422	7.3	LOS A	2.4	60.2	0.49	0.31	0.49	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - AM (Site Folder: Future Preferred Scenario 2044)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred AM Peak Hour
 Site Category: Existing Design
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: Hill Rd															
3	L2	All MCs	187	1.0	187	1.0	0.553	9.7	LOS A	4.0	101.5	0.59	0.34	0.59	29.5
8	T1	All MCs	312	2.0	312	2.0	0.553	9.8	LOS A	4.0	101.5	0.59	0.34	0.59	30.9
18	R2	All MCs	109	2.0	109	2.0	0.553	9.8	LOS A	4.0	101.5	0.59	0.34	0.59	25.0
Approach			608	1.7	608	1.7	0.553	9.8	LOS A	4.0	101.5	0.59	0.34	0.59	29.2
East: Wallace Rd															
1	L2	All MCs	67	3.0	67	3.0	0.249	8.0	LOS A	1.0	26.5	0.63	0.54	0.63	26.6
6	T1	All MCs	67	1.0	67	1.0	0.249	7.6	LOS A	1.0	26.5	0.63	0.54	0.63	28.1
16	R2	All MCs	39	10.0	39	10.0	0.249	9.3	LOS A	1.0	26.5	0.63	0.54	0.63	27.9
Approach			172	3.8	172	3.8	0.249	8.1	LOS A	1.0	26.5	0.63	0.54	0.63	27.5
North: Hill Rd															
7	L2	All MCs	56	4.0	56	4.0	0.463	9.3	LOS A	2.8	71.8	0.61	0.43	0.64	26.3
4	T1	All MCs	226	3.0	226	3.0	0.463	9.2	LOS A	2.8	71.8	0.61	0.43	0.64	30.7
14	R2	All MCs	164	1.0	164	1.0	0.463	9.0	LOS A	2.8	71.8	0.61	0.43	0.64	32.0
Approach			446	2.4	446	2.4	0.463	9.2	LOS A	2.8	71.8	0.61	0.43	0.64	30.5
West: Wallace Road															
5	L2	All MCs	110	1.0	110	1.0	0.281	6.7	LOS A	1.4	34.5	0.53	0.38	0.53	31.4
2	T1	All MCs	34	1.0	34	1.0	0.281	6.7	LOS A	1.4	34.5	0.53	0.38	0.53	32.0
12	R2	All MCs	121	1.0	121	1.0	0.281	6.7	LOS A	1.4	34.5	0.53	0.38	0.53	31.7
Approach			266	1.0	266	1.0	0.281	6.7	LOS A	1.4	34.5	0.53	0.38	0.53	31.6
All Vehicles			1491	2.0	1491	2.0	0.553	8.9	LOS A	4.0	101.5	0.59	0.40	0.60	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	79	37	428	355	37
Future Vol, veh/h	89	79	37	428	355	37
Conflicting Peds, #/hr	5	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	2	4	0
Mvmt Flow	99	88	41	476	394	41

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	981	418	438	0	0
Stage 1	418	-	-	-	-
Stage 2	563	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	279	639	1133	-	-
Stage 1	669	-	-	-	-
Stage 2	574	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	267	637	1130	-	-
Mov Cap-2 Maneuver	267	-	-	-	-
Stage 1	643	-	-	-	-
Stage 2	572	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.5	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1130	-	367	-	-
HCM Lane V/C Ratio	0.036	-	0.509	-	-
HCM Control Delay (s)	8.3	-	24.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	2.8	-	-

Intersection	
Intersection Delay, s/veh	69.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕		↕	↕	
Traffic Vol, veh/h	95	225	35	65	105	130	35	215	145	213	179	62
Future Vol, veh/h	95	225	35	65	105	130	35	215	145	213	179	62
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
Heavy Vehicles, %	2	5	10	8	3	2	10	2	5	0	5	3
Mvmt Flow	106	250	39	72	117	144	39	239	161	237	199	69
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	57.4	56.7	134.3	30.4
HCM LOS	F	F	F	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	30%	0%	22%	100%	0%
Vol Thru, %	54%	70%	0%	35%	0%	74%
Vol Right, %	37%	0%	100%	43%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	395	320	35	300	213	241
LT Vol	35	95	0	65	213	0
Through Vol	215	225	0	105	0	179
RT Vol	145	0	35	130	0	62
Lane Flow Rate	439	356	39	333	237	268
Geometry Grp	4b	5	5	4b	5	5
Degree of Util (X)	1.177	0.924	0.092	0.885	0.64	0.68
Departure Headway (Hd)	9.651	10.005	9.169	10.35	10.409	9.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	377	366	393	353	350	372
Service Time	7.651	7.705	6.869	8.35	8.109	7.485
HCM Lane V/C Ratio	1.164	0.973	0.099	0.943	0.677	0.72
HCM Control Delay	134.3	62.3	12.8	56.7	29.9	30.9
HCM Lane LOS	F	F	B	F	D	D
HCM 95th-tile Q	17.6	9.6	0.3	8.5	4.2	4.8

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	55	10	5	25	135	10	190	5	153	201	15
Future Vol, veh/h	25	55	10	5	25	135	10	190	5	153	201	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	8	0	2	33	6	1	0
Mvmt Flow	28	61	11	6	28	150	11	211	6	170	223	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	897	812	232	845	817	215	240	0	0	218	0	0
Stage 1	572	572	-	237	237	-	-	-	-	-	-	-
Stage 2	325	240	-	608	580	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.28	4.1	-	-	4.16	-	-
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	3.5	4	3.3	3.5	4	3.372	2.2	-	-	2.254	-	-
Pot Cap-1 Maneuver	263	315	812	285	313	810	1339	-	-	1328	-	-
Stage 1	509	508	-	771	713	-	-	-	-	-	-	-
Stage 2	692	711	-	486	503	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	174	266	812	205	264	809	1339	-	-	1327	-	-
Mov Cap-2 Maneuver	174	266	-	205	264	-	-	-	-	-	-	-
Stage 1	504	433	-	763	706	-	-	-	-	-	-	-
Stage 2	537	704	-	351	429	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29	14.1	0.4	3.4
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1339	-	-	248	577	1327	-	-
HCM Lane V/C Ratio	0.008	-	-	0.403	0.318	0.128	-	-
HCM Control Delay (s)	7.7	0	-	29	14.1	8.1	0	-
HCM Lane LOS	A	A	-	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.8	1.4	0.4	-	-

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Baker Creek Rd - PM (Site Folder: Future Preferred Scenario 2044)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred PM Peak Hour

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	ft				mph
South: Hill Rd															
3	L2	All MCs	159	4.0	159	4.0	0.470	8.4	LOS A	3.1	78.3	0.50	0.27	0.50	32.8
8	T1	All MCs	10	0.0	10	0.0	0.470	8.0	LOS A	3.1	78.3	0.50	0.27	0.50	34.1
18	R2	All MCs	356	2.0	356	2.0	0.470	8.2	LOS A	3.1	78.3	0.50	0.27	0.50	33.5
Approach			526	2.6	526	2.6	0.470	8.2	LOS A	3.1	78.3	0.50	0.27	0.50	33.3
East: Baker Creek Rd															
1	L2	All MCs	462	2.0	462	2.0	0.652	11.9	LOS B	6.7	169.8	0.66	0.40	0.72	30.7
6	T1	All MCs	240	2.0	240	2.0	0.652	11.9	LOS B	6.7	169.8	0.66	0.40	0.72	31.4
16	R2	All MCs	31	0.0	31	0.0	0.652	11.7	LOS B	6.7	169.8	0.66	0.40	0.72	31.3
Approach			733	1.9	733	1.9	0.652	11.9	LOS B	6.7	169.8	0.66	0.40	0.72	31.0
North: Hill Rd															
7	L2	All MCs	26	0.0	26	0.0	0.082	7.4	LOS A	0.3	7.7	0.64	0.61	0.64	33.1
4	T1	All MCs	15	0.0	15	0.0	0.082	7.4	LOS A	0.3	7.7	0.64	0.61	0.64	33.9
14	R2	All MCs	5	0.0	5	0.0	0.082	7.4	LOS A	0.3	7.7	0.64	0.61	0.64	33.6
Approach			46	0.0	46	0.0	0.082	7.4	LOS A	0.3	7.7	0.64	0.61	0.64	33.4
West: Baker Creek Rd															
5	L2	All MCs	5	0.0	5	0.0	0.414	9.4	LOS A	2.3	58.6	0.67	0.57	0.77	33.4
2	T1	All MCs	143	3.0	143	3.0	0.414	9.8	LOS A	2.3	58.6	0.67	0.57	0.77	33.8
12	R2	All MCs	179	2.0	179	2.0	0.414	9.7	LOS A	2.3	58.6	0.67	0.57	0.77	33.6
Approach			327	2.4	327	2.4	0.414	9.7	LOS A	2.3	58.6	0.67	0.57	0.77	33.7
All Vehicles			1631	2.2	1631	2.2	0.652	10.2	LOS B	6.7	169.8	0.61	0.40	0.66	32.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\5_Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

MOVEMENT SUMMARY

Site: 2 [Hill Rd at Wallace Rd - PM (Site Folder: Future Preferred Scenario 2044)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred PM Peak Hour

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: Hill Rd															
3	L2	All MCs	92	0.0	92	0.0	0.550	9.2	LOS A	4.2	106.6	0.52	0.27	0.52	29.9
8	T1	All MCs	460	1.0	460	1.0	0.550	9.3	LOS A	4.2	106.6	0.52	0.27	0.52	31.4
18	R2	All MCs	93	0.0	93	0.0	0.550	9.2	LOS A	4.2	106.6	0.52	0.27	0.52	25.2
Approach			646	0.7	646	0.7	0.550	9.2	LOS A	4.2	106.6	0.52	0.27	0.52	30.1
East: Wallace Rd															
1	L2	All MCs	116	0.0	116	0.0	0.272	7.9	LOS A	1.2	29.8	0.64	0.55	0.64	25.2
6	T1	All MCs	27	0.0	27	0.0	0.272	7.9	LOS A	1.2	29.8	0.64	0.55	0.64	26.5
16	R2	All MCs	49	8.0	49	8.0	0.272	9.4	LOS A	1.2	29.8	0.64	0.55	0.64	26.5
Approach			193	2.0	193	2.0	0.272	8.3	LOS A	1.2	29.8	0.64	0.55	0.64	25.7
North: Hill Rd															
7	L2	All MCs	60	6.0	60	6.0	0.652	12.9	LOS B	8.1	205.2	0.72	0.55	0.95	25.6
4	T1	All MCs	555	1.0	555	1.0	0.652	12.4	LOS B	8.1	205.2	0.72	0.55	0.95	29.8
14	R2	All MCs	80	0.0	80	0.0	0.652	12.2	LOS B	8.1	205.2	0.72	0.55	0.95	30.9
Approach			696	1.3	696	1.3	0.652	12.4	LOS B	8.1	205.2	0.72	0.55	0.95	29.5
West: Wallace Road															
5	L2	All MCs	62	0.0	62	0.0	0.261	8.8	LOS A	1.1	27.8	0.67	0.60	0.67	30.6
2	T1	All MCs	23	0.0	23	0.0	0.261	8.8	LOS A	1.1	27.8	0.67	0.60	0.67	31.2
12	R2	All MCs	85	0.0	85	0.0	0.261	8.8	LOS A	1.1	27.8	0.67	0.60	0.67	30.9
Approach			169	0.0	169	0.0	0.261	8.8	LOS A	1.1	27.8	0.67	0.60	0.67	30.8
All Vehicles			1704	1.0	1704	1.0	0.652	10.4	LOS B	8.1	205.2	0.63	0.45	0.72	29.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Intersection						
Int Delay, s/veh	10.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Traffic Vol, veh/h	80	80	105	514	558	115
Future Vol, veh/h	80	80	105	514	558	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	88	88	115	565	613	126

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1471	676	739	0	0
Stage 1	676	-	-	-	-
Stage 2	795	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	141	457	876	-	-
Stage 1	509	-	-	-	-
Stage 2	448	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	123	457	876	-	-
Mov Cap-2 Maneuver	123	-	-	-	-
Stage 1	442	-	-	-	-
Stage 2	448	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	92	1.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	876	-	194	-	-
HCM Lane V/C Ratio	0.132	-	0.906	-	-
HCM Control Delay (s)	9.7	-	92	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	7.1	-	-

Intersection	
Intersection Delay, s/veh	156.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔		↔	↔	
Traffic Vol, veh/h	91	140	20	105	200	232	35	306	80	179	307	121
Future Vol, veh/h	91	140	20	105	200	232	35	306	80	179	307	121
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
Heavy Vehicles, %	0	1	0	3	1	1	0	3	4	1	2	0
Mvmt Flow	101	156	22	117	222	258	39	340	89	199	341	134
Number of Lanes	0	1	1	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	36.9	275.6	150.6	104.3
HCM LOS	E	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	8%	39%	0%	20%	100%	0%
Vol Thru, %	73%	61%	0%	37%	0%	72%
Vol Right, %	19%	0%	100%	43%	0%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	421	231	20	537	179	428
LT Vol	35	91	0	105	179	0
Through Vol	306	140	0	200	0	307
RT Vol	80	0	20	232	0	121
Lane Flow Rate	468	257	22	597	199	476
Geometry Grp	4b	5	5	4b	5	5
Degree of Util (X)	1.204	0.705	0.056	1.524	0.527	1.171
Departure Headway (Hd)	11.223	11.974	11.039	10.192	11.578	10.857
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	327	305	326	364	314	338
Service Time	9.223	9.674	8.739	8.192	9.278	8.557
HCM Lane V/C Ratio	1.431	0.843	0.067	1.64	0.634	1.408
HCM Control Delay	150.6	38.9	14.4	275.6	26.5	136.9
HCM Lane LOS	F	E	B	F	D	F
HCM 95th-tile Q	16.8	5	0.2	29.9	2.9	16.1

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	35	5	10	50	176	10	185	5	176	191	30
Future Vol, veh/h	20	35	5	10	50	176	10	185	5	176	191	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	0	0	17	0	2	0	2	0	2	1	0
Mvmt Flow	22	39	6	11	56	196	11	206	6	196	212	33

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	978	855	229	874	868	209	245	0	0	212	0	0
Stage 1	621	621	-	231	231	-	-	-	-	-	-	-
Stage 2	357	234	-	643	637	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.27	6.5	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.653	4	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	232	298	815	254	293	831	1333	-	-	1358	-	-
Stage 1	478	482	-	739	717	-	-	-	-	-	-	-
Stage 2	665	715	-	438	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	127	246	815	193	242	831	1333	-	-	1358	-	-
Mov Cap-2 Maneuver	127	246	-	193	242	-	-	-	-	-	-	-
Stage 1	474	401	-	732	711	-	-	-	-	-	-	-
Stage 2	465	709	-	327	395	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	32.6		19.7		0.4		3.6	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	196	502	1358	-	-
HCM Lane V/C Ratio	0.008	-	-	0.34	0.522	0.144	-	-
HCM Control Delay (s)	7.7	0	-	32.6	19.7	8.1	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.4	3	0.5	-	-

RECOMMENDED IMPROVEMENTS HCM REPORTS

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Fox Ridge Road - AM (Site Folder: Mitigation)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred AM Peak Hour - Mitigation

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: Hill Rd															
3	L2	All MCs	41	0.0	41	0.0	0.422	6.8	LOS A	2.8	70.3	0.35	0.16	0.35	34.7
8	T1	All MCs	476	2.0	476	2.0	0.422	7.0	LOS A	2.8	70.3	0.35	0.16	0.35	35.3
Approach			517	1.8	517	1.8	0.422	7.0	LOS A	2.8	70.3	0.35	0.16	0.35	35.2
North: Hill Rd															
4	T1	All MCs	394	4.0	394	4.0	0.341	5.7	LOS A	2.0	52.5	0.20	0.06	0.20	36.0
14	R2	All MCs	41	0.0	41	0.0	0.341	5.4	LOS A	2.0	52.5	0.20	0.06	0.20	36.2
Approach			436	3.6	436	3.6	0.341	5.7	LOS A	2.0	52.5	0.20	0.06	0.20	36.0
West: Fox Ridge Rd															
5	L2	All MCs	99	0.0	99	0.0	0.206	6.0	LOS A	0.9	23.4	0.53	0.40	0.53	33.8
12	R2	All MCs	88	0.0	88	0.0	0.206	6.0	LOS A	0.9	23.4	0.53	0.40	0.53	34.3
Approach			187	0.0	187	0.0	0.206	6.0	LOS A	0.9	23.4	0.53	0.40	0.53	34.0
All Vehicles			1139	2.2	1139	2.2	0.422	6.3	LOS A	2.8	70.3	0.32	0.16	0.32	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 2 [Hill Rd at 2nd Street - AM (Site Folder: Mitigation)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred AM Peak Hour - Mitigation

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h	%	veh/h	%	v/c	sec			ft				mph
South: Hill Rd															
3	L2	All MCs	39	10.0	39	10.0	0.627	17.6	LOS C	5.2	133.6	0.82	0.90	1.34	27.1
8	T1	All MCs	239	2.0	239	2.0	0.627	16.0	LOS C	5.2	133.6	0.82	0.90	1.34	28.5
18	R2	All MCs	161	5.0	161	5.0	0.627	16.6	LOS C	5.2	133.6	0.82	0.90	1.34	23.3
Approach			439	3.8	439	3.8	0.627	16.3	LOS C	5.2	133.6	0.82	0.90	1.34	26.2
East: 2nd St															
1	L2	All MCs	72	8.0	72	8.0	0.379	9.0	LOS A	1.9	49.2	0.60	0.44	0.60	26.5
6	T1	All MCs	117	3.0	117	3.0	0.379	8.3	LOS A	1.9	49.2	0.60	0.44	0.60	28.1
16	R2	All MCs	144	2.0	144	2.0	0.379	8.2	LOS A	1.9	49.2	0.60	0.44	0.60	28.6
Approach			333	3.7	333	3.7	0.379	8.4	LOS A	1.9	49.2	0.60	0.44	0.60	28.0
North: Hill Rd															
7	L2	All MCs	237	0.0	237	0.0	0.481	8.6	LOS A	3.0	77.2	0.57	0.35	0.57	26.1
4	T1	All MCs	199	5.0	199	5.0	0.481	9.1	LOS A	3.0	77.2	0.57	0.35	0.57	30.3
14	R2	All MCs	69	3.0	69	3.0	0.481	8.9	LOS A	3.0	77.2	0.57	0.35	0.57	31.5
Approach			504	2.4	504	2.4	0.481	8.8	LOS A	3.0	77.2	0.57	0.35	0.57	28.3
West: 2nd St															
5	L2	All MCs	106	2.0	106	2.0	0.522	11.9	LOS B	3.7	94.9	0.73	0.71	1.04	29.4
2	T1	All MCs	250	5.0	250	5.0	0.522	12.4	LOS B	3.7	94.9	0.73	0.71	1.04	29.9
12	R2	All MCs	39	10.0	39	10.0	0.522	13.3	LOS B	3.7	94.9	0.73	0.71	1.04	29.5
Approach			394	4.7	394	4.7	0.522	12.3	LOS B	3.7	94.9	0.73	0.71	1.04	29.7
All Vehicles			1671	3.6	1671	3.6	0.627	11.5	LOS B	5.2	133.6	0.68	0.60	0.89	28.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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HCM Signalized Intersection Capacity Analysis

3: Fox Ridge Rd & Hill Rd

Fox Ridge Road Area Plan
Future 2041 Preferred Scenario AM Peak Hour - Mitigation



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	89	79	37	428	355	37
Future Volume (vph)	89	79	37	428	355	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1733		1802	1863	1806	
Flt Permitted	0.97		0.48	1.00	1.00	
Satd. Flow (perm)	1733		906	1863	1806	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	88	41	476	394	41
RTOR Reduction (vph)	38	0	0	0	5	0
Lane Group Flow (vph)	149	0	41	476	430	0
Confl. Peds. (#/hr)	5		3			3
Heavy Vehicles (%)	0%	0%	0%	2%	4%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	9.7		20.3	20.3	20.3	
Effective Green, g (s)	9.7		20.3	20.3	20.3	
Actuated g/C Ratio	0.24		0.51	0.51	0.51	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	420		459	945	916	
v/s Ratio Prot	c0.09			c0.26	0.24	
v/s Ratio Perm			0.05			
v/c Ratio	0.36		0.09	0.50	0.47	
Uniform Delay, d1	12.6		5.1	6.5	6.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.5		0.1	0.4	0.4	
Delay (s)	13.1		5.2	6.9	6.8	
Level of Service	B		A	A	A	
Approach Delay (s)	13.1			6.8	6.8	
Approach LOS	B			A	A	
Intersection Summary						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.46			
Actuated Cycle Length (s)			40.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			47.4%		ICU Level of Service	A
Analysis Period (min)			15			




















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Hill Rd & 2nd St

Fox Ridge Road Area Plan

Future 2041 Preferred Scenario AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	225	35	65	105	130	35	215	145	213	179	62
Future Volume (vph)	95	225	35	65	105	130	35	215	145	213	179	62
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.98		0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.94		1.00	0.94		1.00	0.96	
Flt Protected		0.99	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1797	1434		1690		1641	1713		1805	1748	
Flt Permitted		0.73	1.00		0.67		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1327	1434		1148		1641	1713		1805	1748	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	250	39	72	117	144	39	239	161	237	199	69
RTOR Reduction (vph)	0	0	27	0	31	0	0	27	0	0	13	0
Lane Group Flow (vph)	0	356	12	0	302	0	39	373	0	237	255	0
Confl. Peds. (#/hr)	2					2						
Confl. Bikes (#/hr)			3						4			
Heavy Vehicles (%)	2%	5%	10%	8%	3%	2%	10%	2%	5%	0%	5%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		24.4	24.4		24.4		3.1	23.6		14.1	34.6	
Effective Green, g (s)		24.4	24.4		24.4		3.1	23.6		14.1	34.6	
Actuated g/C Ratio		0.32	0.32		0.32		0.04	0.31		0.18	0.45	
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		419	453		363		65	524		330	784	
v/s Ratio Prot							0.02	c0.22		c0.13	0.15	
v/s Ratio Perm		c0.27	0.01		0.26							
v/c Ratio		0.85	0.03		0.83		0.60	0.71		0.72	0.32	
Uniform Delay, d1		24.6	18.2		24.4		36.4	23.7		29.6	13.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.8	0.0		14.8		14.0	4.5		7.3	0.2	
Delay (s)		39.5	18.2		39.3		50.4	28.3		36.9	14.0	
Level of Service		D	B		D		D	C		D	B	
Approach Delay (s)		37.4			39.3		30.2			24.7		
Approach LOS		D			D		C			C		
Intersection Summary												
HCM 2000 Control Delay			32.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			77.1				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			82.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c	Critical Lane Group											

MOVEMENT SUMMARY

Site: 1 [Hill Rd at Fox Ridge Road - PM (Site Folder: Mitigation)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred PM Peak Hour - Mitigation

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	ft				mph
South: Hill Rd															
3	L2	All MCs	115	0.0	115	0.0	0.548	8.6	LOS A	4.5	113.4	0.41	0.17	0.41	33.6
8	T1	All MCs	565	2.0	565	2.0	0.548	8.7	LOS A	4.5	113.4	0.41	0.17	0.41	34.1
Approach			680	1.7	680	1.7	0.548	8.7	LOS A	4.5	113.4	0.41	0.17	0.41	34.0
North: Hill Rd															
4	T1	All MCs	613	1.0	613	1.0	0.609	10.1	LOS B	5.4	136.4	0.52	0.24	0.52	34.0
14	R2	All MCs	126	0.0	126	0.0	0.609	10.0	LOS A	5.4	136.4	0.52	0.24	0.52	33.8
Approach			740	0.8	740	0.8	0.609	10.1	LOS B	5.4	136.4	0.52	0.24	0.52	34.0
West: Fox Ridge Rd															
5	L2	All MCs	87	0.0	87	0.0	0.237	7.6	LOS A	1.0	25.8	0.62	0.54	0.62	33.1
12	R2	All MCs	87	0.0	87	0.0	0.237	7.6	LOS A	1.0	25.8	0.62	0.54	0.62	33.5
Approach			174	0.0	174	0.0	0.237	7.6	LOS A	1.0	25.8	0.62	0.54	0.62	33.3
All Vehicles			1593	1.1	1593	1.1	0.609	9.2	LOS A	5.4	136.4	0.48	0.24	0.48	33.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\5_Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sip9

MOVEMENT SUMMARY

Site: 2 [Hill Rd at 2nd Street - PM (Site Folder: Mitigation)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Future Year 2041 Preferred PM Peak Hour - Mitigation

Site Category: NA

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec			ft				
South: Hill Rd															
3	L2	All MCs	39	0.0	39	0.0	0.565	12.0	LOS B	4.7	120.6	0.75	0.72	1.09	28.7
8	T1	All MCs	340	3.0	340	3.0	0.565	12.5	LOS B	4.7	120.6	0.75	0.72	1.09	29.9
18	R2	All MCs	89	4.0	89	4.0	0.565	12.7	LOS B	4.7	120.6	0.75	0.72	1.09	24.3
Approach			468	2.9	468	2.9	0.565	12.5	LOS B	4.7	120.6	0.75	0.72	1.09	28.5
East: 2nd St															
1	L2	All MCs	117	3.0	117	3.0	0.728	18.7	LOS C	9.1	230.0	0.89	1.06	1.61	23.8
6	T1	All MCs	222	1.0	222	1.0	0.728	18.4	LOS C	9.1	230.0	0.89	1.06	1.61	25.1
16	R2	All MCs	258	1.0	258	1.0	0.728	18.4	LOS C	9.1	230.0	0.89	1.06	1.61	25.6
Approach			597	1.4	597	1.4	0.728	18.5	LOS C	9.1	230.0	0.89	1.06	1.61	25.0
North: Hill Rd															
7	L2	All MCs	199	1.0	199	1.0	0.736	17.2	LOS C	10.9	275.6	0.88	0.90	1.55	23.9
4	T1	All MCs	341	2.0	341	2.0	0.736	17.4	LOS C	10.9	275.6	0.88	0.90	1.55	27.5
14	R2	All MCs	134	0.0	134	0.0	0.736	17.1	LOS C	10.9	275.6	0.88	0.90	1.55	28.5
Approach			674	1.3	674	1.3	0.736	17.3	LOS C	10.9	275.6	0.88	0.90	1.55	26.5
West: 2nd St															
5	L2	All MCs	101	0.0	101	0.0	0.404	10.5	LOS B	2.1	53.7	0.71	0.67	0.85	29.9
2	T1	All MCs	156	1.0	156	1.0	0.404	10.7	LOS B	2.1	53.7	0.71	0.67	0.85	30.4
12	R2	All MCs	22	0.0	22	0.0	0.404	10.5	LOS B	2.1	53.7	0.71	0.67	0.85	30.2
Approach			279	0.6	279	0.6	0.404	10.6	LOS B	2.1	53.7	0.71	0.67	0.85	30.2
All Vehicles			2018	1.6	2018	1.6	0.736	15.6	LOS C	10.9	275.6	0.83	0.87	1.36	27.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: S:\Projects\2023\23041-000 (McMinnville Fox Ridge Area Plan TPR)\5_Analysis\SIDRA\Fox Ridge Road_Roundabout Analysis.sjp9

HCM Signalized Intersection Capacity Analysis

3: Fox Ridge Rd & Hill Rd

Fox Ridge Road Area Plan
 Future 2041 Preferred Scenario PM Peak Hour - Mitigation



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	80	105	514	558	115
Future Volume (vph)	80	80	105	514	558	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.93		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	1729		1805	1863	1834	
Flt Permitted	0.98		0.28	1.00	1.00	
Satd. Flow (perm)	1729		531	1863	1834	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	88	88	115	565	613	126
RTOR Reduction (vph)	42	0	0	0	9	0
Lane Group Flow (vph)	134	0	115	565	730	0
Confl. Bikes (#/hr)						2
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	9.3		30.2	30.2	30.2	
Effective Green, g (s)	9.3		30.2	30.2	30.2	
Actuated g/C Ratio	0.19		0.62	0.62	0.62	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	331		330	1160	1141	
v/s Ratio Prot	c0.08			0.30	c0.40	
v/s Ratio Perm			0.22			
v/c Ratio	0.40		0.35	0.49	0.64	
Uniform Delay, d1	17.2		4.4	5.0	5.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		0.6	0.3	1.2	
Delay (s)	18.0		5.0	5.3	6.9	
Level of Service	B		A	A	A	
Approach Delay (s)	18.0			5.2	6.9	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	48.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		




















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Hill Rd & 2nd St

Fox Ridge Road Area Plan

Future 2041 Preferred Scenario PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	140	20	105	200	232	35	306	80	179	307	121
Future Volume (vph)	91	140	20	105	200	232	35	306	80	179	307	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.94		1.00	0.97		1.00	0.96	
Flt Protected		0.98	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1852	1573		1746		1805	1775		1787	1783	
Flt Permitted		0.59	1.00		0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1113	1573		1456		1805	1775		1787	1783	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	156	22	117	222	258	39	340	89	199	341	134
RTOR Reduction (vph)	0	0	13	0	32	0	0	11	0	0	15	0
Lane Group Flow (vph)	0	257	9	0	565	0	39	418	0	199	460	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)			2						3			2
Heavy Vehicles (%)	0%	1%	0%	3%	1%	1%	0%	3%	4%	1%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		35.0	35.0		35.0		2.8	25.4		11.1	33.7	
Effective Green, g (s)		35.0	35.0		35.0		2.8	25.4		11.1	33.7	
Actuated g/C Ratio		0.40	0.40		0.40		0.03	0.29		0.13	0.39	
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		450	636		589		58	521		229	694	
v/s Ratio Prot							0.02	c0.24		c0.11	0.26	
v/s Ratio Perm		0.23	0.01		c0.39							
v/c Ratio		0.57	0.01		0.96		0.67	0.80		0.87	0.66	
Uniform Delay, d1		19.9	15.4		25.1		41.4	28.2		37.0	21.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8	0.0		27.3		26.6	8.7		27.6	2.4	
Delay (s)		21.7	15.4		52.4		68.0	37.0		64.6	24.1	
Level of Service		C	B		D		E	D		E	C	
Approach Delay (s)		21.2			52.4			39.5			36.1	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			39.6				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			86.5				Sum of lost time (s)				15.0	
Intersection Capacity Utilization			90.7%				ICU Level of Service				E	
Analysis Period (min)			15									
c Critical Lane Group												

TRAVEL DEMAND MODEL OUTPUTS & ODOT CORRESPONDENCE

To: Arielle Ferber, ODOT R2
Cc: Alex Bettinardi, ODOT TPAU
From: Jenna Bogert, DKS Associates
Date: September 19th, 2023

Proposed Future Forecasts and Assumptions Fox Ridge Road Area Plan

DKS previously submitted a letter¹ that outlined the methodology for estimating the future 2044 Baseline volumes and 2044 Preferred Land Use Scenario volumes for the Fox Ridge Road Area Plan. This memo provides the detailed analysis assumptions including the proposed growth rate, trip generation rates, and trip distribution assumptions for the traffic study, based on data from the travel demand model which was provided by ODOT TPAU.

Proposed Growth Rate

ODOT TPAU provided volume figures from the 2015 and 2041 travel demand models to DKS. Based on the volume plots, the average yearly vehicle growth is approximately 4% per year on Hill Road. DKS will apply the growth rate of 4% linearly to the 2023 collected traffic count data to estimate future year 2044 Baseline traffic volumes at all study intersections.

Proposed Trip Generation Rates

ODOT TPAU provided the number of households (213) and the household trip generation rates for TAZ 252 (area west of NW Hill Road along Fox Ridge Road) from the travel demand model to DKS. DKS will use the trip generation rates (shown below) to estimate the number of vehicle trips generated by the residential units in the Preferred Land Use Scenario.

At the suggestion of ODOT TPAU, the trip generation for employees based in the Fox Ridge Road area should be calculated using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual or similar. This was recommended in lieu of developing a trip rate per job or trip rate per employee from the travel demand model. The ITE trip rates for retail are shown in the table below.

Land Use	Daily Trip Rate	AM Trip Rate	PM Trip Rate	Source
Household	8.10 per DU	0.55 per DU	0.74 per DU	From McMinnville Travel Demand Model (ODOT TPAU)
Retail	54.45 per KSF	2.36 per KSF	6.59 per KSF	From ITE (LUC 822)

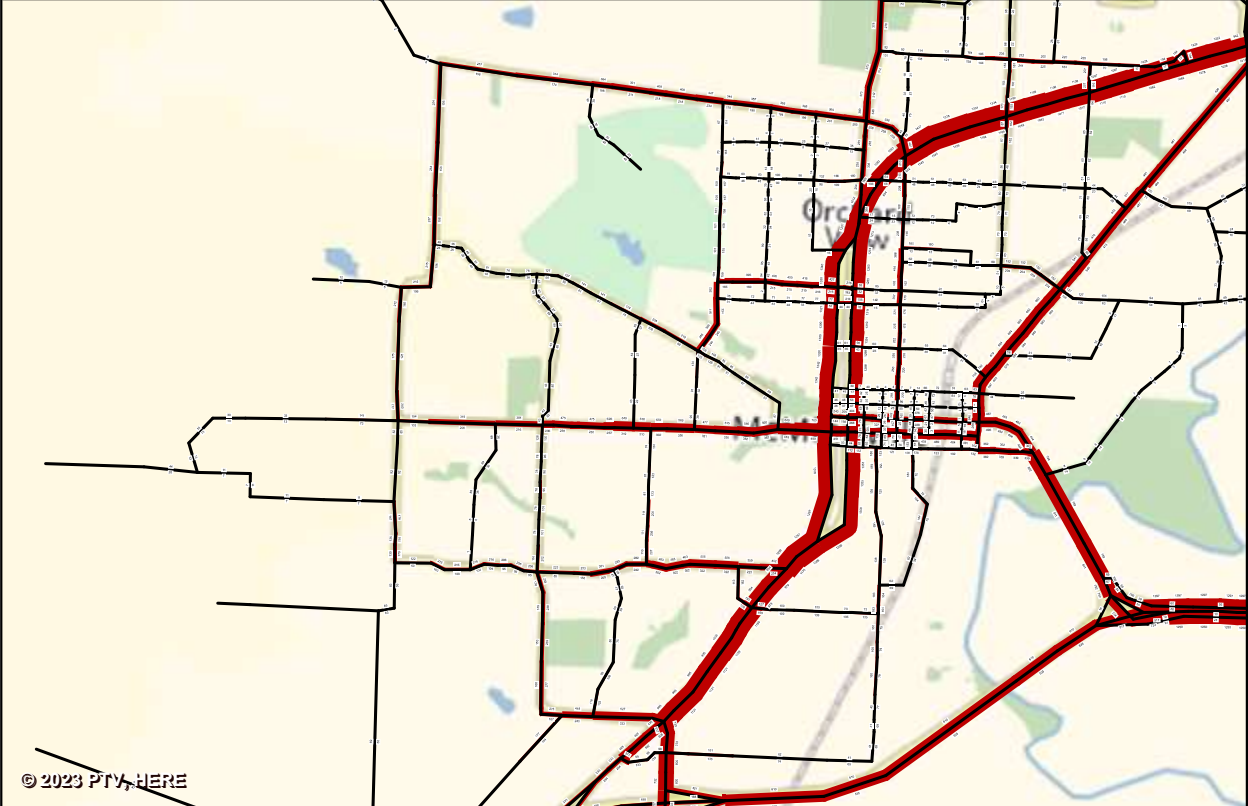
Proposed Trip Distribution

ODOT TPAU provided select zone plots for TAZ 252 and TAZ 139 from the travel demand model to DKS. The model plot for TAZ 252 shows the origin-destination routes for household trips to/from the Fox Ridge Road area. The model plot for TAZ 139 shows the origin-destination routes for household trips and employee trips to/from the area just east of Fox Ridge Road plan area. DKS estimated an average trip distribution as follows based on both model plots:

- 5% of trips via NW Baker Creek Road (west of city limits)
- 30% of trips via NW Baker Creek Road (east of NW Hill Rd)
- 15% of trips via NW Wallace Road
- 30% of trips via SW 2nd Street (east)
- 5% of trips via SW 2nd Street (west)
- 10% of trips via SW Fellows Street
- 5% of trips via SW Hill Road south of SW Fellows Street

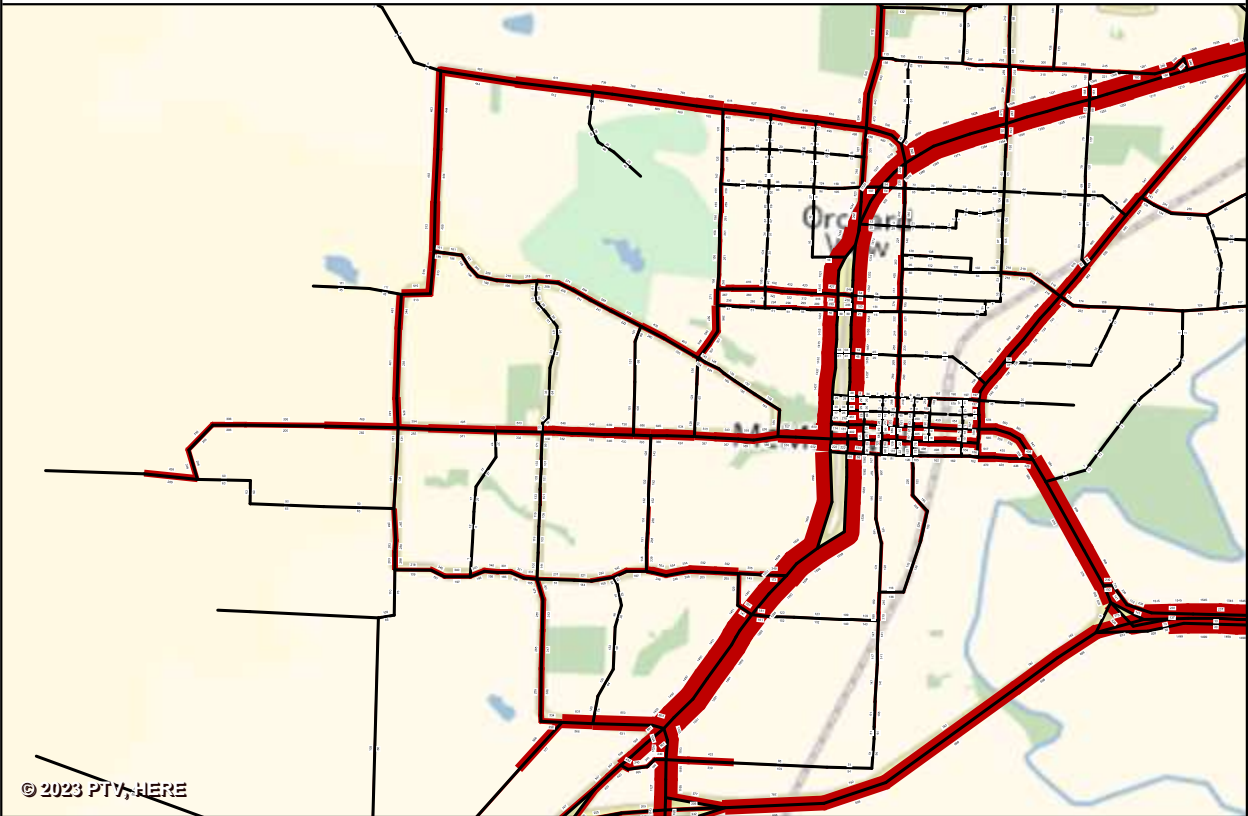
¹ Letter provided via email to Arielle Ferber and Alex Bettinardi on July 21st, 2023.

2015 PM Peak Hour Volumes



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2041 PM Peak Hour Volumes



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Jenna Bogert <jenna.bogert@dksassociates.com>

Fox Ridge Road TPR Study - Future Volume Forecast Methodology

BETTINARDI Alexander O * Alex <Alexander.O.BETTINARDI@odot.oregon.gov>

To: Jenna Bogert <jenna.bogert@dksassociates.com>

Cc: FERBER Arielle <Arielle.FERBER@odot.oregon.gov>

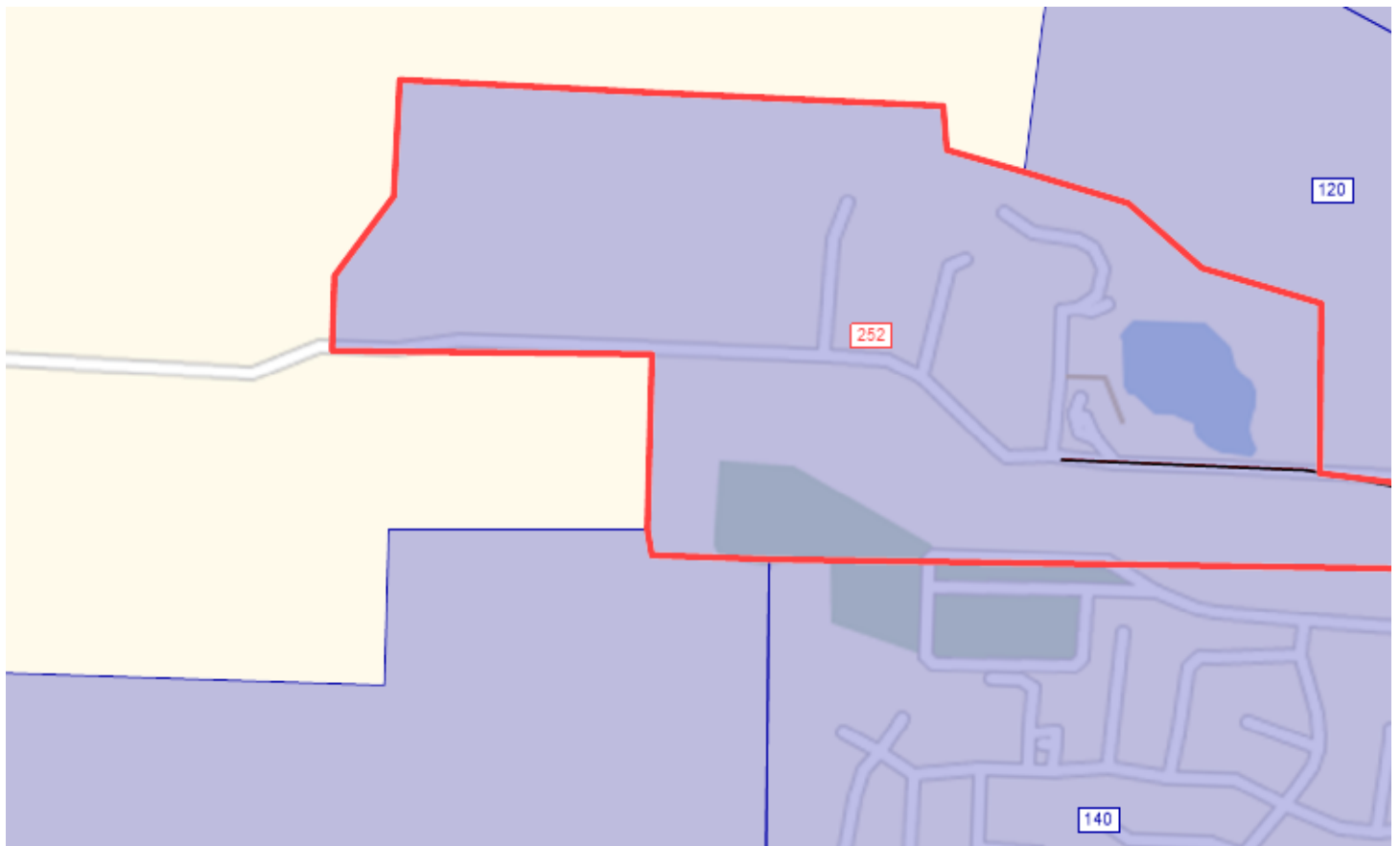
Fox Ridge is represented by Zone 252

For the 2041 scenario, it's assumed to have 213 households (zero jobs), which are calculated to produce 2302 daily trips.

So on average each household in Zone 252 is generating 10.8 person vehicle trips / day.

Zone 252 generates 1716 vehicle trips per day at an average of 8.1 trips / day (this number is just vehicles – accounts for vehicle occupancy)

I believe this is what you need, but please let me know if you were looking for additional information that was not provided here.



Alex Bettinardi, P.E. (he/him)

503.949.2368

<http://www.oregon.gov/ODOT/Planning/Pages/default.aspx>



Jenna Bogert <jenna.bogert@dksassociates.com>

Fox Ridge Road TPR Study - Future Volume Forecast Methodology

BETTINARDI Alexander O * Alex
<Alexander.O.BETTINARDI@odot.oregon.gov>

Thu, Aug 10,
2023 at 11:02
AM

To: Jenna Bogert <jenna.bogert@dksassociates.com>
Cc: FERBER Arielle <Arielle.FERBER@odot.oregon.gov>

Unfortunately, I don't think there's a good way to develop a trips per job or employee rate from the Model.

I was digging in and there are a couple of factors that I believe make creating a trip rate per employee unadvised:

- Trips in the model are produced by households – so it is cleaner to create a household rate factor. They are then attracted to a number of different types of locations – not just jobs.
- Since most zones have a mix of employees and other attractions it's very difficult to separate which trips are attracted to employment versus other attractions.
- One way around this is to find zones with just employment and see how many trips are attracted to those zones, however – the McMinnville model uses special generators. And the impact of that is that some zones get a trip boost and some give away trips to those boosts. So some zones with just employment attraction will show more than the average because of a special generator (or really attractor) applied and some don't – and so the presence of this special generator treatment makes it near impossible (and at least very impractical) to tease apart what the average employee attraction for the area might be.

So for employers – I'm suggesting you might turn to ITE trip generation or similar.

For the PM peak hour vehicle generation for zone 252. There are 157.5 PM peak trips for TAZ 252, across 213 households, so 0.74 vehicle trips per household in the PM peak.

I hope this is helpful, please let me know if further information is needed.

Alex Bettinardi, P.E. (he/him)

503.949.2368

<http://www.oregon.gov/ODOT/Planning/Pages/default.aspx>

From: Jenna Bogert <jenna.bogert@dksassociates.com>

Sent: Thursday, August 10, 2023 10:04 AM

To: BETTINARDI Alexander O * Alex <Alexander.O.BETTINARDI@odot.oregon.gov>

Cc: FERBER Arielle <Arielle.FERBER@odot.oregon.gov>

Subject: Re: Fox Ridge Road TPR Study - Future Volume Forecast Methodology

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Alex - Can you provide the same household trip gen info for the PM peak hour in zone 252?

Also, can you provide the trips per job for the PM peak hour from another TAZ? Maybe TAZ 151?

Thanks!

Jenna Bogert, PE (OR, WA) | Transportation Engineering Associate
Direct Ph: 971-332-5316 | Email: jenna.bogert@dksassociates.com

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Jenna Bogert <jenna.bogert@dksassociates.com>

Fox Ridge Road TPR Study - Future Volume Forecast Methodology

BETTINARDI Alexander O * Alex <Alexander.O.BETTINARDI@odot.oregon.gov>

Tue, Aug 22, 2023 at 10:50 AM

To: Jenna Bogert <jenna.bogert@dksassociates.com>

Do you think these will work (PM peak select zones)

Again, zone 252 is fox ridge. In the future year (these are future year) it has zero employment and 213 households

Zone 139 is the zone just to the east of 252. It has 193 households and 516 employment (61 retail and 444 service employees).

Alex Bettinardi, P.E. (he/him)

503.949.2368

<http://www.oregon.gov/ODOT/Planning/Pages/default.aspx>

From: Jenna Bogert <jenna.bogert@dksassociates.com>

Sent: Friday, August 18, 2023 2:24 PM

To: BETTINARDI Alexander O * Alex <Alexander.O.BETTINARDI@odot.oregon.gov>

Subject: Re: Fox Ridge Road TPR Study - Future Volume Forecast Methodology

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Hi Alex,

It was nice to meet you this week at the conference and hear all of your questions during the sessions!

As we briefly discussed on Tuesday morning, would you be able to run a select zone for the Fox Ridge Road TAZ 252? As well as a neighboring zone that also has employment trips? That way I can attempt to capture any differences in trip distribution between the two trip generators. I'll be summarizing all of the final assumptions in a report to Arielle and you in the next few weeks for final buy off.

Thanks and have a good weekend!

Jenna

Jenna Bogert, PE (OR, WA) | Transportation Engineering Associate

Direct Ph: 971-332-5316 | Email: jenna.bogert@dksassociates.com

Flow Bundles


Link bars


Volume flow bundle PrT [veh] (AP)



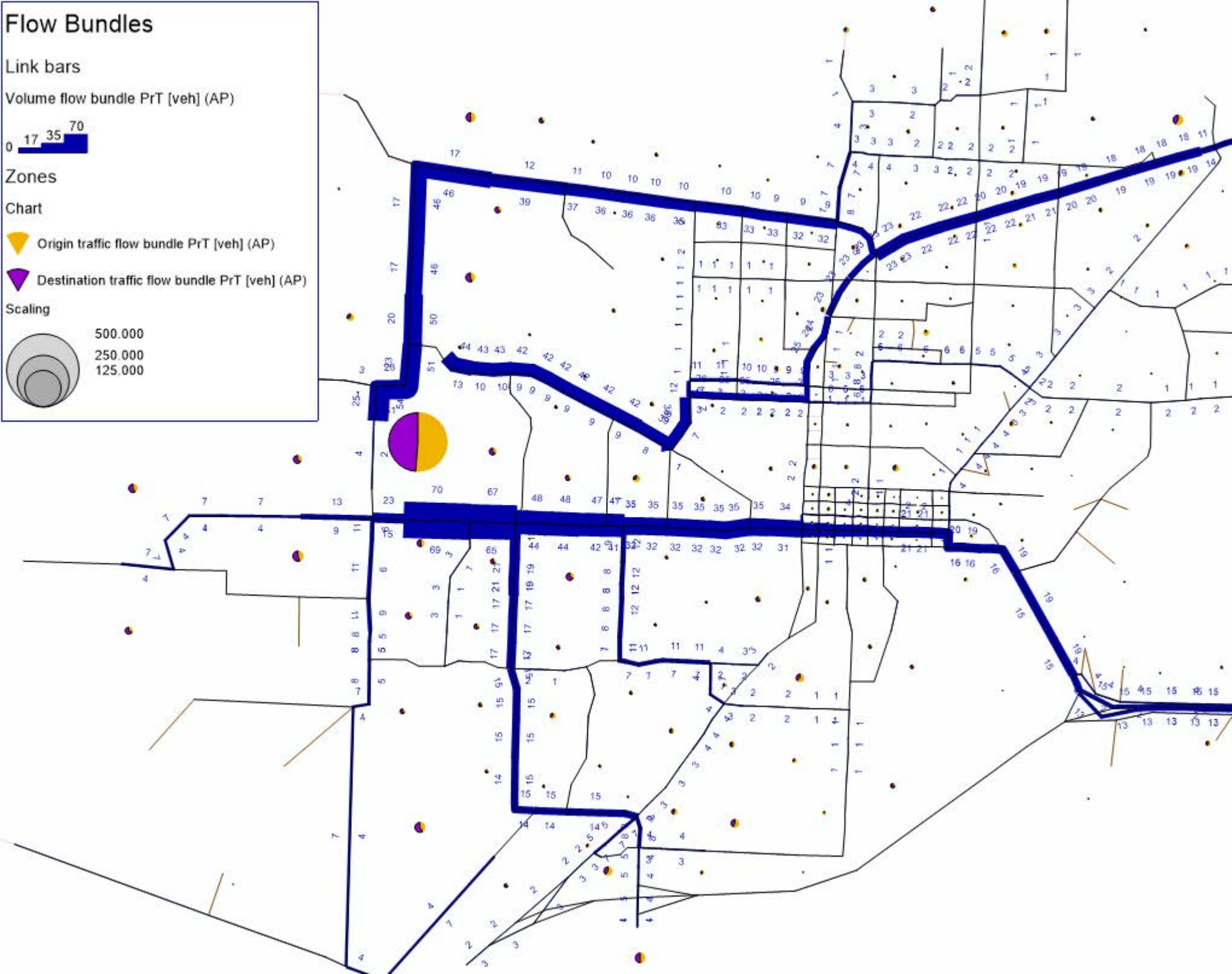
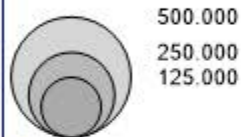
Zones

Chart

 Origin traffic flow bundle PrT [veh] (AP)

 Destination traffic flow bundle PrT [veh] (AP)

Scaling



Flow Bundles


Link bars


Volume flow bundle PrT [veh] (AP)



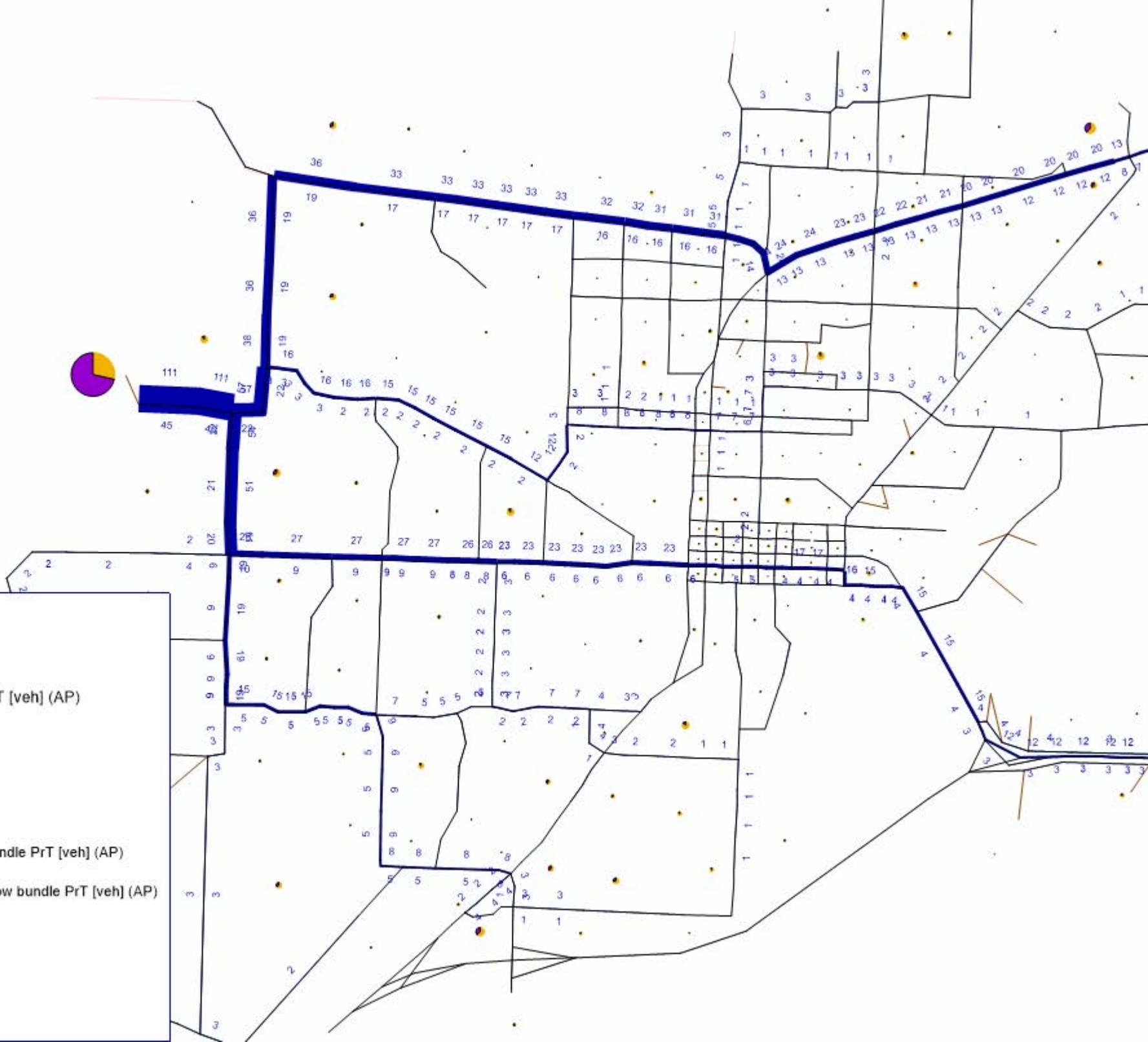
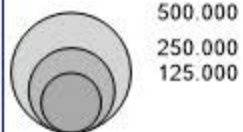
Zones

Chart

 Origin traffic flow bundle PrT [veh] (AP)

 Destination traffic flow bundle PrT [veh] (AP)

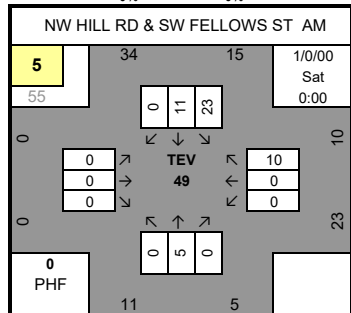
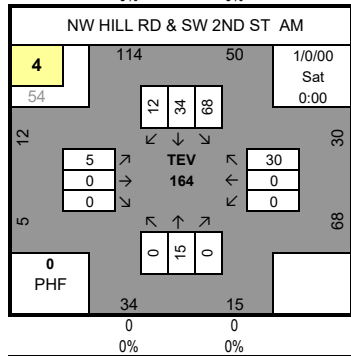
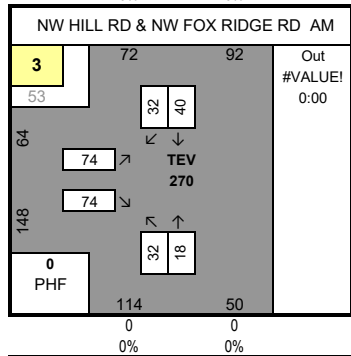
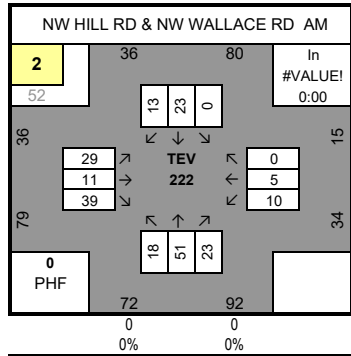
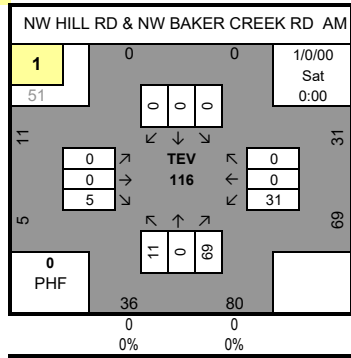
Scaling



TRIP GENERATION VOLUME FIGURE

Trip Gen - AM

50



Trip Gen - PM

60

