

NE 4th Street and NE 8th Street Corridors Evaluation Report

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Executive Summary

The project evaluation focuses on developing improvement concepts for four intersections along two corridors:

- NE 4th Street Corridor
 - NE 4th Street and NE Revere Avenue
 - NE 4th Street and NE Olney Avenue
- NE 8th Street Corridor
 - NE 8th Street and NE Revere Avenue
 - NE 8th Street and NE Olney Avenue

Given the proximity to NE 3rd Street (US 20), both intersections at NE 4th Street were evaluated alongside those at NE 3rd Street to understand the influence of NE 3rd Street on NE 4th Street operations.

System Level Needs and Constraints

- Queues from NE 3rd Street and NE Olney Avenue intersections spill back into NE 4th Street and NE Olney in the future.
- Transit routes are planned along the NE 4th Street and NE 8th Street corridors and should be accommodated in any intersection design, including safe walking and biking access to transit stops.
- A section of NE Olney Avenue, west of NE 6th Street, has been identified as a Key Walking and Biking Route.
- NE 4th Street is part of the Bicycle Low Stress Network (LSN). NE Revere Avenue and NE Olney Avenue, west of NE 6th Street, are also part of the LSN.

Intersection Level Needs and Constraints

- There is limited right-of-way today at NE 4th Street and NE Olney Avenue due to retaining walls on all four corners of the intersection.
- There is limited right-of-way today at NE 8th Street and NE Olney Avenue due to retaining walls along the west leg and houses adjacent to the intersection.
- Both study intersections along NE Revere Avenue have an observed crash rate higher than the 90th percentile crash rate of similar sites in Oregon.
- Intersection operations at all study intersections, except NE 3rd Street and NE Revere Avenue, fail to meet City of Bend standards in the future (2040).
- Without additional improvements, 95th percentile queuing in the future (2040) is significant at all study intersections, with many queues spilling back into other intersections.

Recommendations

There is an overall budget of \$14 million identified in the General Obligation (GO) Bond for improvements to all four intersections. The recommendations below are expected to fit within the project budget.

NE 4th Street

Signals are recommended to be installed at the study intersections along NE 4th Street due to the proximity of NE 3rd Street (a signalized corridor that has high traffic volumes) and the need for enhanced pedestrian and bicyclist crossings. The high traffic volumes and congestion along NE 3rd Street are forecasted to cause queue spillback into the NE 4th Street intersections, particularly along NE Olney Avenue, and the queuing would impede traffic through a roundabout.

At NE 4th Street and NE Revere Avenue:

- Figure 1 shows the approximate intersection footprint. It is recommended along the north and south legs that an approximately 200-foot left turn lane be constructed to provide the opportunity for protected left turn phases. The east and west legs would retain their existing lane configuration.
- Figure 1 also includes an optional right turn lane on the north leg. This could be constructed if needed in the future to reduce queueing and/or to support implementation of a particular pedestrian or bicyclist crossing treatment.
- Enhanced intersection lighting is recommended at this intersection to address a history of crashes that occur in the dark, as identified by the Bend Transportation Safety Action Plan (TSAP).
- The signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. Figure 1 shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.

NW 4th Street and NW Revere Avenue Proposed Signalized Intersection

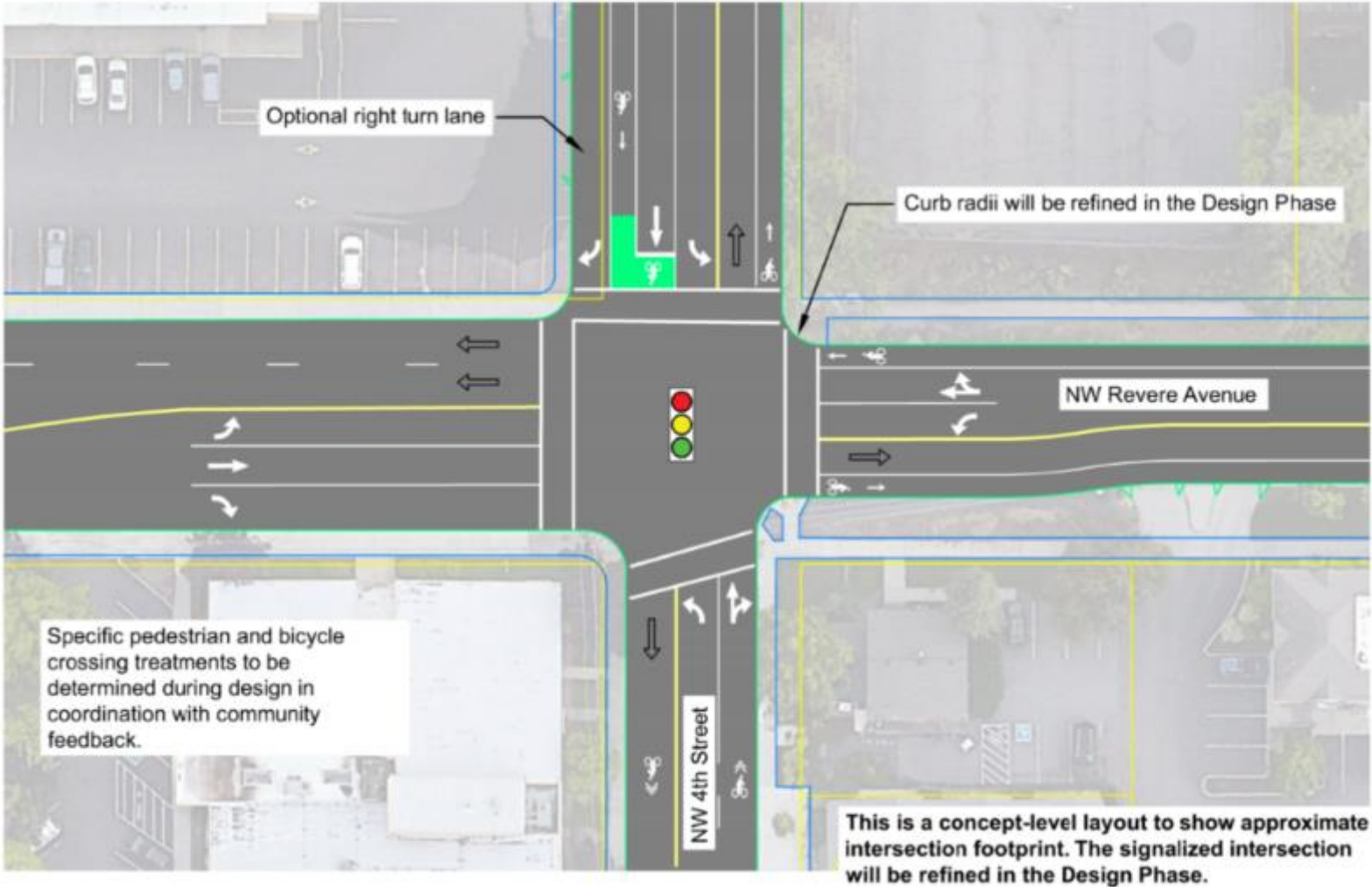


Figure 1: Proposed Signalized Intersection Layout at NE 4th Street and NE Revere Avenue

At NE 4th Street and NE Olney Avenue:

- Figure 2 shows the approximate intersection footprint if a signal were installed at this location. The east, west, and south legs of the intersection would retain their existing configurations. On the north leg, a 200-foot right turn lane is recommended to help address future queueing issues on 4th Street. While not needed in the near-term, the right turn lane will help provide queue storage in the 20-year planning horizon as NE 3rd Street congestion regularly spills back to NE 4th Street.
 - Given the right-turn lane is not needed in the near-term, the turn lane could be added in the future when needed to address congestion issue and/or to support implementation of a particular pedestrian or bicyclist crossing treatment.
- The signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. Figure 2 shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.
- As there is a CET bus stop near the NE 4th Street and NE Olney Avenue intersection that will be retained for Route 5, the intersection improvement should accommodate the stop somewhere near its existing location.

NW 4th Street and NW Olney Avenue Proposed Signalized Intersection

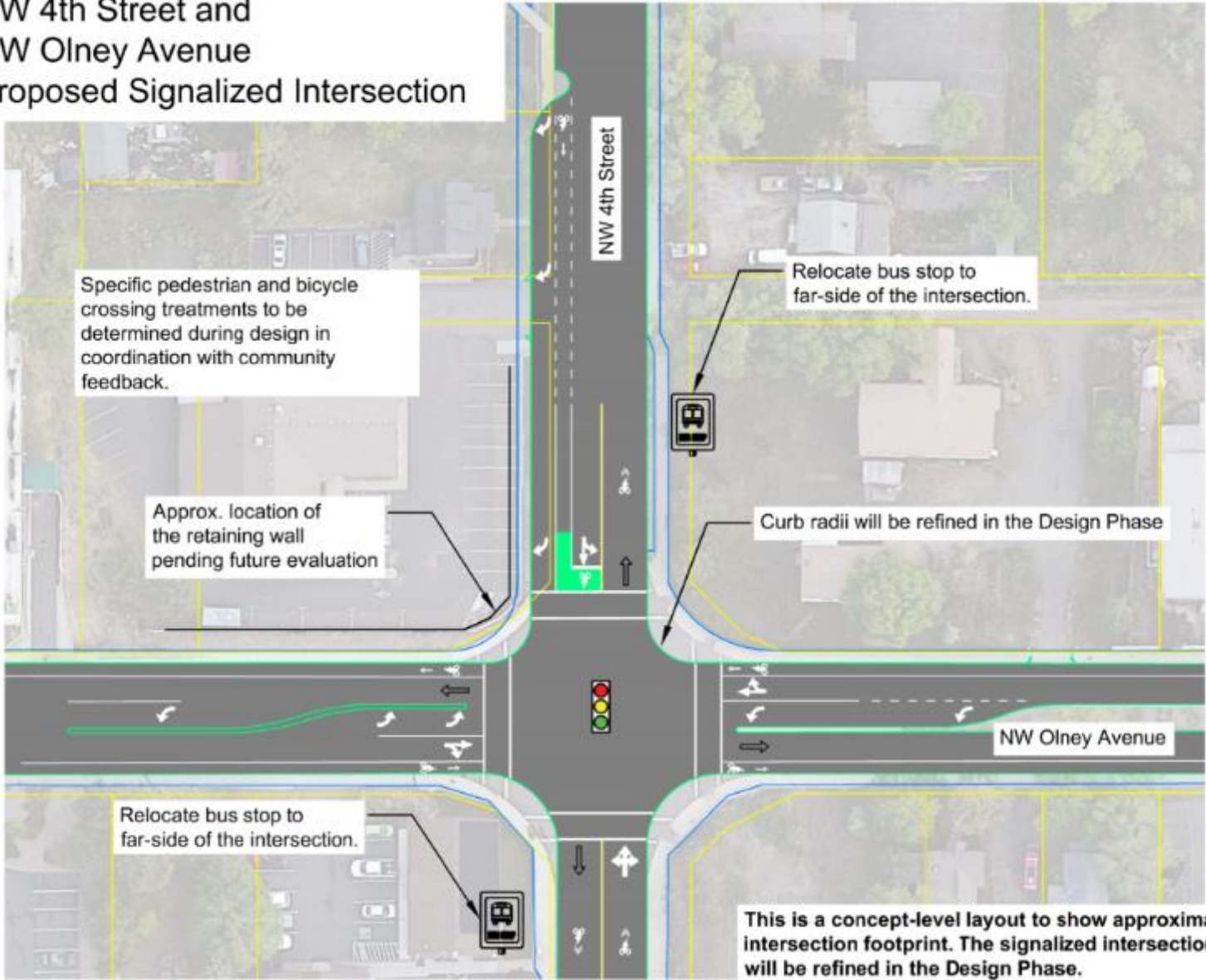


Figure 2: Proposed Signalized Intersection Layout at NE 4th Street and NE Olney Avenue

NE 8th Street

Roundabouts are recommended to be implemented at the study intersections along NE 8th Street due to improved safety and operational performance.

At NE 8th Street and NE Revere Avenue:

- Figure 3 shows the recommended roundabout lane configuration (single-lane roundabout).
 - The concept depicts a single-lane roundabout that is 130 feet in diameter, designed to accommodate WB-50 trucks, with 18-foot entry and exit lanes on all approaches and 14-foot offsets for sidewalk and buffer. The roundabout is shifted north to have as little impact as possible on existing structures on the southwest and southeast corners. This concept will continue to be refined during design to reduce potential right-of-way impacts.

At NE 8th Street and NE Olney Avenue:

- Figure 4 shows the recommended partial multi-lane roundabout with right turn slip lanes lane configuration.
 - The concept depicts a partial multi-lane roundabout with right turn slip lanes, shifted north to minimize southeast and southwest building impacts.
 - The concept shows a roundabout with 150-foot diameter that accommodates WB-50 trucks and has multi-lane entry on north, east, and west approaches, single 18-foot lane entry on the south approach, single 18-foot exits on all approaches, and 14-foot offsets for sidewalk and buffer. This concept will continue to be refined during design to reduce potential right-of-way impacts.
- NE 8th Street and NE Olney Avenue was identified as a top 10 percent site for equivalent property damage only in the Bend TSAP. A roundabout would improve safety at the intersection compared to the existing signalized intersection.

NW 8th Street and
NW Revere Avenue
Proposed Roundabout

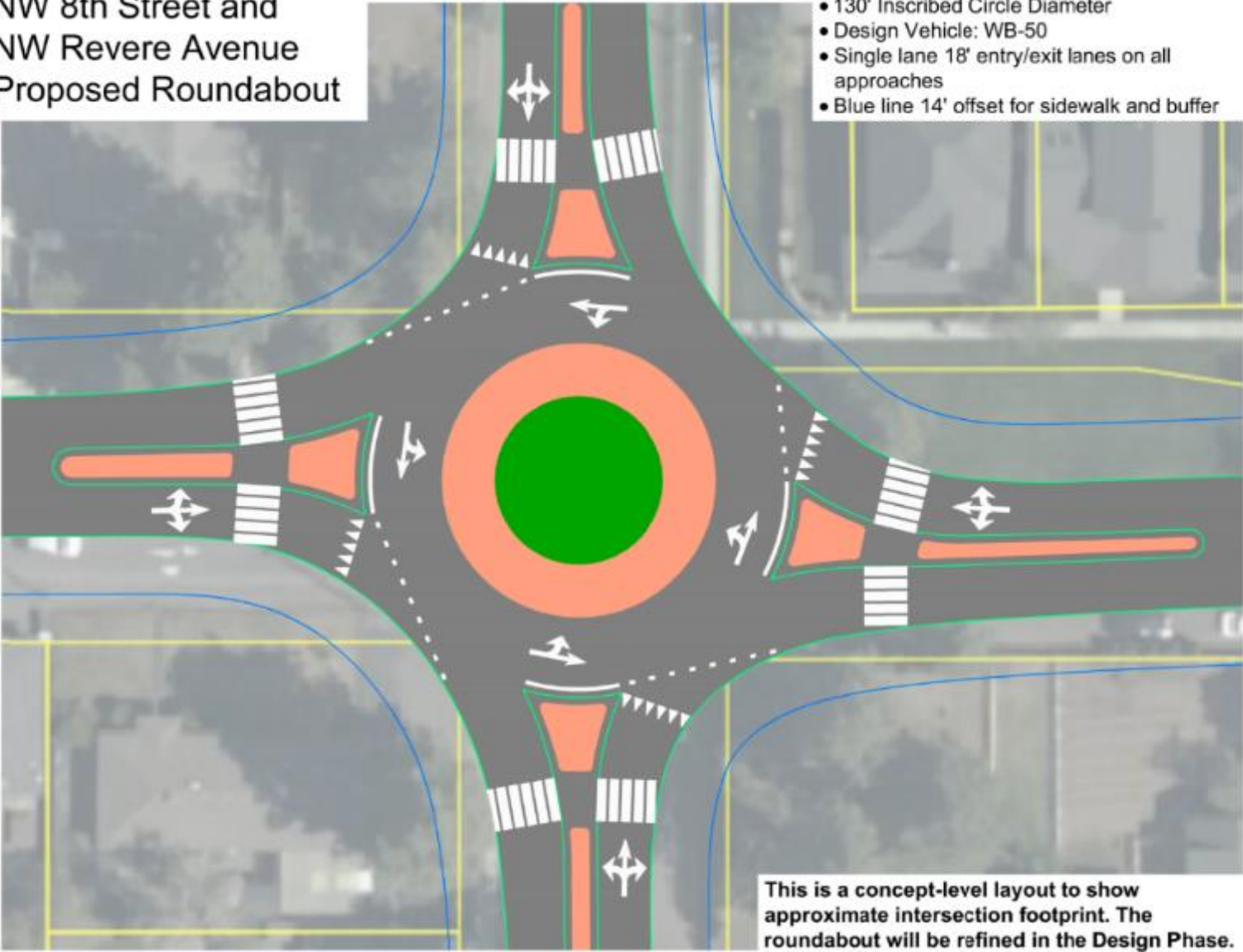


Figure 3: Proposed Roundabout Intersection Layout at NE 8th Street and NE Revere Avenue

NW 8th Street and NW Olney Avenue Proposed Roundabout

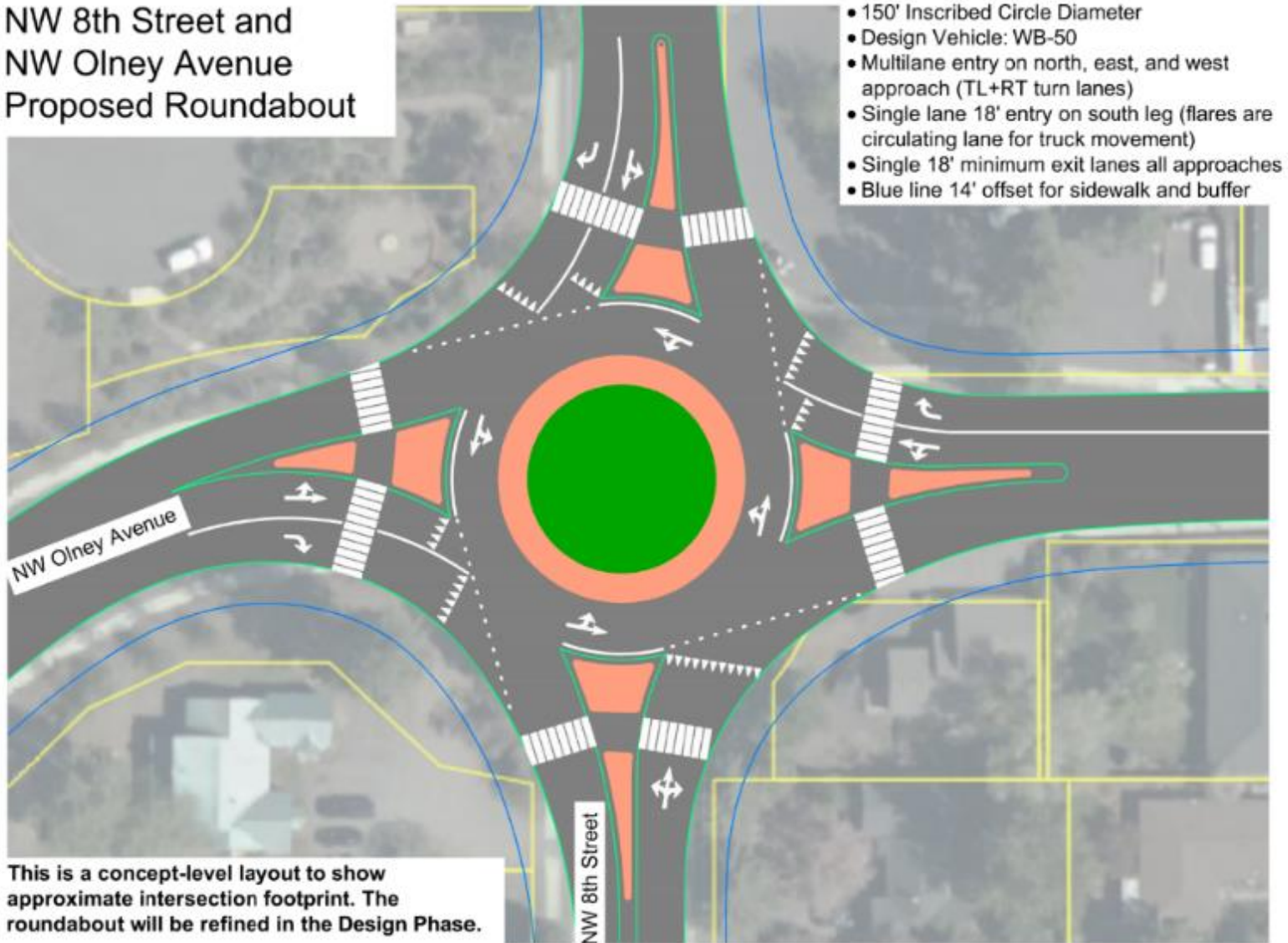


Figure 4: Proposed Roundabout Intersection Layout at NE 8th Street and NE Olney Avenue

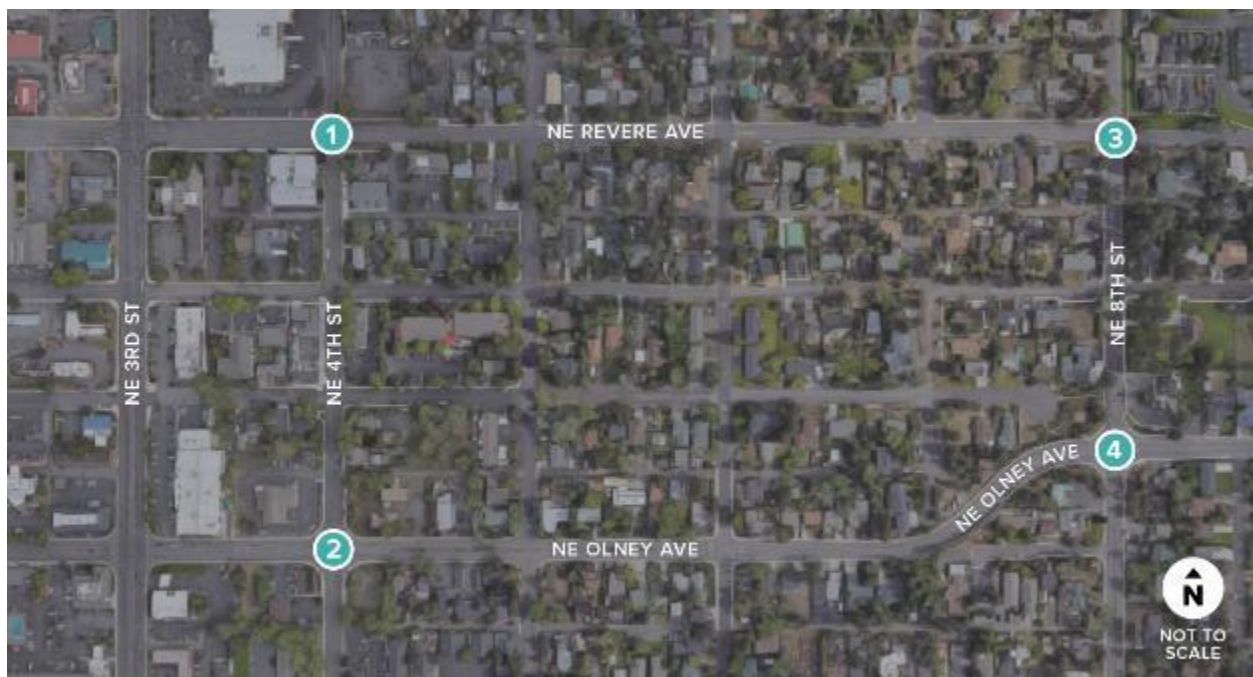
Project Assumptions and Background

This section documents key project assumptions and reviews and documents relevant plans, policies, and other applicable background information for the NE 4th Street and NE 8th Street corridor operations evaluation.

Study Area and Background

The project evaluation focuses on two General Obligation (GO) Bond projects: NE Olney Intersection Improvements and NE Revere Intersection improvements (at NE 4th Street and NE 8th Street). The study area, shown in Figure 5 below, includes four intersections, organized into two main corridors based on similar land use contexts in the area and proximity to NE 3rd Street, which is a signalized corridor:

- NE 4th Street Corridor
 - NE 4th Street and NE Revere Avenue
 - NE 4th Street and NE Olney Avenue
- NE 8th Street Corridor
 - NE 8th Street and NE Revere Avenue
 - NE 8th Street and NE Olney Avenue



Study Intersection

Figure 5: Study Intersections

Relevant Planning Document Review

This section summarizes information contained in relevant planning documents that pertains to the study area. Incorporating transportation infrastructure and services that are planned for the study area establishes consistency among planning documents and works toward achieving their respective goals.

Bend Transportation System Plan

The Bend Transportation System Plan (TSP) establishes transportation system changes for current and future growth in population and changes in land usage through the year 2040. With that plan, a section of NE Olney Avenue in the project area has been identified as a Key Walking and Biking Route. NE Revere Avenue, NE 4th Street, and a section of NE Olney Avenue are part of the Bicycle Low Stress Network (LSN). See Figure 6 for excerpts of the maps from the TSP.

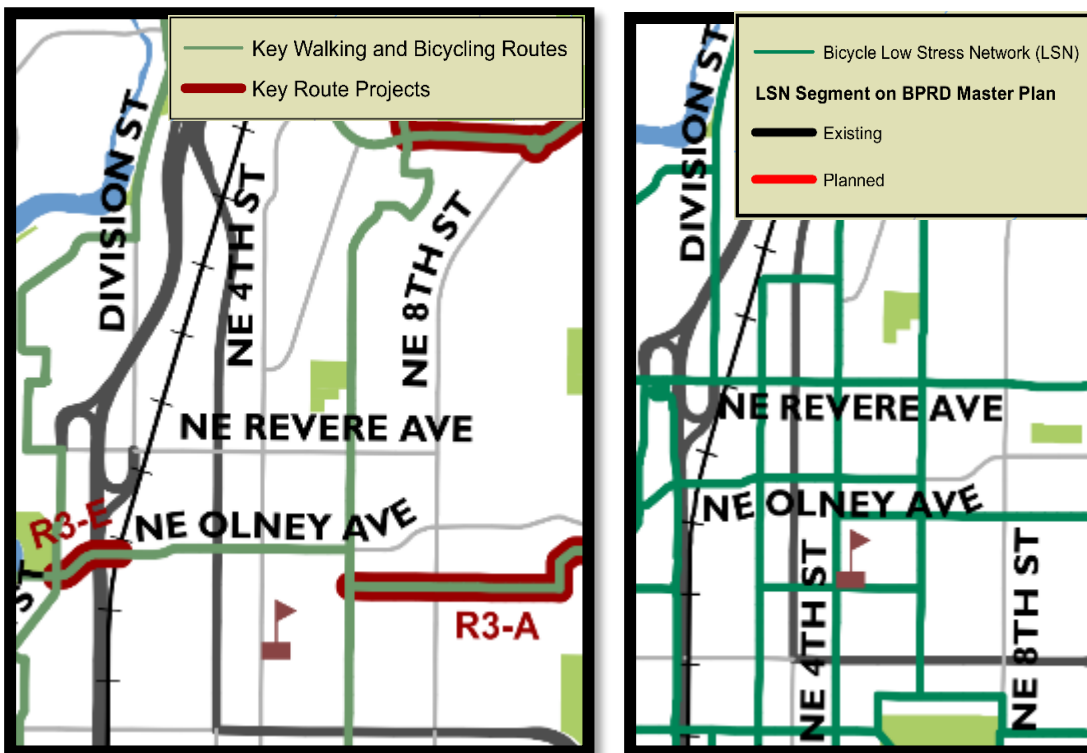


Figure 6: City of Bend TSP Key Walking and Bicycling Routes and Bicycle Low Stress Network
 Source: Bend Transportation System Plan, Figures 5-1 and 5-3b

The TSP identified four intersection improvement projects that are relevant to this project evaluation report:

- C-15: NE Olney Avenue / NE 8th Street intersection improvement – improve intersection capacity
- C-16: NE Revere Avenue / NE 8th Street intersection improvement – improve intersection capacity
- C-28: NE Revere Avenue / NE 4th Street intersection improvement – improve intersection capacity

- C-29: NE Olney Avenue / NE 4th Street intersection improvement – improve intersection capacity

Additional projects under Key Walking & Biking Routes & Associated Capital Improvement Projects that are relevant to this project evaluation report include:

- R3-A: Norton Ave: NE 6th St to NE 12th St – Neighborhood greenway: Create a low-stress bikeway on NE Norton Ave.
- R3-C: Neff Rd: NE 12th to Big Sky Park – shared use path adjacent to roadway; close sidewalk gaps and create a low-stress bikeway.
- R3-E: Olney Avenue: Wall Street to railroad – shared use path adjacent to roadway; close sidewalk gap over railroad and remove existing barrier to east-west bicycle connectivity and create right-turn hook crash countermeasure.

Given there were no specific recommendations for how to improve intersection capacity in the TSP, this analysis will inform a recommendation for intersection capacity enhancements at each of the four study intersections that are compatible with the TSP LSN and Key Walking and Biking Route designations.

Cascades East Transit 2040 Transit Master Plan

The Cascades East Transit (CET) 2040 Transit Master Plan (TMP) summarizes the transit services provided by CET for Central Oregon, including the City of Bend. The plan is used by CET to identify future services and how funds are spent.

Routes 5 and 6 travel along NE 4th Street, but only Route 6 has a stop located adjacent to the study intersection of NE 4th Street and NE Olney Avenue. The following summarizes the changes planned to Routes 5 and 6 in the future:

- In the short- to mid-term future, Route 6 is planned to be rerouted, while Route 5 would continue to service NE 4th Street.
- The existing Route 6 bus stop located near the study intersection will most likely become a Route 5 bus stop. Regardless, it will be necessary to maintain or replace the existing bus stop when the intersection improvements are constructed.

Proposed Route 8: Service to northeast Bend is planned to travel along NE 8th Street to connect northeast Bend to the primary transit network. This Route is needed due to the existing demand along Route 4 that serves Juniper Ridge. The goal identified in the TMP is to initiate a microtransit pilot to test demand and build an understanding of traffic patterns for a potential new fixed route. The following summarizes the proposed Route 8 changes:

- In the mid-term (2030) to long-term (2040), CET is planning to provide a new route connecting northeast Bend to NE 8th Street and Boyd Acres Road, serving Cascade Village and/or Juniper Ridge, as well as downtown and Hawthorne Station.
- This is expected to eliminate the need for Route 4.

Any intersection improvements recommended as part of this project should accommodate existing and future planned transit service along NE 4th Street and NE 8th Street while providing safe walking and biking access to transit stops in the area.

Bend Area Transportation Safety Action Plan

The Bend Area Transportation Safety Action Plan (TSAP) is the City's specific action plan that was developed to aid the City and partnering agencies in protecting people traveling within

Bend from injuries. The TSAP evaluates crash trends and issues based on current data and identifies a broad range of treatments including projects, policies, and programs to address identified issues. Relative to the study area for this memorandum, the TSAP identifies:

- NE 3rd Street and NE Revere Avenue intersection is listed as part of the top 25 sites for safety improvements.
- NE 4th Street and NE Revere Avenue intersection is a top 10 percent site in the City for equivalent property damage only (EPDO) scores (a measure that considers both collision severity and frequency).
- NE 4th Street corridor north of the NE 4th Street and NE Revere Avenue intersection is a location for Excess Dark (No Lights) Collision Sites and in the top 10 percent site in the City for equivalent property damage only (EPDO) scores (a measure that considers both collision severity and frequency).
- NE 4th Street corridor as having a bicycle level of traffic stress 1 (indicating a safe and comfortable bicycling environment).
- NE 8th Street corridor as having a bicycle level of traffic stress of 3 and 4 (indicating a stressful bicycling environment)
- NE 8th Street and NE Olney Avenue is listed as a top 10 percent site in the City for equivalent property damage only (EPDO) scores (a measure that considers both collision severity and frequency)
- NE 8th Street and NE Revere Avenue is identified as an Excess Angle Collision Site

No specific projects, policies, or programs were discussed to address the issues at the study intersections in this memorandum.

Analysis Methodology

All analysis was conducted based on methodology documented in the methodology memorandum¹. There were several alternatives analyzed for each of the study intersections to improve the overall corridor.

Additional Assumptions

The findings and recommendations enclosed in this project evaluation report are based on the following assumptions:

- Planning-level intersection concepts are included as part of the alternatives analysis (representing less than 10 percent design).
- The traffic analysis reflects the PM peak hour, as it was observed to be higher in motor vehicle volume than the AM peak hour. Traffic volumes along NE 8th Street were adjusted for the analysis, as field observations completed in March 2022 found an increase in congestion along the corridor compared to the date the counts were taken.
- All the roundabout concepts considered WB-50 or WB-67 design vehicles (a semi-trailer truck).

¹ Go Bond Project Scoping: Draft Methodology Memorandum, January 17, 2022

Analysis and Operations Review

This section provides an overview of key findings and outcomes of analysis and operations of existing and future no-build conditions of the study intersections. It includes traffic operations, crash history, pedestrian and bicyclist network, and access analysis. The purpose is to identify and confirm needs that should be addressed by the preferred alternative.

Existing Intersection Operations

The existing roadway characteristics near the study intersection are shown in Table 1. All four roadways had two travel lanes, sidewalks, and a posted speed of 25 mph.

Table 1: Existing Roadway Characteristics

Roadway	Functional Classification ^A	Posted Speed (mph)	Number of Travel Lanes	Sidewalks	Bike Lanes
NE 4 th Street	Collector	25	2	Yes	Sharrows, then bike lanes north of NE Revere Avenue
NE 8 th Street	Minor Arterial	25	2	Yes	Yes
NE Olney Avenue	Minor Arterial	25	2	Yes	Yes
NE Revere Avenue	Minor Arterial	25	2	Yes (North side of street)	Yes

^A From the City of Bend Transportation Plan Roadway Functional Classification Map.

Traffic Volumes

Turning movement counts for the AM peak period (7:00-9:00 AM) and PM peak period (4:00-6:00 PM) were collected on October 12, 2021. These counts included passenger vehicles, heavy vehicles, pedestrians, and bicyclists and represent average weekday conditions. Appendix A includes the traffic count worksheets. The PM peak hour for each of the study intersections generally occurred between 4:30-5:30 PM. Figure 7 shows the existing (2021 with adjustments) traffic volumes and lane configurations for each of the study intersections.



Figure 7: Existing (2021) Traffic Volumes and Lane Configuration

Intersection Operations Results

Intersection operations were evaluated at each of the four study intersections, as well as two intersections at 3rd Street at Revere Avenue and Olney Avenue. The proximity and high volumes of NE 3rd Street were found to affect the NE 4th Street study intersections. The PM peak hour conditions were then analyzed using the Highway Capacity Manual (HCM) 6th edition methodologies using Synchro software. Several performance measures are reported, including delay, level-of-service (LOS), and volume-to-capacity (v/c) ratio.

Table 2 shows the existing (2021) intersection operations for all six intersections, including NE 3rd Street. Both NE 4th Street and NE Revere Avenue, and NE 8th Street and NE Revere Avenue do not meet City of Bend mobility standards for all-way stop control intersections, with average delay exceeding 50 seconds. See Appendix B.1 for existing intersection operations.

The westbound left turn lane NE 4th Street and NE Revere Avenue intersection operates with a v/c of 1.15 while the southbound approach at NE 8th Street and NE Revere Avenue intersection operates with a v/c ratio of 1.18. It is likely that drivers at both intersections are likely entering the intersection more aggressively than Highway Capacity Manual 6th Edition defaults.

Table 2: Existing (2021) PM Peak Hour Intersection Operations

Intersection	Control ^A	Mobility Standards	LOS	Delay (s)	v/c
NE 3 rd Street & NE Revere Avenue	Signalized	≤ 0.90 v/c	D	36	0.74
NE 3 rd Street & NE Olney Avenue	Signalized	≤ 0.90 v/c	C	30	0.70
NE 4 th Street & NE Revere Avenue	AWSC	≤ 50s delay	F	130	1.15
NE 4 th Street & NE Olney Avenue	AWSC	≤ 50s delay	D	32	0.78
NE 8 th Street & NE Olney Avenue	Signalized	≤ 1.0 v/c	C	33	0.92
NE 8 th Street & NE Revere Avenue	AWSC	≤ 50s delay	F	121	1.18

^A AWSC = All-way stop control

Bold and Red indicates failing to meet ODOT or City of Bend standards.

Queueing

Table 3 summarizes the worst 95th percentile queue for each approach of the study intersections and for NE 3rd Street (US 20), rounded to the nearest 25 feet. Most of the queues are well short of the next nearest intersection. The 95th percentile queues for westbound NE Olney Avenue/ NE 3rd Street spills back beyond 4th Street today. Southbound queues at NE 8th Street at NE Revere Avenue spill back beyond NE Quimby Avenue but do not extend to NE Olney Avenue. This was consistent with field observations.

Table 3: Existing (2021) PM Peak Hour Queueing (95th Percentile / Average)

Intersection	Control ^A	Northbound	Eastbound	Westbound	Southbound
NE 3 rd Street & NE Revere Avenue	Signal	500 / 300	425 / 250	225 / 150	325 / 225
NE 3 rd Street & NE Olney Avenue	Signal	400 / 275	500 / 275	>400 / >250	325 / 175
NE 4 th Street & NE Revere Avenue	AWSC	250 / 125	225 / 125	400 / 175	200 / 100
NE 4 th Street & NE Olney Avenue	AWSC	100 / 75	175 / 100	250 / 150	125 / 75
NE 8 th Street & NE Revere Avenue	AWSC	425 / 200	125 / 75	100 / 50	625 / 300
NE 8 th Street & NE Olney Avenue	Signal	550 / 300	375 / 225	400 / 200	350 / 200

^A AWSC = All-way stop control

Bold and Red indicates queue spillback to the next major intersection or exceed 800 feet.

Safety Evaluation

The safety evaluation includes the most recent available six years of crash data, from 2015 to 2020. The project reviewed six years of crash data, rather than the typical five, due to the change in traffic volumes in 2020 because of the COVID 19 pandemic. The information is summarized in the following sections, with tables for intersection crashes by severity and 90th percentile crash rate comparison.

The observed crash rate for intersections is a function of the number of crashes and the annual average daily traffic (AADT). The crash rate (crashes per million entering vehicles) for the study intersection was compared to a critical crash rate (90th percentile crash rate of similar intersections throughout the state).²

The crashes that occurred at the study intersections are summarized in Table 4. While there were no fatal crashes at any of the intersections, there was a turning crash that resulted in an incapacitating injury at NE 8th Street and NE Olney Avenue in 2017. There was one recorded pedestrian crash at NE 4th Street and NE Revere Avenue, in 2016, that resulted in non-incapacitating injury and no bicyclist-involved crashes reported at any of the study intersections.

Table 4: Intersection Crashes by Severity (2015-2020)

Intersection	Severity					Total
	Fatal	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage Only	
NE 4 th Street & NE Revere Avenue	0	0	3	3	9	15
NE 4 th Street & NE Olney Avenue	0	0	1	4	5	10
NE 8 th Street & NE Revere Avenue	0	0	1	6	8	15
NE 8 th Street & NE Olney Avenue	0	1	2	12	12	27
Total	0	1	7	25	34	67

As listed in Table 5, the intersections of NE 4th Street and NE Revere Avenue and NE 8th Street and NE Revere Avenue have an observed crash rate higher than the 90th percentile crash rate of similar sites in Oregon.

² Obtained from Oregon Department of Transportation's *Analysis Procedures Manual*, Exhibit 4-1

Table 5: 90th Percentile Crash Rate Comparison (2015-2020)

Intersection	Total Crashes	90 th Percentile Crash Rate	Observed Crash Rate	Observed > 90 th Rate?
NE 4 th Street & NE Revere Avenue	15	0.41	0.43	Yes
NE 4 th Street & NE Olney Avenue	10	0.41	0.37	No
NE 8 th Street & NE Revere Avenue	15	0.41	0.42	Yes
NE 8 th Street & NE Olney Avenue	27	0.58	0.52	No

Pedestrian and Bike Network

The following text describes existing pedestrian and bicycle conditions within the general study area.

NE 4th Street Corridor

The NE 4th Street corridor, south of the NE 4th Street and NE Revere Avenue intersection, has bike sharrows and sidewalks with curb ramps on both sides of the street. North of the NE 4th Street and NE Revere Avenue intersection, the corridor has north- and south-traveling bike lanes and a sidewalk on the east side of the street. The bike lanes are not buffered from the travel lane. NE 4th Street is identified as a part of the LSN, as shown in Figure 6 above.

NE 8th Street Corridor

The NE 8th Street corridor has no bike lanes. Both sides of the road have sidewalks, except for a small unpaved section on the southeast side of the NE 8th Street and NE Revere Avenue intersection. The sidewalks at the intersections have curb ramps with truncated domes.

NE Revere Avenue Corridor

The NE Revere Avenue corridor has east- and west-traveling bike lanes, and sidewalks with curb ramps, but no truncated domes, along the north side of the corridor between the study corridors, NE 8th Street and NE 4th Street. West, past the NE 4th Street and NE Revere Avenue intersection, sidewalks with curb ramps and truncated domes are along both sides of the road and there are no bike lanes. The bike lanes begin 250 feet east of the NE 4th Street and NE Revere Avenue intersection. The bike lanes are not buffered from the travel lane.

NE Olney Avenue Corridor

The NE Olney Avenue corridor has bike lanes and sidewalks with curb ramps and truncated domes along both sides of the corridor. The bike lanes are not buffered from the travel lane. NE Olney Avenue (west of NE 6th Street) and NE Norton Avenue (east of NE 6th Street) is identified as a Key Walking and Bicycling Route. East of 6th Street, there are large retaining walls along NE Olney Avenue that make widening NE Olney Avenue to accommodate a Key Route extremely challenging and costly. Therefore, the Key Route uses NE 6th Street to connect to NE Norton Avenue east of NE 6th Street.

Access Analysis

The four figures below show each of the study intersections and access points (driveways) near the intersections.

NE 4th Street and NE Olney Avenue

There are two driveways to the two different private businesses on the southwest corner are located within 100 feet of the intersection (see Figure 8). One driveway is along NE Olney Avenue and the other driveway is along NE 4th Street. As these are single entrance and exits to these businesses with no infrastructure for relocation, they will remain in their existing locations.



Figure 8: Access Analysis – NE 4th Street & NE Olney Avenue (Source: Google Earth)

NE 4th Street and NE Revere Avenue

There are two driveways to the two different private businesses are located with approximately 100 feet of the intersection (see Figure 9):

- The driveway along NE Revere Avenue is a single entrance.
- The driveway along NE 4th Street is one of many for the Albertsons grocery store. However, this driveway provides access to the nearby loading dock. An understanding of site circulation will be needed before potentially modifying this access.



Figure 9: Access Analysis – NE 4th Street & NE Revere Avenue (Source: Google Earth)

NE 8th Street and NE Olney Avenue

There are five driveways within 100 feet of the intersection, as shown in Figure 10:

- Two are for the same private business on the northeast corner and are located within 100 feet of the intersection. One driveway is along NE 8th Street (1) and the other is along NE Olney Avenue (2).
- Two driveways (3, 4) are for individual homes along the southeast corner of the intersections.
- One driveway serving two homes is located on the southwest corner, along NE 8th Street (5).



Figure 10: Access Analysis – NE 8th Street and NE Olney Avenue (Source: Google Earth)

NE 8th Street and NE Revere Avenue

There are three driveways within 100 feet of the intersection (see Figure 11):

- The driveway is along NE 8th Street on the northwest corner of the intersection is the only driveway to a residential home, therefore it cannot be closed.
- The two driveways at the southwest corner of the intersection are close to each other and serve the same residential home.



Figure 11: Access Analysis – NE 8th Street and NE Revere Avenue (Source: Google Earth)

Equity Evaluation

The Bend Transportation Bond Oversight Committee (TBOC) has Project Evaluation Criteria³, including an evaluation for equity. The following scores listed in Table 6 were provided for the equity evaluation criteria for this project. There is expected to be a moderate positive impact on equity with the implementation of these intersection improvement projects.

Table 6: Equity Evaluation Results for NE 4th Street and NE 8th Street Intersection Improvements

Equity Evaluation Criteria	Score	Notes
Transportation Access for Underserved Populations	●	Scored by TBOC
Transportation impacts on the community	●	Scored by TBOC
Reduce pollution of Bend's air and water, with a focus on the impacts to vulnerable populations	○	Limited impact on reducing pollution
Access to key destinations	◐	Minor improvement to connectivity for cyclists to/from commercial area on 3 rd Street

- The project clearly supports the criterion and/or makes substantial improvements in the criteria category
- ◐ The project partially supports the criterion and/or makes moderate improvements in the criteria category.
- The project does not support the intent of, provides minor or incidental benefit and/or negatively impacts the criteria category.

³ https://bend.granicus.com/MetaViewer.php?view_id=18&event_id=676&meta_id=51774

2040 No Build Conditions

Future Traffic Volumes

The regional travel demand model was used to forecast growth in traffic volumes to 2040. From the model, there is significant traffic growth expected in the area in the future. NE Olney Avenue is one of the few crossings of the Deschutes River and provides a connection to St. Charles Hospital, while NE Revere Avenue provides a direct connection to US 97. In addition, NE 3rd Street (US 20), could see an increase in traffic if ramp metering is implemented along the Bend Parkway (US 97) as planned within the Bend Parkway Plan. Denser development is also expected in the Bend Central District in the future, which includes NE 4th Street.

Traffic volumes along NE 4th Street are forecasted to grow by approximately 40 to 45 percent by 2040, while volumes along NE 8th Street are projected to grow by approximately 20 to 25 percent. Traffic on NE Revere Avenue is also projected to grow by 20 to 25 percent, while NE Olney Avenue has a forecasted growth of 55 to 60 percent. Figure 12 shows the future (2040) PM Peak Hour traffic volumes for each of the study intersections.

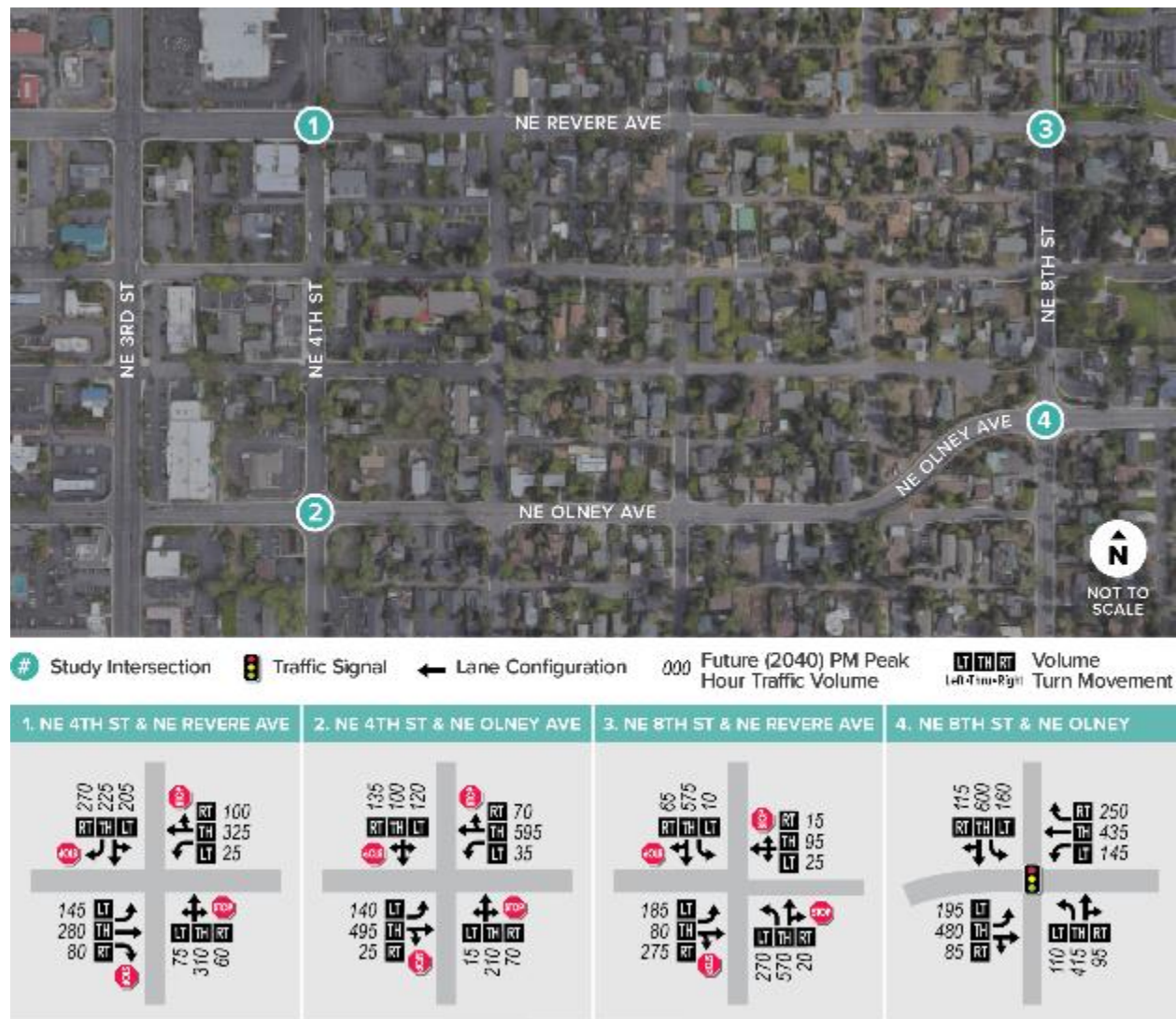


Figure 12: Future (2040) PM Peak Hour Traffic Volumes

Intersection Operations Results

Table 7 shows the future (2040) No Build intersection operations for all four study intersections, as well as the two intersections at NE 3rd Street. All intersections in the future no build (2040) except NE 3rd Street and NE Revere Avenue, fail to meet ODOT and City of Bend mobility standards for all-way stop control and signalized intersections. See Appendix B.2 for future no build intersection operations.

Table 7: Future No Build (2040) PM Peak Hour Intersection Operations

Intersection	Control ^A	Mobility Standards	Existing (2021)			Future No Build (2040)		
			LOS	Delay (s)	v/c ^B	LOS	Delay (s)	v/c ^B
NE 3 rd Street & NE Revere Avenue	Signalized	≤ 0.90 v/c	D	36	0.74	D	36	0.86
NE 3 rd Street & NE Olney Avenue	Signalized	≤ 0.90 v/c	C	30	0.70	E	71	1.05
NE 4 th Street & NE Revere Avenue	AWSC	≤ 50s delay	F	130	1.15	F	214	1.47
NE 4 th Street & NE Olney Avenue	AWSC	≤ 50s delay	D	32	0.78	F	320	1.70
NE 8 th Street & NE Olney Avenue	Signalized	≤ 1.0 v/c	C	33	0.92	E	64	1.10
NE 8 th Street & NE Revere Avenue	AWSC	≤ 50s delay	F	121	1.18	F	253	1.54

^A AWSC = All-way stop control

^B v/c = Volume-to-capacity ratio, or the degree of saturation an intersection experiences, otherwise defined as the sufficiency of an intersection to accommodate the vehicular demand.

Bold and Red indicates failing to meet ODOT or City of Bend standards.

Queueing

Table 8 summarizes the longest 95th percentile queue for each approach of the study intersections, rounded to the nearest 25 feet. Given the proximity to NE 3rd Street (US 20), the analysis also considered any future potential queuing impacts between NE 3rd Street and NE 4th Street. The impact of queuing from NE 3rd Street and NE Olney Avenue is significant in the future, with many queues spilling through other intersections.

Table 8: Future (2040) PM Peak Hour Queuing (95th Percentile / Average)

Intersection	Control ^A	Northbound	Eastbound	Westbound	Southbound
NE 3 rd Street & NE Revere Avenue	Signal	575 / 450	400 / 250	300 / 150	475 / 300
NE 3 rd Street & NE Olney Avenue	Signal	>800 / >800	>800 / >800	>450 / >350	>800 / 500
NE 4 th Street & NE Revere Avenue	AWSC	>800 / 550	225 / 150	>800 / 700	>800 / 700
NE 4 th Street & NE Olney Avenue	AWSC	350 / 125	375 / 200	>800 / >800	300 / 125
NE 8 th Street & NE Revere Avenue	AWSC	775 / 425	175 / 100	100 / 75	>800 / >800
NE 8 th Street & NE Olney Avenue	Signal	>800 / 500	600 / 325	>800 / >800	500 / 300

^A AWSC = All-way stop control

Bold and Red indicates a queue spillback to the next major intersection or exceed 800 feet.

System Level Needs and Constraints Summary

- Queues from NE 3rd Street and NE Olney Avenue intersections spill back into NE 4th Street and NE Olney in the future.
- Transit routes are planned along the NE 4th Street and NE 8th Street corridors and should be accommodated in any intersection design, including safe walking and biking access to transit stops.
- A section of NE Olney Avenue, west of NE 6th Street, has been identified as a Key Walking and Biking Route.
- NE 4th Street is part of the LSN. NE Revere Avenue and NE Olney Avenue, west of NE 6th Street, are also part of the LSN.

Intersection Level Needs and Constraints Summary

- There is limited right-of-way today at NE 4th Street and NE Olney Avenue due to retaining walls on all four corners of the intersection.
- There is limited right-of-way today at NE 8th Street and NE Olney Avenue due to retaining walls along the west leg and houses adjacent to the intersection.
- Both study intersections along NE Revere Avenue (NE 4th Street and NE 8th Street) have an observed crash rate higher than the 90th percentile crash rate of similar sites in Oregon.
- Intersection operations at all study intersections, except NE 3rd Street and NE Revere Avenue, fail to meet City of Bend standards in the future (2040).
- Without any additional improvements, 95th percentile queuing in the future (2040) is significant at all study intersections, with many queues spilling back into other intersections.

NE 4th Street Alternatives Evaluation

The following section describes an evaluation of alternatives along NE 4th Street at NE Revere Avenue and NE Olney Avenue. These intersections are discussed together due to their proximity to NE 3rd Street, which results in significant queuing impacts on the NE 4th Street intersections. Both intersections also have similar surrounding land use contexts, with a mix of commercial and residential buildings. Therefore, similar improvements to the intersections will likely need to be considered along NE 4th Street.

Alternatives Description

Two alternatives were considered for the intersections along NE 4th Street: traffic signals and roundabouts.

Traffic Signal Concepts

Signalized intersection concepts are shown in Appendix C to highlight the potential right-of-way footprint needed at both intersections. At NE 4th Street and NE Revere Avenue, the conceptual design depicts:

- Approximately 200-foot left turn lanes on the north and south legs to provide the opportunity for protected left turn phases and an optional right turn lane on the north leg. The east and west legs would retain their existing configuration.
 - This would require additional right-of-way and likely impact the parking lot in the northwest corner.
 - Adding left turn lanes on the northbound and southbound approaches would help manage vehicle queuing and allow for protected pedestrian crossings of the east and west legs.
- The signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. The concept figure shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.

At NE 4th Street and NE Olney Avenue, the conceptual design includes the following considerations:

- The east, west, and south legs of the intersection would retain their existing configurations. Approximately 200-foot right turn lane added to the north leg of the intersection to address queuing issues (discussed in more detail below in the intersection operations performance).
 - This would require additional right-of-way and impacts to the existing retaining walls. Due to an existing parking lot and retaining wall on the northwest corner of the intersection, the concept shows the road widened to the east to reduce potential impacts.
- Similar to the NE 4th Street and NE Revere Avenue intersection, the signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. The concept figure shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.

- As there is a CET bus stop near the NE 4th Street and NE Olney Avenue intersection that will be retained for Route 5, the intersection improvement should accommodate the stop somewhere near its existing location.

Cost estimates were developed based on general knowledge from the consultants of recent costs for the design and construction of similar facilities. It is expected that a signalized intersection would cost approximately \$1.5 to \$2.5 million per intersection. These cost estimates should be refined as design concepts are further advanced to include additional detail, including the need for and cost of right-of-way and new retaining walls.

Roundabout Concepts

The single-lane roundabout concepts are shown in Appendix C to highlight the potential right-of-way footprint needed at both intersections. Due to the westbound queuing impact from NE 3rd Street, it is most likely that in the long term, the roundabouts at both intersections would need to be signalized (not shown in the concepts) to allow westbound vehicles to clear through the intersection and avoid backups back to NE 3rd Street (discussed in more detail below in the intersection operations performance).

The NE 4th Street and NE Revere Avenue single-lane roundabout concept includes the following design features:

- 130 feet in diameter, with 20-foot entry and exit lanes on all approaches and 14-foot offsets for sidewalk and buffer.
- The concept is shifted north to have as little impact as possible on existing structures on the southwest and southeast corners.

The NW 4th Street and NE Olney Avenue roundabout concept includes the following design features:

- 88 feet in diameter to fit approximately within the existing retaining walls. It has 14-foot entry and exit lanes on all approaches, with a fully mountable splitter and center island (meeting the definition of a mini roundabout in the 2024 City of Bend Roundabout Design Manual⁴).
 - The northeast and southeast corners have significant grade drops behind the sidewalk with existing retaining walls, which could significantly increase costs. Note that pedestrians are currently protected from the existing grade drop by a fence.

Cost estimates were developed based on input from the City of Bend on recent costs for the design and construction of similar facilities. It is expected that a single lane roundabout would cost approximately \$2.5 to \$3.5 million while signaling a roundabout would cost approximately \$0.5 to \$1.0 million, for a total of \$3.0 to \$4.5 million per intersection. These cost estimates should be refined as design concepts are further advanced to include additional detail, including the need for and cost of right-of-way and new retaining walls.

Since the initial development of this report in 2023, the City of Bend has released an updated Roundabout Design Manual. Within the manual, it defines a mini roundabout and where mini roundabouts should be considered in Bend (primarily low-speed and low-volume corridors). Due to the higher traffic volumes and functional classification of the streets, a mini roundabout is not recommended for evaluation for these intersections based on the City's *Intersection Control Evaluation Scoping Form* in the Design Manual.

⁴City of Bend, *Roundabout Design Manual* (2024)

Alternatives Performance

Safety

In general, both intersection treatments are expected to enhance safety compared to the existing all-way stop controlled intersections. Signalized intersections have the potential to reduce angle crashes by up to 67 percent⁵, but can increase rear end crashes by up to 143 percent⁶. While there is an increase in rear end crashes, angle crashes are more likely to cause severe injury than rear end crashes. A signal can also provide an opportunity for enhanced pedestrian and bicycle improvements. This could include signal timing treatments such as leading pedestrian intervals (LPIs), which give people walking the opportunity to enter the crosswalk 3 to 7 seconds before vehicles are given a green indication. The addition of leading pedestrian intervals can reduce crashes with pedestrians and bicyclists by up to 37 percent⁷.

Roundabouts have the potential to reduce injury crashes by up to 82 percent⁸ from all-way stop control intersections. Roundabouts can further aid in controlling vehicle speeds and provide a refuge island for people walking and biking, which can improve walking and bicycling levels of traffic stress.

Existing and Future Intersection Operations and Queuing

Table 9 lists the operational results of a single-lane roundabout and a signalized intersection, at NE 4th Street and NE Revere Avenue and NE 4th Street and NE Olney Avenue, as compared to no-build conditions. See Appendix B.3 for Alternatives Intersection Operations.

At NE 4th Street and NE Revere Avenue, the existing and future all-way stop control does not meet City of Bend mobility standards for delay (50 seconds). Both the signalized intersection and the single-lane roundabout meet mobility standards, with the single-lane roundabout operating with slightly less delay than the signalized intersection. Note the results shown in Table 9 do not consider queueing back from NE 3rd Street and a mini roundabout may operate with more delay than the standard roundabout that was analyzed.

At NE 4th Street and NE Olney Avenue, the all-way stop control with future traffic volumes, does not meet City of Bend mobility standards for delay (50 seconds). Both the signalized intersection and the roundabout meet mobility standards, with the roundabout operating with slightly less delay than the signalized intersection. Note the results shown in Table 9 do not consider queueing impacts from NE 3rd Street.

⁵ ODOT Crash Reduction Factor List, 2020, CMF ID: 323

⁶ ODOT Crash Reduction Factor List, 2020, CMF ID: 324

⁷ ODOT Crash Reduction Factor List, 2020, CMF Clearinghouse, Safety Effectiveness of Leading Pedestrian Intervals Using Empirical Bayes Method

⁸ ODOT Crash Reduction Factor List, 2020, CMF ID: 228

Table 9: Intersection Operations at both NE 4th Street intersections

	Year	Control ^A	P.M. Peak Hour Results		
			LOS	Delay (s)	v/c
NE 4 th Street and NE Revere Avenue	Existing (2021)	All-way stop control	F	130	1.15
		Signalized intersection	B	18	0.77
		Single-lane roundabout ^B	A	9	0.51
	Future (2040)	All-way stop control	F	214	1.47
		Signalized intersection	C	23	0.87
		Single-lane roundabout ^B	B	14	0.75
NE 4 th Street and NE Olney Avenue	Existing (2021)	All-way stop control	D	32	0.78
		Signalized intersection	A	10	0.61
		Single-lane roundabout ^B	A	7	0.38
	Future (2040)	All-way stop control	F	320	1.70
		Signalized intersection	B	16	0.84
		Single-lane roundabout ^B	B	13	0.71

^A Overall intersection LOS and delay reported for all-way stop control, signalized, and roundabout intersections. Worst Major Street/Minor Street v/c reported for all-way stop control intersections. Worst approach v/c reported for signalized and roundabout intersections.

^B The single-lane roundabouts overstate available capacity, as they do not take the significant queuing impacts from NE 3rd Street into consideration. The analysis also assumes a full-size roundabout, while NE 4th Street and NE Olney Avenue would operate more like a mini-roundabout.

Bold and Red indicates failing to meet City of Bend standards.

Table 10 compares the existing (2021) and future (2040) 95th percentile and average queues with an all-way stop control, a signalized intersection, and a single-lane roundabout at NE 4th Street and NE Revere Avenue. Note the results shown in Table 10 do not consider queuing back from NE 3rd Street with the single-lane roundabout, while the all-way stop control and signalized intersection do. This table shows that a signalized intersection will have queuing impacts in the future, but would be more feasible than a roundabout, which would be unable to operate at the necessary capacity for the area. The signalized intersection queuing can be improved with coordination of the signal at NE 3rd Street and NE Revere Avenue. Note that a sensitivity test was conducted that indicated the southbound right turn lane at the signalized intersection would be optional and removing that right turn lane would not result in a significant operational impact in the 20-year planning horizon.

Table 10: Queuing (95th Percentile / Average) NE 4th Street and NE Revere Avenue

Year	Control	Northbound	Eastbound	Westbound	Southbound
Existing (2021)	All-way stop control	250 / 100	225 / 125	400 / 175	200 / 100
	Signalized intersection	175 / 100	200 / 100	250 / 150	125 / 75
	Single-lane roundabout ^A	50 / NA	50 / NA	50 / NA	75 / NA
Future (2040)	All-way stop control	>800 / 550	225 / 150	>800 / 700	>800 / 700
	Signalized intersection	275 / 150	200 / 125	300 / 175	175 / 75
	Single-lane roundabout ^A	100 / NA	100 / NA	75 / NA	275 / NA

^A The single-lane roundabouts overstate available capacity, as they do not take the significant queuing impacts from NE 3rd Street into consideration.

Bold and Red indicates queue spillback to the next major intersection or exceed 800 feet.

Table 11 compares the existing (2021) and future (2040) 95th percentile and average queues with an all-way stop control, a signalized intersection, and a single-lane roundabout at NE 4th Street and NE Olney Avenue. The single-lane roundabout overstates available capacity, as it does not take the significant queuing impacts from NE 3rd Street into consideration. This table shows that a signalized intersection will have queuing impacts in the future, but would be more feasible than a roundabout, which would be unable to operate at the necessary capacity for the area. The signalized intersection queuing can be improved with coordination of the signal at NE 3rd Street and NE Olney Avenue. Note that a sensitivity test was conducted that indicated the southbound right turn lane at the signalized intersection would not be needed in the near-term but would provide additional queue storage within the 20-year planning horizon as congestion from NE 3rd Street constantly spills back to NE 4th Street.

Table 11: Queuing (95th Percentile / Average) NE 4th Street and NE Olney Avenue

Year	Control	Northbound	Eastbound	Westbound	Southbound
Existing (2021)	All-way stop control	100 / 75	175 / 100	250 / 150	125 / 75
	Signalized intersection	125 / 75	175 / 75	300 / 150	125 / 75
	Single-lane roundabout ^A	25 / NA	50 / NA	300 / 150 ^A	25 / NA
Future (2040)	All-way stop control	350 / 125	375 / 200	>800 / >800	300 / 125
	Signalized intersection	375 / 175	300 / 150	>800 / >800	450 / 200
	Single-lane roundabout ^A	50 / NA	150 / NA	>800 / >800 ^A	50 / NA

^A The single-lane roundabout results understate queuing, as they do not take the significant queuing impacts from NE 3rd Street into consideration. Westbound queue results were adjusted to match signalized intersection queuing to better take NE 3rd Street queuing into consideration.

Bold and Red indicates queue spillback to the next major intersection or exceed 800 feet.

NE 4th Street Findings and Recommendations

NE 3rd Street causes significant queuing back through the NE 4th Street study intersections along NE Olney Avenue. A roundabout would be frequently blocked by the westbound traffic stopped at NE 3rd Street, possibly blocking access at the roundabout and leading to queuing back into the NE 3rd Street intersection. If a roundabout was installed, it would likely require signalization on all approaches to ensure the intersections remain clear. Additionally, the traffic signals can be coordinated with the NE 3rd Street traffic signals to improve queuing and traffic flow in the area.

Furthermore, a roundabout would have significant right-of-way impacts, potentially necessitating a rebuild of the four retaining walls at the NE 4th Street and NE Olney Avenue intersection. Traffic signals along NE 4th Street would have a smaller right-of-way impact on existing retaining walls, reducing the overall cost for improvements. With the budget allocated for the improvements to the four intersections, it would not be feasible to build four roundabouts given the right-of-way constraints. Therefore, signalized intersections are recommended along NE 4th Street.

At NE 4th Street and NE Revere Avenue:

- Figure 1 shows the approximate intersection footprint. It is recommended along the north and south legs that an approximately 200-foot left turn lane be constructed to provide the opportunity for protected left turn phases. The east and west legs would retain their existing lane configuration.
- Figure 1 also includes an optional right turn lane on the north leg. This could be constructed if needed in the future to reduce queuing and/or to support implementation of a particular pedestrian or bicyclist crossing treatment.

- Enhanced intersection lighting is recommended at this intersection to address a history of crashes that occur in the dark, as identified by the Bend Transportation Safety Action Plan (TSAP).
- The signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. Figure 1 shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.

At NE 4th Street and NE Olney Avenue:

- Figure 2 shows the approximate intersection footprint. The east, west, and south legs of the intersection would retain their existing configurations. On the north leg, a 200-foot right turn lane is recommended to help address future queueing issues on 4th Street. While not needed in the near-term, the right turn lane will help provide queue storage in the 20-year planning horizon as 3rd Street congestion spills back to 4th Street.
 - Given the right-turn lane is not needed in the near-term, the added turn lane could be added in the future when needed to address congestion issue and/or to support implementation of a particular pedestrian or bicyclist crossing treatment.
- The signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements. Figure 1 shows an example of how some of these improvements could be implemented but additional design and community feedback is still needed.
- As there is a CET bus stop near the NE 4th Street and NE Olney Avenue intersection that will be retained for Route 5, the intersection improvement should accommodate the stop somewhere near its existing location.

8th Street Alternatives Evaluation

The following section describes an evaluation of alternatives along NE 8th Street at NE Revere Avenue and NE Olney Avenue. These intersections are discussed together due to their proximity and similar surrounding land use contexts, with primarily residential buildings. Therefore, similar improvements will likely need to be considered along NE 8th Street.

Alternatives Description

Two alternatives were considered for the intersections along NE 8th Street: traffic signals and roundabouts.

Signals

Signalized intersection concepts are shown in Appendix D to highlight the potential right-of-way footprint needed at both intersections. At NE 8th Street and NE Revere Avenue, the conceptual design includes the following parameters:

- A through-right and left turn lanes on all approaches.
- The east leg of the intersection is shown to be reconstructed to be in-line with the west leg of the intersection, requiring additional right-of-way and likely impacting a few existing trees, but no structures.
- While not shown in the concept, the signalized concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements.

At NE 8th Street and NE Olney Avenue, the conceptual design includes the following parameters:

- An added 150-foot right turn lane be added to the north leg of the intersection. The east, west, and south legs of the intersection would retain their existing configurations.
 - This improvement is recommended due to significant queuing impacts from right-turning vehicles that are headed southbound.
 - This would require additional right-of-way, likely impacting the community park on the northwest corner of the intersection.
- Similar to NE 8th Street and NE Revere Avenue, the concept design could include a variety of possible multimodal improvements for pedestrians and bicyclists, such as pedestrian and bicycle detection, bike boxes, leading pedestrian intervals, and ADA curb ramp improvements.

Cost estimates were developed based on general knowledge from the consultants of recent costs for the design and construction of similar facilities. It is expected that a signalized intersection would cost approximately \$1.0 to \$2.0 million per location. These cost estimates should be refined as design concepts are further advanced to include additional detail, including the need for and cost of right-of-way.

Roundabouts

The roundabout concepts are shown in Appendix D to highlight the potential right-of-way footprint needed at both intersections. At NE 8th Street and NE Revere Avenue, the conceptual design includes the following parameters:

- A single-lane roundabout that is 130 feet in diameter, with 20-foot entry and exit lanes on all approaches and 14-foot offsets for sidewalk and buffer.
- The roundabout is shown shifted north to have as little impact as possible on existing structures on the southwest and southeast corners.

Three different roundabout designs were evaluated at NE 8th Street and NE Olney Avenue:

- A single lane roundabout, centered on existing intersection that is 130-feet in diameter, accommodates a WB-67 truck, with 20-foot entry and exit lanes on all approaches.
- A partial multi-lane roundabout with right turn slip lanes, shifted north to minimize southeast and southwest building impacts that is 150-feet in diameter, accommodates a WB-50 truck, with multi-lane entry on north, east, and west approaches, single 20-foot exits on all approaches
- A full multi-lane roundabout, shifted north to minimize southeast and southwest building impacts that is 165-feet in diameter, accommodates a WB-67 truck, dual lane entry and exits on all approaches.

When the roundabout is centered on the intersection, there are right-of-way impacts on all corners, with one structure impacted on the southeast corner. When the roundabout is shifted north, it further impacts a private business parking lot on the northeast, a community park on the northwest, and part of the structure to the southeast in some concepts.

Cost estimates were developed based on input from the City of Bend on recent costs for the design and construction of similar facilities. It is expected that a single lane roundabout would cost approximately \$2.5 to \$3.5 million while a multi-lane roundabout would cost between \$5.0 to \$6.0 million. These cost estimates should be refined as the design concepts are further advanced to include additional detail, including the need for and cost of right-of-way.

Since the initial development of this report in 2023, the City of Bend has released an updated Roundabout Design Manual. Within the manual, it adds the concept of a mini roundabout for use on low-speed corridors. Due to the higher traffic volumes and functional classification of the streets, a mini roundabout is not recommended for evaluation at these intersections based on the City's *Intersection Control Evaluation Scoping Form* in the Design Manual.

Alternatives Performance

Safety

In general, both intersection treatments are expected to enhance safety compared to the existing all-way stop controlled intersection at NE 8th Street and NE Revere Avenue. Signalized intersections have the potential to reduce angle crashes by up to 67 percent⁹, but can increase rear end crashes by up to 143 percent¹⁰. While there is an increase in rear end crashes, angle crashes are more likely to cause severe injury than rear end crashes. A signal can also provide an opportunity for enhanced pedestrian and bicycle improvements. This could include signal timing treatments such as leading pedestrian intervals (LPIs), which give people walking the opportunity to enter the crosswalk 3 to 7 seconds before vehicles are given a green indication. The addition of leading pedestrian intervals can reduce crashes with pedestrians and bicyclists by up to 37 percent¹¹.

Roundabouts have the potential to reduce injury crashes by up to 82 percent¹² from all-way stop control intersections. Roundabouts can further aid in controlling vehicle speeds and provide a refuge island for people walking and biking, which can improve walking and bicycling levels of traffic stress.

Existing and Future Intersection Operations and Queuing

Table 12 lists the operational results of the signalized intersection and roundabouts at NE 8th Street and NE Revere Avenue and NE 8th Street and NE Olney Avenue as compared to no-build conditions.

The NE 8th Street and NE Revere Avenue intersection with the signalized and roundabout configurations operate with significantly less delay than future no-build conditions and would meet City of Bend mobility standards.

Two of the five intersection configurations (signalized intersection with southbound right turn lane and full multi-lane roundabout) for the NE 8th Street and NE Olney Avenue intersection meet City of Bend mobility standards in the future. The full multi-lane roundabout has less delay and lower v/c ratio than the signalized intersection with the southbound right turn lane. See Appendix B.3 for Alternatives Intersection Operations.

⁹ ODOT Crash Reduction Factor List, 2020, CMF ID: 323

¹⁰ ODOT Crash Reduction Factor List, 2020, CMF ID: 324

¹¹ ODOT Crash Reduction Factor List, 2020, CMF Clearinghouse, Safety Effectiveness of Leading Pedestrian Intervals Using Empirical Bayes Method

¹² ODOT Crash Reduction Factor List, 2020, CMF ID: 228

Table 12: Intersection Operations at both intersections on NE 8th Street

	Year	Control ^A	P.M. Peak Hour Results		
			LOS	Delay (s)	v/c
NE 8 th Street and NE Revere Avenue	Existing (2021)	All-way stop control	F	121	1.18
		Signalized intersection	B	18	0.46
		Single-lane roundabout	B	12	0.69
	Future (2040)	All-way stop control	F	253	1.54
		Signalized intersection	C	27	0.63
		Single-lane roundabout	C	17	0.82
NE 8 th Street and NE Olney Avenue	Existing (2021)	Signalized intersection	C	33	0.92
		Signalized intersection (with southbound right turn)	C	31	0.86
		Single-lane roundabout	C	25	0.88
		Partial multi-lane roundabout (right turns)	C	17	0.82
		Full multi-lane roundabout	B	11	0.52
	Future (2040)	Signalized intersection	E	64	1.10
		Signalized intersection (with southbound right turn)	D	42	0.96
		Single-lane roundabout	F	75	1.14 ^B
		Partial multi-lane roundabout (right turns)	E	38	1.02 ^C
		Full multi-lane roundabout	C	20	0.81

^A Overall intersection LOS and delay reported for all-way stop control, signalized, and roundabout intersections. Worst Major Street/Minor Street v/c reported for all-way stop control intersections. Worst approach v/c reported for signalized and roundabout intersections.

^B Three legs have an approach v/c > 1.0 (Southbound approach v/c = 1.14, westbound approach v/c = 1.11, eastbound approach v/c = 1.05). All others less than v/c of 1.0.

^C One movement has a v/c > 1.0 (eastbound through/left movement v/c = 1.02). All others less than v/c of 1.0.

Bold and Red indicates failing to meet City of Bend mobility standards ≤ 1.0 v/c (signalized and roundabout).

Table 13 compares the existing (2021) and future (2040) 95th percentile and average queues with an all-way stop control, a signal and a single-lane roundabout at NE 8th Street and NE Revere Avenue. The 95th percentile queues along NE Revere Avenue are over 800 feet for east- and westbound traffic with the signalized intersection. Additionally, the 95th percentile queue for the southbound all-way stop control is over 625 feet in existing and over 800 feet in the future. These are significant queues as the traffic spills back through the next intersection. A single-lane roundabout has much shorter queues with existing and future volumes.

Table 13: Queuing (95th Percentile / Average) NE 8th Street and NE Revere Avenue

Year	Control	Northbound	Eastbound	Westbound	Southbound
Existing (2021)	All-way stop control	425 / 200	125 / 75	100 / 50	625 / 300
	Signalized intersection	300 / 150	325 / 175	150 / 75	350 / 200
	Single-lane roundabout	250 / NA	100 / NA	25 / NA	100 / NA
Future (2040)	All-way stop control	750 / 425	175 / 100	100 / 75	>800 / >800
	Signalized intersection	500 / 275	500 / 250	150 / 75	>800 / 600
	Single-lane roundabout	500 / NA	150 / NA	25 / NA	200 / NA

Bold and Red indicates queue spillback to the next major intersection or exceed 800 feet.

Table 14 compares the existing (2021) and future (2040) 95th percentile and average queues with an all-way stop control, signals and roundabouts with different lane configurations at NE 8th Street and NE Olney Avenue. With future volumes, a signalized intersection, a signalized intersection with a southbound right turn, and a single-lane roundabout result in significant queuing. A partial multi-lane roundabout and full multi-lane roundabout result in shorter queues that do not extend back to NE Revere Avenue or any other major intersections.

Table 14: Queuing (95th Percentile / Average) NE 8th Street and NE Olney Avenue

Year	Control	Northbound	Eastbound	Westbound	Southbound
Existing (2021)	Signalized intersection	550 / 300	375 / 225	400 / 200	350 / 200
	Signalized intersection (southbound right turn)	425 / 275	425 / 250	500 / 250	500 / 250
	Single-lane roundabout	175 / NA	175 / NA	400 / NA	325 / NA
	Partial multi-lane roundabout (right turns)	175 / NA	125 / NA	100 / NA	300 / NA
	Full multi-lane roundabout	75 / NA	75 / NA	100 / NA	100 / NA
Future (2040)	Signalized intersection	>800 / 500	600 / 325	>800 / >800	500 / 300
	Signalized intersection (southbound right turn)	500 / 325	>800 / 750	>800 / >800	775 / 450
	Single-lane roundabout	275 / NA	750 / NA	>800 / NA	>800 / NA
	Partial multi-lane roundabout (right turns)	300 / NA	550 / NA	200 / NA	525 / NA
	Full multi-lane roundabout	100 / NA	200 / NA	200 / NA	250 / NA

Bold and Red indicates queue spillback to the next major intersection or exceed 800 feet.

NE 8th Street Findings and Recommendations

The NE 8th Street and NE Revere Avenue intersection's current configuration of an all-way stop control does not meet City of Bend delay standards (50 seconds) with existing or future volumes. While the NE 8th Street and NE Olney Avenue intersection does meet City of Bend standards for signalized intersections ($v/c < 1.0$) under existing traffic volumes, it fails in the future and results in significant queue spillback between major intersections.

Traffic operations at NE 8th Street and NE Revere Avenue are improved, and meets City of Bend standards, by the installation of either a signalized intersection (v/c of 0.63 in the future) or a single-lane roundabout (v/c of 0.82 in the future). However, NE 8th Street and NE Olney Avenue operations are expected to perform better (less queueing and improved safety performance, in particular) with a roundabout than a signalized intersection. Given the safety and operational improvements associated with roundabouts, both intersections along NE 8th Street are recommended to include roundabouts.

At NE 8th Street and NE Revere Avenue, a single lane roundabout is recommended. Figure 3 shows a roundabout concept that includes:

- A single-lane roundabout that is 130 feet in diameter, designed to accommodate WB-50 trucks, with 18-foot entry and exit lanes on all approaches and 14-foot offsets for sidewalk and buffer. This concept will continue to be refined during design. The roundabout is shifted north to have as little impact as possible on existing structures on the southwest and southeast corners. This concept will continue to be refined during design to reduce potential right-of-way impacts.

At NE 8th Street and NE Olney Avenue intersection, a partial multilane roundabout with right turn slip lanes is recommended. Despite a full multi-lane roundabout performing the best operationally, the full multi-lane roundabout would have a significant right-of-way impact on many private properties and would be extremely costly given the retaining wall impacts on the west leg of the intersection. Instead, a partial multi-lane roundabout with right turn slip lanes will allow for improved operations along the corridor, reduce queuing spillback into other intersections and reduce the overall cost of the improvements to better fit within the project budget. Furthermore, NE 8th Street and NE Olney Avenue was identified as a top 10 percent site for equivalent property damage only in the Bend TSAP and a roundabout would improve safety at the intersection over the existing signalized intersection.

At NE 8th Street and NE Olney Avenue, Figure 4 shows an approximate partial multi-lane roundabout footprint, which includes:

- A partial multi-lane roundabout with right turn slip lanes, shifted north to minimize southeast and southwest building impacts.
- The roundabout concept shows a roundabout with 150-foot diameter that accommodates WB-50 trucks and has multi-lane entry on north, east, and west approaches, single 18-foot lane entry on the south approach, single 18-foot exits on all approaches, and 14-foot offsets for sidewalk and buffer. This concept will continue to be refined during design to reduce potential right-of-way impacts.



NE 4th Street and NE 8th Street Corridors Evaluation Report - Appendix

Appendix A: Traffic Counts



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

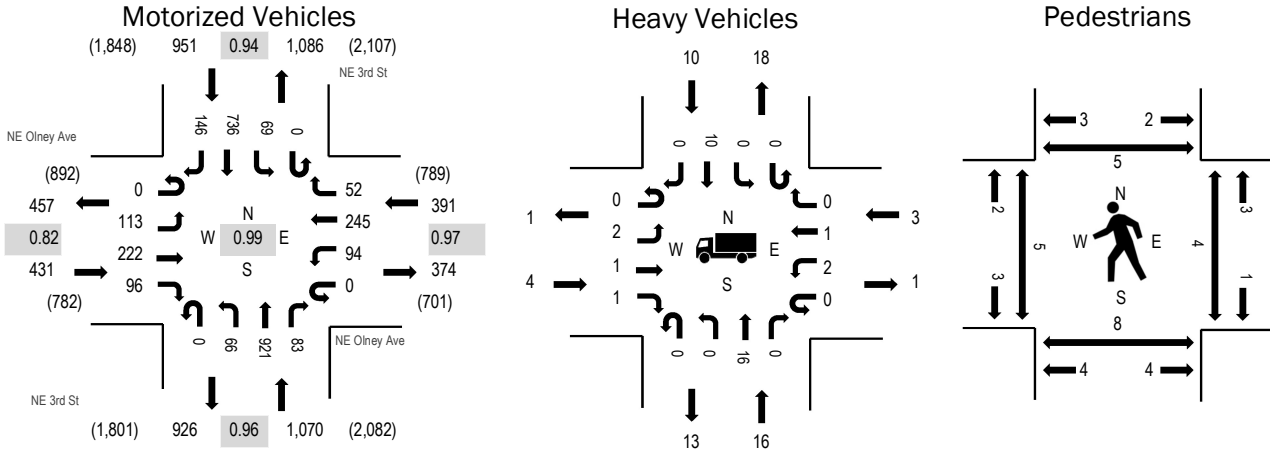
Location: 1 NE 3rd St & NE Olney Ave PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:25 PM - 05:25 PM

Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.82
WB	0.8%	0.97
NB	1.5%	0.96
SB	1.1%	0.94
All	1.2%	0.99

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Olney Ave Eastbound				NE Olney Ave Westbound				NE 3rd St Northbound				NE 3rd St 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	10	23	7	0	8	24	4	0	7	66	1	0	6	60	11	227	2,800
4:05 PM	0	11	20	7	0	6	24	4	0	6	75	5	0	8	61	13	240	2,809
4:10 PM	0	9	9	3	0	14	10	5	0	3	89	5	0	8	70	9	234	2,827
4:15 PM	0	8	13	7	0	6	16	8	0	5	83	3	0	6	70	10	235	2,813
4:20 PM	0	7	17	6	0	9	22	7	0	6	61	11	0	3	67	12	228	2,818
4:25 PM	0	8	24	4	0	7	21	4	0	6	78	9	0	7	58	9	235	2,843
4:30 PM	0	5	17	7	0	6	19	5	0	8	73	9	0	2	66	7	224	2,820
4:35 PM	0	9	14	7	0	4	22	6	0	5	82	4	0	6	68	13	240	2,839
4:40 PM	0	11	18	6	0	12	20	8	0	7	76	6	0	2	55	12	233	2,822
4:45 PM	0	10	13	6	0	6	15	2	0	7	74	11	0	7	76	21	248	2,802
4:50 PM	0	7	14	16	0	6	22	5	0	4	79	5	0	5	61	11	235	2,738
4:55 PM	0	13	20	8	0	12	29	8	0	1	66	4	0	0	50	10	221	2,702
5:00 PM	0	8	13	6	0	6	13	3	0	4	83	6	0	7	72	15	236	2,701
5:05 PM	0	13	27	12	0	5	23	3	0	8	75	9	0	13	62	8	258	
5:10 PM	0	13	26	6	0	6	22	2	0	5	64	7	0	10	44	15	220	
5:15 PM	0	10	16	10	0	12	18	4	0	4	83	5	0	3	63	12	240	
5:20 PM	0	6	20	8	0	12	21	2	0	7	88	8	0	7	61	13	253	
5:25 PM	0	11	20	8	0	10	25	3	0	8	63	5	0	7	41	11	212	
5:30 PM	0	3	18	4	0	9	17	9	0	8	82	9	0	5	69	10	243	
5:35 PM	0	3	18	7	0	6	21	6	0	10	78	3	0	6	53	12	223	
5:40 PM	0	8	21	5	0	6	24	5	0	4	67	3	0	6	61	3	213	
5:45 PM	0	8	18	3	0	4	19	7	0	4	56	9	0	3	45	8	184	
5:50 PM	0	7	10	7	0	5	18	1	0	11	71	0	0	3	61	5	199	
5:55 PM	0	1	11	3	0	6	23	7	0	8	78	9	0	5	61	8	220	
Count Total	0	199	420	163	0	183	488	118	0	146	1,790	146	0	135	1,455	258	5,501	
Peak Hour	0	113	222	96	0	94	245	52	0	66	921	83	0	69	736	146	2,843	

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	0	0	4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	2	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	1	0	2	4:10 PM	1	0	2	0	3	4:10 PM	0	0	0	0	0
4:15 PM	1	5	0	3	9	4:15 PM	0	0	0	0	0	4:15 PM	0	4	0	0	4
4:20 PM	0	2	0	1	3	4:20 PM	0	0	0	0	0	4:20 PM	0	0	2	0	2
4:25 PM	1	1	0	0	2	4:25 PM	1	0	0	0	1	4:25 PM	2	3	0	0	5
4:30 PM	0	0	0	2	2	4:30 PM	0	0	0	0	0	4:30 PM	1	0	1	1	3
4:35 PM	0	0	0	1	1	4:35 PM	1	0	0	0	1	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	1	1	4:40 PM	1	0	2	0	3	4:40 PM	1	0	2	4	7
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	2	1	2	5	4:50 PM	0	0	0	0	0	4:50 PM	1	0	0	0	1
4:55 PM	0	1	0	0	1	4:55 PM	0	0	1	0	1	4:55 PM	0	1	0	0	1
5:00 PM	0	3	0	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	3	0	0	3
5:05 PM	1	1	1	1	4	5:05 PM	2	0	1	0	3	5:05 PM	0	0	0	1	1
5:10 PM	0	2	1	2	5	5:10 PM	1	0	0	0	1	5:10 PM	0	0	1	0	1
5:15 PM	1	3	0	1	5	5:15 PM	0	0	0	0	0	5:15 PM	0	1	0	0	1
5:20 PM	1	3	0	0	4	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	2	3	5:25 PM	2	0	0	0	2	5:25 PM	0	0	0	0	0
5:30 PM	1	1	0	3	5	5:30 PM	2	0	0	0	2	5:30 PM	0	0	1	0	1
5:35 PM	0	0	0	1	1	5:35 PM	1	0	0	0	1	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	2	3	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	2	0	2	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	2	3	5:55 PM	1	1	0	0	2	5:55 PM	0	2	1	1	4
Count Total	6	31	4	28	69	Count Total	14	1	7	0	22	Count Total	5	14	8	7	34
Peak Hour	4	16	3	10	33	Peak Hour	6	0	4	0	10	Peak Hour	5	8	4	6	23



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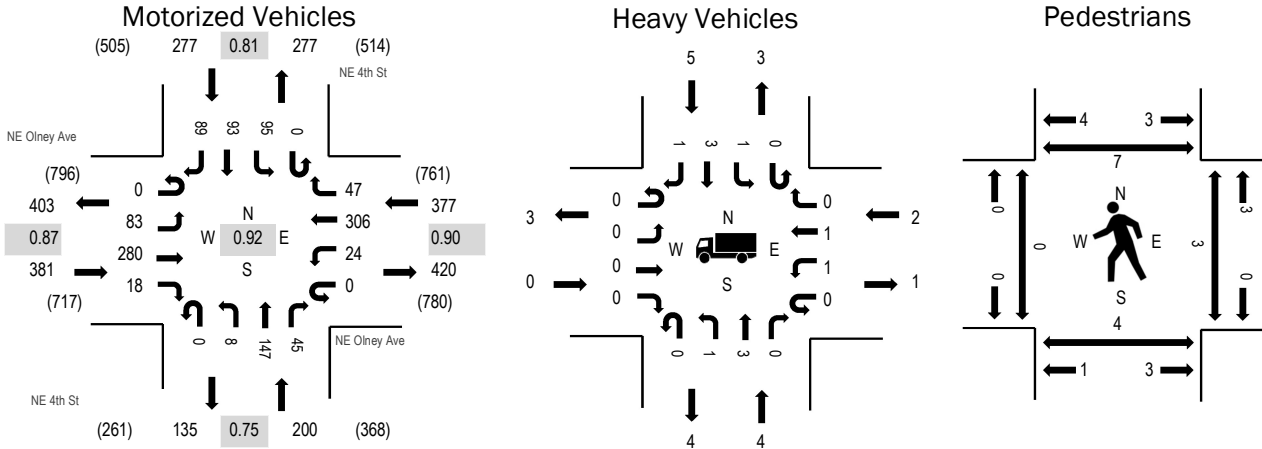
Location: 2 NE 4th St & NE Olney Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.87
WB	0.5%	0.90
NB	2.0%	0.75
SB	1.8%	0.81
All	0.9%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Olney Ave Eastbound				NE Olney Ave Westbound				NE 4th St Northbound				NE 4th St 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	25	0	0	1	30	3	0	1	19	3	0	5	13	2	106	1,196
4:05 PM	0	11	23	1	0	6	20	6	0	1	14	2	0	6	6	6	102	1,178
4:10 PM	0	4	20	2	0	1	23	4	0	2	5	3	0	11	11	8	94	1,182
4:15 PM	0	5	18	0	0	1	19	4	0	3	14	3	0	5	12	12	96	1,209
4:20 PM	0	10	14	4	0	0	31	3	0	2	17	2	0	9	7	1	100	1,220
4:25 PM	0	4	27	1	0	1	32	3	0	1	14	0	0	5	8	2	98	1,218
4:30 PM	0	3	32	1	0	1	25	4	0	1	10	0	0	14	9	8	108	1,235
4:35 PM	0	6	19	1	0	4	28	10	0	1	9	3	0	4	9	7	101	1,212
4:40 PM	0	2	16	1	0	3	25	6	0	1	12	3	0	8	5	10	92	1,210
4:45 PM	0	11	23	1	0	0	27	2	0	0	13	2	0	4	7	9	99	1,217
4:50 PM	0	8	18	2	0	1	21	3	0	1	14	4	0	8	9	8	97	1,191
4:55 PM	0	9	15	2	0	4	30	5	0	0	7	4	0	8	11	8	103	1,177
5:00 PM	0	10	16	3	0	0	27	2	0	2	9	5	0	2	7	5	88	1,155
5:05 PM	0	10	30	1	0	1	23	2	0	1	15	9	0	8	3	3	106	
5:10 PM	0	10	33	0	0	3	24	6	0	1	19	7	0	6	8	4	121	
5:15 PM	0	3	24	2	0	3	27	3	0	0	15	3	0	9	8	10	107	
5:20 PM	0	6	21	1	0	2	29	2	0	0	11	5	0	9	8	4	98	
5:25 PM	0	5	33	3	0	2	20	2	0	0	13	0	0	15	9	13	115	
5:30 PM	0	4	19	1	0	5	28	2	0	1	8	2	0	7	5	3	85	
5:35 PM	0	4	24	1	0	3	31	5	0	0	10	3	0	8	5	5	99	
5:40 PM	0	7	28	3	0	3	31	2	0	1	7	3	0	5	5	4	99	
5:45 PM	0	7	15	2	0	2	23	2	0	0	5	3	0	5	4	5	73	
5:50 PM	0	4	19	0	0	0	23	2	0	1	9	4	0	8	6	7	83	
5:55 PM	0	4	19	2	0	0	26	8	0	1	3	1	0	6	4	7	81	
Count Total	0	151	531	35	0	47	623	91	0	22	272	74	0	175	179	151	2,351	
Peak Hour	0	83	280	18	0	24	306	47	0	8	147	45	0	95	93	89	1,235	

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	0	1	4:00 PM	0	0	1	0	1	4:00 PM	0	0	1	1	2
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	1	1	4:10 PM	0	0	2	1	3	4:10 PM	0	0	0	2	2
4:15 PM	0	0	0	2	2	4:15 PM	0	1	0	1	2	4:15 PM	0	2	0	0	2
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	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	1	1	4:30 PM	0	0	2	3	5
4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	0	1	4:35 PM	0	0	0	0	0
4:40 PM	0	1	0	0	1	4:40 PM	0	1	2	2	5	4:40 PM	0	0	1	2	3
4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	1	1
4:50 PM	0	0	0	2	2	4:50 PM	0	0	1	0	1	4:50 PM	0	1	0	0	1
4:55 PM	0	0	0	1	1	4:55 PM	0	1	1	0	2	4:55 PM	0	1	0	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	1	2	1	4	5:00 PM	0	0	0	1	1
5:05 PM	0	0	1	0	1	5:05 PM	0	1	1	2	4	5:05 PM	0	2	0	0	2
5:10 PM	0	1	0	1	2	5:10 PM	0	1	0	3	4	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	1	1	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	1	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	1	1	5:35 PM	0	0	1	0	1
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	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	2	0	2
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	1	1	5:50 PM	0	1	1	1	3
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	0	5	2	10	17	Count Total	0	8	10	16	34	Count Total	0	7	8	11	26
Peak Hour	0	4	2	5	11	Peak Hour	0	6	7	11	24	Peak Hour	0	4	3	7	14



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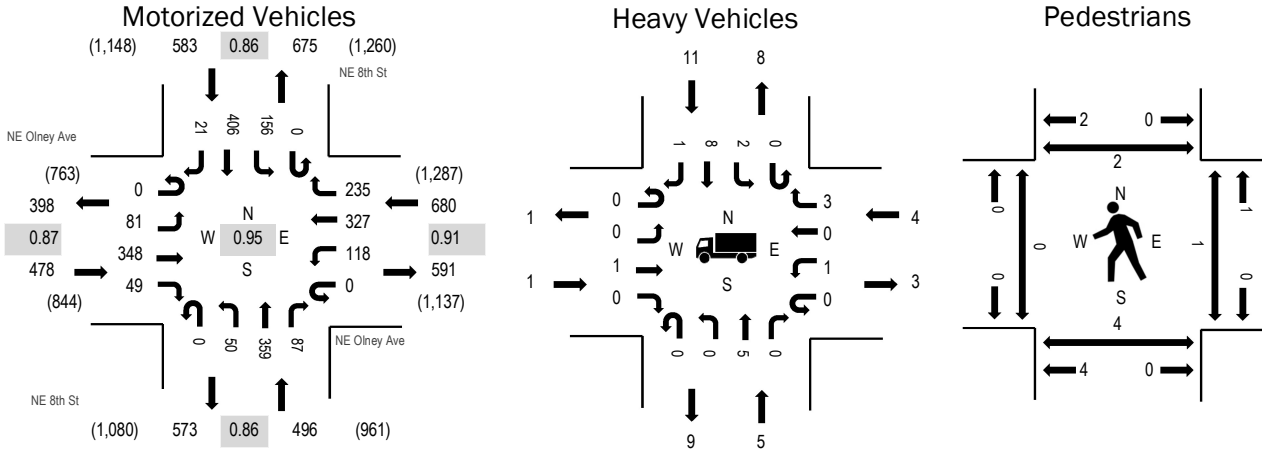
Location: 3 NE 8th St & NE Olney Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.2%	0.87
WB	0.6%	0.91
NB	1.0%	0.86
SB	1.9%	0.86
All	0.9%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Olney Ave Eastbound				NE Olney Ave Westbound				NE 8th St Northbound				NE 8th St 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	5	25	4	0	4	22	17	0	6	26	6	0	18	36	3	172	2,142
4:05 PM	0	6	22	7	0	8	20	14	0	2	29	10	0	15	25	1	159	2,144
4:10 PM	0	3	22	3	0	4	20	18	0	2	30	9	0	25	43	2	181	2,178
4:15 PM	0	6	19	4	0	11	24	14	0	3	24	10	0	20	31	2	168	2,201
4:20 PM	0	2	24	3	0	17	27	23	0	2	25	5	0	10	40	1	179	2,224
4:25 PM	0	3	21	6	0	11	35	21	0	5	28	8	0	13	24	3	178	2,222
4:30 PM	0	6	29	7	0	2	35	20	0	5	28	6	0	10	35	2	185	2,237
4:35 PM	0	5	18	5	0	12	32	19	0	3	35	7	0	9	47	0	192	2,210
4:40 PM	0	8	17	4	0	14	16	18	0	9	33	9	0	10	35	2	175	2,192
4:45 PM	0	9	32	1	0	7	22	18	0	8	32	8	0	12	27	3	179	2,198
4:50 PM	0	8	31	3	0	5	29	26	0	7	28	11	0	16	37	2	203	2,165
4:55 PM	0	6	25	4	0	11	34	21	0	0	22	8	0	13	26	1	171	2,116
5:00 PM	0	10	27	3	0	11	19	20	0	6	26	3	0	11	37	1	174	2,098
5:05 PM	0	6	36	6	0	14	22	21	0	4	28	8	0	14	30	4	193	
5:10 PM	0	9	32	1	0	15	25	17	0	4	37	8	0	16	38	2	204	
5:15 PM	0	5	37	5	0	10	33	16	0	0	26	7	0	15	36	1	191	
5:20 PM	0	5	28	4	0	10	31	17	0	1	30	4	0	18	26	3	177	
5:25 PM	0	4	36	6	0	7	29	22	0	3	34	8	0	12	32	0	193	
5:30 PM	0	5	19	1	0	6	30	17	0	4	28	10	0	10	25	3	158	
5:35 PM	0	4	25	2	0	6	19	17	0	4	33	6	0	20	35	3	174	
5:40 PM	0	4	30	3	0	8	28	16	0	6	27	11	0	15	32	1	181	
5:45 PM	0	4	21	2	0	8	26	15	0	2	20	6	0	12	29	1	146	
5:50 PM	0	8	25	2	0	12	25	13	0	2	31	6	0	6	23	1	154	
5:55 PM	0	3	19	4	0	9	27	15	0	1	31	7	0	16	19	2	153	
Count Total	0	134	620	90	0	222	630	435	0	89	691	181	0	336	768	44	4,240	
Peak Hour	0	81	348	49	0	118	327	235	0	50	359	87	0	156	406	21	2,237	

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	0	1	1	2	4:05 PM	0	0	1	0	1	4:05 PM	0	0	0	0	0
4:10 PM	0	1	2	1	4	4:10 PM	1	0	0	0	1	4:10 PM	1	1	0	0	2
4:15 PM	1	0	0	1	2	4:15 PM	0	0	0	1	1	4:15 PM	1	0	0	0	1
4:20 PM	0	0	1	1	2	4:20 PM	0	1	1	0	2	4:20 PM	0	0	0	0	0
4:25 PM	0	1	4	1	6	4:25 PM	0	0	0	0	0	4:25 PM	1	2	0	0	3
4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1	4:30 PM	0	1	0	0	1
4:35 PM	0	0	0	1	1	4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	2	2
4:40 PM	0	0	1	3	4	4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	1	1	0	2	4:45 PM	0	0	1	1	2	4:45 PM	0	1	0	0	1
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	1	2	0	3	4:55 PM	0	0	0	0	0	4:55 PM	0	2	0	0	2
5:00 PM	0	1	0	0	1	5:00 PM	0	1	1	0	2	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	2	2	5:05 PM	0	0	1	0	1	5:05 PM	0	0	1	0	1
5:10 PM	0	0	0	1	1	5:10 PM	1	0	1	0	2	5:10 PM	0	0	0	0	0
5:15 PM	0	2	0	3	5	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	1	1	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	1	0	0	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	1	0	0	0	1	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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	1	0	0	1	5:50 PM	0	0	0	0	0
5:55 PM	0	2	0	0	2	5:55 PM	0	0	0	0	0	5:55 PM	1	0	0	0	1
Count Total	2	11	13	16	42	Count Total	5	4	7	2	18	Count Total	4	7	1	2	14
Peak Hour	1	5	4	11	21	Peak Hour	3	2	5	1	11	Peak Hour	0	4	1	2	7



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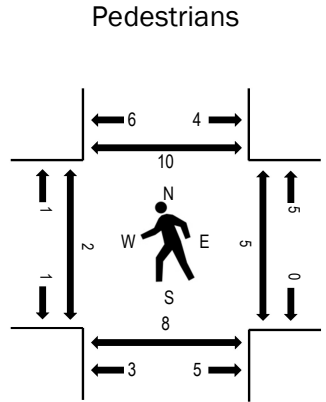
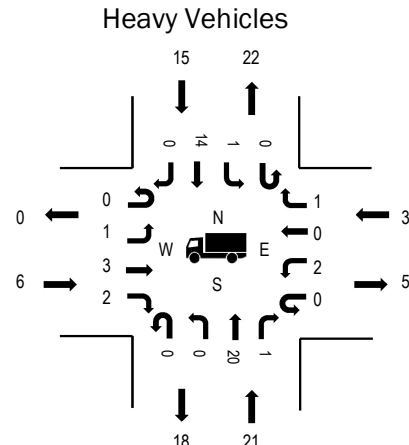
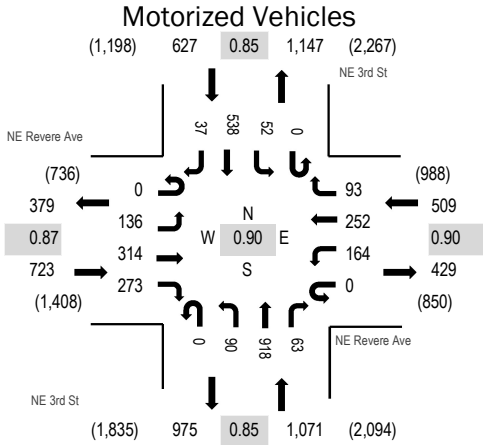
Location: 4 NE 3rd St & NE Revere Ave PM

Date: Tuesday, October 12, 2021

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

Peak 15-Minutes: 04:05 PM - 04:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.87
WB	0.6%	0.90
NB	2.0%	0.85
SB	2.4%	0.85
All	1.5%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Revere Ave Eastbound				NE Revere Ave Westbound				NE 3rd St Northbound				NE 3rd St 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	14	19	21	0	9	23	9	0	11	62	4	0	3	41	5	221	2,907
4:05 PM	0	15	35	25	0	18	27	7	0	13	77	4	0	7	46	3	277	2,930
4:10 PM	0	14	35	26	0	12	22	7	0	2	87	5	0	6	47	6	269	2,910
4:15 PM	0	12	19	26	0	9	10	4	0	8	103	9	0	6	57	5	268	2,891
4:20 PM	0	12	21	21	0	23	24	7	0	3	94	4	0	4	51	2	266	2,871
4:25 PM	0	7	26	30	0	14	31	7	0	8	75	1	0	2	38	3	242	2,868
4:30 PM	0	13	30	15	0	8	8	4	0	9	72	4	0	3	38	0	204	2,870
4:35 PM	0	14	20	19	0	12	17	11	0	4	75	5	0	5	51	0	233	2,871
4:40 PM	0	12	24	18	0	14	13	11	0	6	78	5	0	5	56	7	249	2,887
4:45 PM	0	6	21	30	0	17	33	12	0	9	54	7	0	3	32	4	228	2,855
4:50 PM	0	3	35	23	0	7	16	14	0	6	69	6	0	2	41	2	224	2,812
4:55 PM	0	12	22	17	0	15	25	7	0	12	66	7	0	1	38	4	226	2,799
5:00 PM	0	16	26	23	0	15	26	2	0	10	68	6	0	8	43	1	244	2,781
5:05 PM	0	11	31	23	0	13	18	14	0	5	80	4	0	5	50	3	257	
5:10 PM	0	11	36	20	0	15	15	10	0	5	80	4	0	6	46	2	250	
5:15 PM	0	17	34	20	0	16	26	5	0	1	87	2	0	6	34	0	248	
5:20 PM	0	17	36	22	0	13	15	15	0	13	81	3	0	4	42	2	263	
5:25 PM	0	13	24	21	0	12	27	12	0	6	75	10	0	1	36	7	244	
5:30 PM	0	9	28	26	0	4	18	9	0	7	56	1	0	13	34	0	205	
5:35 PM	0	11	18	22	0	9	18	7	0	7	92	6	0	2	50	7	249	
5:40 PM	0	9	21	17	0	13	20	5	0	8	75	3	0	5	38	3	217	
5:45 PM	0	9	27	17	0	10	18	7	0	6	51	7	0	8	23	2	185	
5:50 PM	0	9	17	22	0	11	15	5	0	2	74	13	0	4	34	5	211	
5:55 PM	0	6	8	19	0	11	22	10	0	12	63	7	0	1	46	3	208	
Count Total	0	272	613	523	0	300	487	201	0	173	1,794	127	0	110	1,012	76	5,688	
Peak Hour	0	136	314	273	0	164	252	93	0	90	918	63	0	52	538	37	2,930	

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	1	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	1	3	5	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	2	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	1	1
4:15 PM	1	3	0	2	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	1	1
4:20 PM	1	3	1	2	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	3	0	2	5	4:25 PM	0	0	0	0	0	4:25 PM	0	2	1	0	3
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	0	1	2	4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	3	4
4:40 PM	3	1	0	1	5	4:40 PM	0	0	0	0	0	4:40 PM	0	2	2	0	4
4:45 PM	0	1	1	0	2	4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	1	1
4:50 PM	0	3	0	1	4	4:50 PM	0	0	0	0	0	4:50 PM	1	2	1	2	6
4:55 PM	0	3	0	0	3	4:55 PM	0	0	0	0	0	4:55 PM	1	1	1	2	5
5:00 PM	0	2	0	0	2	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	2	0	2	4	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	2	2
5:10 PM	0	3	0	1	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	5	5
5:15 PM	0	7	0	2	9	5:15 PM	0	1	0	0	1	5:15 PM	0	0	1	1	2
5:20 PM	0	2	0	0	2	5:20 PM	0	0	0	0	0	5:20 PM	1	2	1	3	7
5:25 PM	1	2	0	2	5	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	3	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	2	0	1	3	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	1	1
5:40 PM	1	1	1	2	5	5:40 PM	0	0	0	0	0	5:40 PM	0	1	0	0	1
5:45 PM	1	0	0	0	1	5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	3	3
5:50 PM	0	2	1	1	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	1	1
5:55 PM	1	1	0	2	4	5:55 PM	0	1	2	2	5	5:55 PM	0	0	1	4	5
Count Total	11	44	6	31	92	Count Total	0	3	3	2	8	Count Total	3	11	8	30	52
Peak Hour	6	21	3	15	45	Peak Hour	0	1	0	0	1	Peak Hour	2	8	5	10	25



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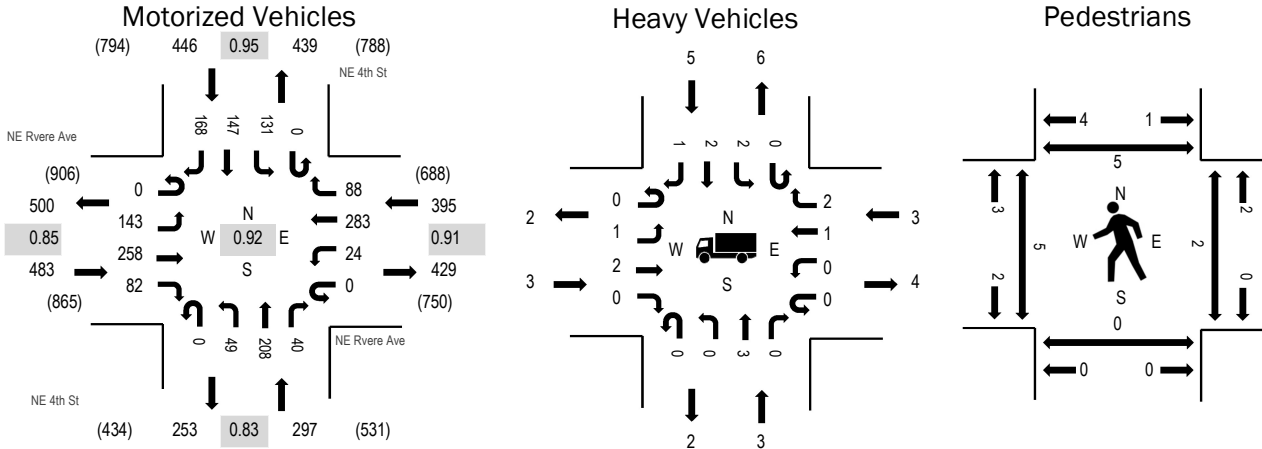
Location: 5 NE 4th St & NE Rvere Ave PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:25 PM - 05:25 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.85
WB	0.8%	0.91
NB	1.0%	0.83
SB	1.1%	0.95
All	0.9%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Rvere Ave Eastbound				NE Rvere Ave Westbound				NE 4th St Northbound				NE 4th St 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	14	14	7	0	4	26	5	0	6	14	4	0	5	16	20	135	1,539
4:05 PM	0	22	23	3	0	1	15	8	0	2	16	1	0	8	14	17	130	1,545
4:10 PM	0	14	22	9	0	0	15	12	0	5	16	3	0	8	11	10	125	1,560
4:15 PM	0	11	15	8	0	1	20	6	0	4	27	3	0	10	10	16	131	1,589
4:20 PM	0	4	19	6	0	0	21	1	0	2	15	2	0	8	8	26	112	1,601
4:25 PM	0	11	18	5	0	2	10	10	0	2	14	2	0	20	14	11	119	1,621
4:30 PM	0	7	19	6	0	2	28	6	0	5	18	1	0	9	12	13	126	1,607
4:35 PM	0	12	19	9	0	3	26	11	0	5	15	1	0	8	13	15	137	1,594
4:40 PM	0	16	16	6	0	1	26	4	0	8	21	4	0	10	12	14	138	1,560
4:45 PM	0	14	23	2	0	1	22	10	0	3	12	1	0	9	14	12	123	1,530
4:50 PM	0	13	16	6	0	3	27	7	0	2	14	6	0	6	10	17	127	1,512
4:55 PM	0	17	19	6	0	3	24	4	0	4	22	2	0	14	6	15	136	1,475
5:00 PM	0	12	22	7	0	0	20	6	0	6	22	5	0	8	14	19	141	1,339
5:05 PM	0	5	29	9	0	0	26	5	0	4	25	3	0	12	15	12	145	
5:10 PM	0	16	32	5	0	2	23	7	0	3	18	7	0	11	11	19	154	
5:15 PM	0	8	22	16	0	4	26	8	0	3	12	3	0	15	15	11	143	
5:20 PM	0	12	23	5	0	3	25	10	0	4	15	5	0	9	11	10	132	
5:25 PM	0	8	17	5	0	1	18	3	0	7	10	2	0	12	11	11	105	
5:30 PM	0	11	24	3	0	4	20	5	0	4	12	5	0	4	7	14	113	
5:35 PM	0	8	21	2	0	1	13	5	0	6	12	3	0	8	12	12	103	
5:40 PM	0	12	18	4	0	2	16	7	0	3	16	4	0	8	6	12	108	
5:45 PM	0	14	20	3	0	2	23	7	0	0	9	2	0	8	9	8	105	
5:50 PM	0	9	9	3	0	2	24	5	0	3	11	5	0	6	6	7	90	
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	270	460	135	0	42	494	152	0	91	366	74	0	216	257	321	2,878	
Peak Hour	0	143	258	82	0	24	283	88	0	49	208	40	0	131	147	168	1,621	

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	1	2	4:00 PM	0	1	0	0	1	4:00 PM	0	0	1	0	1
4:05 PM	0	0	0	2	2	4:05 PM	0	0	0	0	0	4:05 PM	1	0	1	1	3
4:10 PM	2	0	0	0	2	4:10 PM	0	2	0	0	2	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	1	1	4:25 PM	1	0	1	2	4
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	1	1
4:35 PM	1	0	1	0	2	4:35 PM	0	2	0	0	2	4:35 PM	2	0	0	0	2
4:40 PM	0	1	0	1	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	2	2	4:45 PM	0	1	0	1	2	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	1	0	1	2	4:50 PM	0	0	1	2	3
4:55 PM	0	0	1	0	1	4:55 PM	0	2	0	0	2	4:55 PM	1	0	1	0	2
5:00 PM	0	0	0	0	0	5:00 PM	0	3	0	0	3	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	2	2	5:05 PM	0	2	0	0	2	5:05 PM	1	0	1	0	2
5:10 PM	1	1	0	0	2	5:10 PM	0	0	0	1	1	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	1	0	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	1	1	5:35 PM	1	1	0	0	2	5:35 PM	1	0	1	0	2
5:40 PM	1	0	0	0	1	5:40 PM	0	0	1	0	1	5:40 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	1	0	1	5:50 PM	0	0	2	0	2	5:50 PM	0	1	1	1	3
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	8	3	5	10	26	Count Total	2	16	3	4	25	Count Total	7	1	8	7	23
Peak Hour	3	3	3	5	14	Peak Hour	1	12	0	4	17	Peak Hour	5	0	4	5	14



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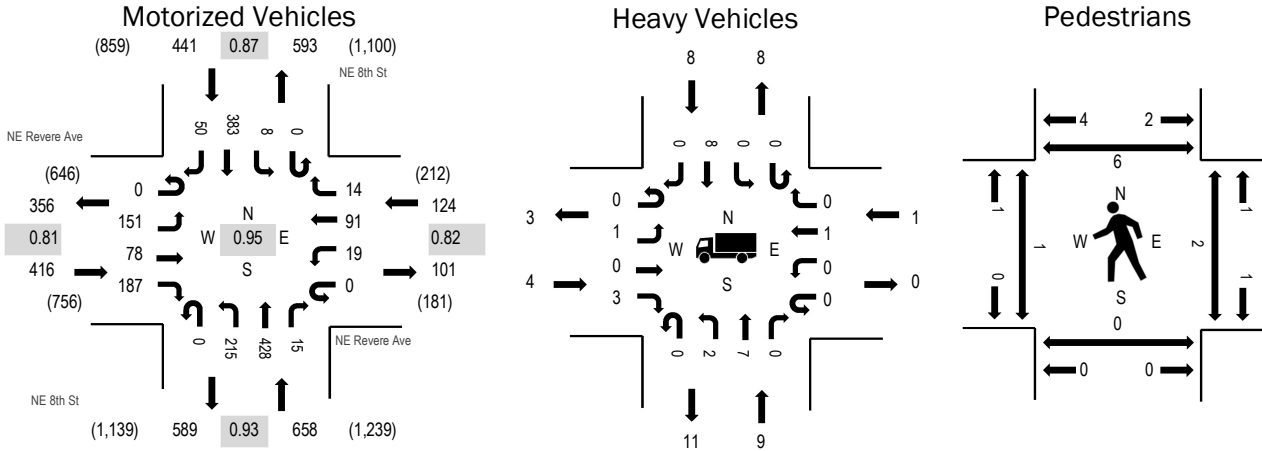
Location: 6 NE 8th St & NE Revere Ave PM

Date: Tuesday, October 12, 2021

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

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.0%	0.81
WB	0.8%	0.82
NB	1.4%	0.93
SB	1.8%	0.87
All	1.3%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	NE Revere Ave Eastbound				NE Revere Ave Westbound				NE 8th St Northbound				NE 8th St 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	2	16	0	0	5	0	0	17	35	1	0	0	39	6	125	1,558
4:05 PM	0	9	1	18	0	0	6	1	0	12	33	2	0	2	34	6	124	1,568
4:10 PM	0	5	3	18	0	1	5	0	0	14	31	2	0	1	39	5	124	1,568
4:15 PM	0	6	7	18	0	7	9	2	0	16	32	1	0	2	32	4	136	1,580
4:20 PM	0	10	9	10	0	2	11	1	0	14	29	1	0	0	30	2	119	1,588
4:25 PM	0	16	6	11	0	2	0	0	0	15	33	2	0	0	29	5	119	1,614
4:30 PM	0	8	9	22	0	2	5	0	0	15	33	1	0	0	30	5	130	1,639
4:35 PM	0	11	4	14	0	2	9	1	0	25	33	2	0	0	29	7	137	1,615
4:40 PM	0	8	5	13	0	2	11	1	0	18	36	1	0	1	31	5	132	1,601
4:45 PM	0	17	2	15	0	0	8	2	0	9	41	1	0	1	35	3	134	1,592
4:50 PM	0	11	4	14	0	1	12	2	0	21	41	2	0	0	35	3	146	1,572
4:55 PM	0	13	6	9	0	1	8	2	0	19	36	2	0	2	29	5	132	1,538
5:00 PM	0	6	9	17	0	3	2	1	0	17	39	1	0	1	34	5	135	1,508
5:05 PM	0	15	6	13	0	2	4	1	0	13	30	1	0	0	34	5	124	
5:10 PM	0	13	7	16	0	1	11	0	0	19	33	1	0	0	33	2	136	
5:15 PM	0	17	11	16	0	0	5	2	0	19	37	1	0	0	31	5	144	
5:20 PM	0	16	5	19	0	3	13	2	0	18	36	0	0	1	29	3	145	
5:25 PM	0	16	10	19	0	2	3	0	0	22	33	2	0	2	33	2	144	
5:30 PM	0	9	4	15	0	1	2	0	0	14	33	4	0	0	18	6	106	
5:35 PM	0	5	6	17	0	2	2	1	0	14	38	0	0	0	33	5	123	
5:40 PM	0	11	7	15	0	3	5	1	0	10	38	0	0	0	29	4	123	
5:45 PM	0	11	6	19	0	0	4	0	0	14	28	1	0	0	29	2	114	
5:50 PM	0	6	4	11	0	1	7	1	0	13	34	2	0	0	23	10	112	
5:55 PM	0	10	4	11	0	0	5	1	0	15	33	0	0	0	17	6	102	
Count Total	0	253	137	366	0	38	152	22	0	383	825	31	0	13	735	111	3,066	
Peak Hour	0	151	78	187	0	19	91	14	0	215	428	15	0	8	383	50	1,639	

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	1	1	0	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	1	0	0	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	0	0	1	2	4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	1	1
4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0	4:25 PM	1	1	0	2	4
4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1	4:30 PM	0	0	1	3	4
4:35 PM	1	0	0	0	1	4:35 PM	0	0	0	0	0	4:35 PM	1	0	0	0	1
4:40 PM	0	1	0	3	4	4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	2	1	0	3	4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	1	1
4:50 PM	1	1	0	0	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	2	0	0	2	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	2	2	5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	2	3	5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	1	1	0	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	1	2
5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	1	1
5:30 PM	0	0	0	0	0	5:30 PM	1	1	0	0	2	5:30 PM	0	0	0	1	1
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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	1	0	0	1	5:50 PM	0	1	0	0	1
5:55 PM	0	2	0	0	2	5:55 PM	0	0	2	0	2	5:55 PM	0	0	0	1	1
Count Total	8	16	1	10	35	Count Total	1	8	2	2	13	Count Total	2	2	2	11	17
Peak Hour	4	9	1	8	22	Peak Hour	0	5	0	1	6	Peak Hour	1	0	2	6	9



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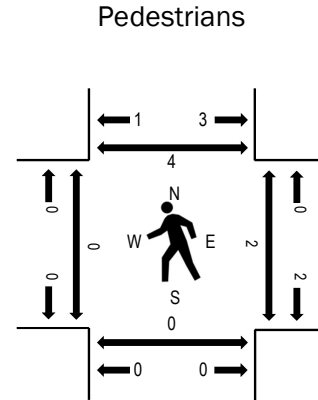
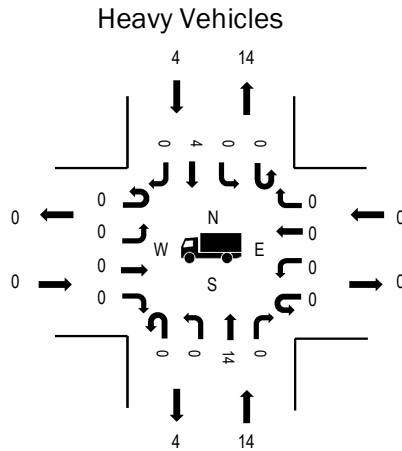
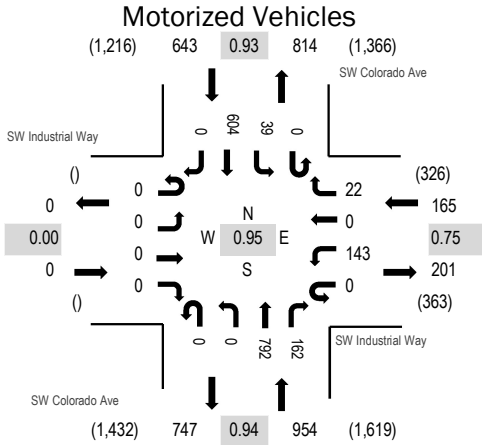
Location: 7 SW Colorado Ave & SW Industrial Way PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:15 PM - 05:15 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.75
NB	1.5%	0.94
SB	0.6%	0.93
All	1.0%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Industrial Way Eastbound				SW Industrial Way Westbound				SW Colorado Ave Northbound				SW Colorado Ave 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	17	0	3	0	0	66	13	0	3	60	0	162	1,724
4:05 PM	0	0	0	0	0	16	0	2	0	0	63	15	0	4	49	0	149	1,704
4:10 PM	0	0	0	0	0	10	0	0	0	0	32	14	0	2	55	0	113	1,717
4:15 PM	0	0	0	0	0	5	0	2	0	0	70	12	0	12	49	0	150	1,762
4:20 PM	0	0	0	0	0	16	0	4	0	0	54	17	0	3	48	0	142	1,734
4:25 PM	0	0	0	0	0	13	0	2	0	0	61	22	0	3	49	0	150	1,711
4:30 PM	0	0	0	0	0	10	0	4	0	0	57	13	0	2	50	0	136	1,675
4:35 PM	0	0	0	0	0	9	0	1	0	0	79	13	0	2	51	0	155	1,631
4:40 PM	0	0	0	0	0	11	0	0	0	0	56	7	0	3	52	0	129	1,585
4:45 PM	0	0	0	0	0	9	0	1	0	0	54	17	0	3	52	0	136	1,560
4:50 PM	0	0	0	0	0	7	0	1	0	0	75	15	0	2	64	0	164	1,527
4:55 PM	0	0	0	0	0	20	0	1	0	0	67	12	0	0	38	0	138	1,461
5:00 PM	0	0	0	0	0	16	0	2	0	0	62	4	0	5	53	0	142	1,437
5:05 PM	0	0	0	0	0	16	0	2	0	0	72	17	0	2	53	0	162	
5:10 PM	0	0	0	0	0	11	0	2	0	0	85	13	0	2	45	0	158	
5:15 PM	0	0	0	0	0	13	0	1	0	0	50	8	0	7	43	0	122	
5:20 PM	0	0	0	0	0	14	0	1	0	0	44	14	0	1	45	0	119	
5:25 PM	0	0	0	0	0	7	0	3	0	0	40	11	0	4	49	0	114	
5:30 PM	0	0	0	0	0	12	0	1	0	0	38	6	0	4	31	0	92	
5:35 PM	0	0	0	0	0	13	0	0	0	0	39	14	0	4	39	0	109	
5:40 PM	0	0	0	0	0	12	0	1	0	0	42	10	0	2	37	0	104	
5:45 PM	0	0	0	0	0	10	0	1	0	0	43	7	0	2	40	0	103	
5:50 PM	0	0	0	0	0	9	0	0	0	0	34	10	0	1	44	0	98	
5:55 PM	0	0	0	0	0	14	0	1	0	0	47	5	0	1	46	0	114	
Count Total	0	0	0	0	0	290	0	36	0	0	1,330	289	0	74	1,142	0	3,161	
Peak Hour	0	0	0	0	0	143	0	22	0	0	792	162	0	39	604	0	1,762	

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	1	1	3	4:00 PM	0	1	0	0	1	4:00 PM	0	0	1	0	1
4:05 PM	0	0	0	1	1	4:05 PM	0	1	0	0	1	4:05 PM	0	0	1	2	3
4:10 PM	0	1	0	0	1	4:10 PM	0	0	1	1	2	4:10 PM	0	0	1	0	1
4:15 PM	0	2	0	1	3	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	2	0	1	3	4:20 PM	0	0	1	0	1	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	1	0	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	4	0	0	4	4:35 PM	0	1	0	1	2	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	3	3
4:45 PM	0	2	0	0	2	4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	1	1
4:50 PM	0	1	0	1	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2	5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	1	1	5:10 PM	0	0	0	1	1	5:10 PM	0	0	3	0	3
5:15 PM	0	1	0	0	1	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	1	0	0	1
5:25 PM	0	0	0	0	0	5:25 PM	0	1	1	0	2	5:25 PM	0	1	0	0	1
5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	1	0	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	1	0	1
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	1	1
5:45 PM	0	1	0	1	2	5:45 PM	0	1	0	0	1	5:45 PM	0	0	2	0	2
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	1	0	1
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	23	1	8	32	Count Total	0	8	3	5	16	Count Total	0	2	10	7	19
Peak Hour	0	14	0	4	18	Peak Hour	0	4	1	3	8	Peak Hour	0	0	3	4	7



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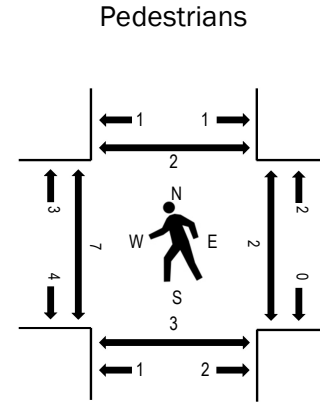
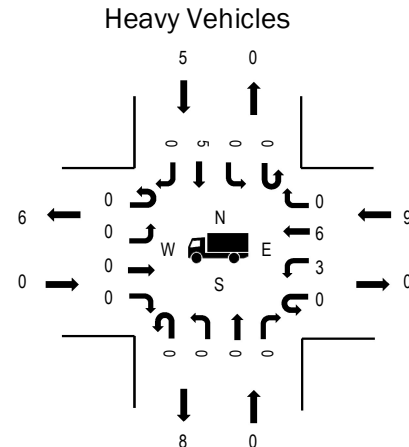
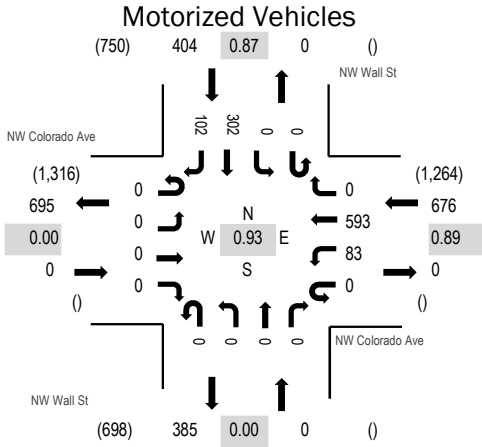
Location: 8 NW Wall St & NW Colorado Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	1.3%	0.89
NB	0.0%	0.00
SB	1.2%	0.87
All	1.3%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Colorado Ave Eastbound				NW Colorado Ave Westbound				NW Wall St Northbound				NW Wall St 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	4	51	0	0	0	0	0	0	0	20	21	96	1,071
4:05 PM	0	0	0	0	0	6	39	0	0	0	0	0	0	0	24	12	81	1,054
4:10 PM	0	0	0	0	0	4	46	0	0	0	0	0	0	0	25	10	85	1,063
4:15 PM	0	0	0	0	0	6	54	0	0	0	0	0	0	0	22	8	90	1,076
4:20 PM	0	0	0	0	0	10	41	0	0	0	0	0	0	0	27	9	87	1,080
4:25 PM	0	0	0	0	0	4	47	0	0	0	0	0	0	0	13	9	73	1,072
4:30 PM	0	0	0	0	0	9	44	0	0	0	0	0	0	0	18	9	80	1,078
4:35 PM	0	0	0	0	0	7	60	0	0	0	0	0	0	0	27	7	101	1,067
4:40 PM	0	0	0	0	0	7	53	0	0	0	0	0	0	0	22	7	89	1,043
4:45 PM	0	0	0	0	0	3	50	0	0	0	0	0	0	0	29	6	88	1,015
4:50 PM	0	0	0	0	0	9	69	0	0	0	0	0	0	0	23	8	109	1,009
4:55 PM	0	0	0	0	0	7	44	0	0	0	0	0	0	0	29	12	92	966
5:00 PM	0	0	0	0	0	8	36	0	0	0	0	0	0	0	21	14	79	943
5:05 PM	0	0	0	0	0	8	55	0	0	0	0	0	0	0	20	7	90	
5:10 PM	0	0	0	0	0	6	43	0	0	0	0	0	0	0	39	10	98	
5:15 PM	0	0	0	0	0	5	51	0	0	0	0	0	0	0	34	4	94	
5:20 PM	0	0	0	0	0	3	45	0	0	0	0	0	0	0	20	11	79	
5:25 PM	0	0	0	0	0	4	41	0	0	0	0	0	0	0	21	13	79	
5:30 PM	0	0	0	0	0	6	49	0	0	0	0	0	0	0	13	1	69	
5:35 PM	0	0	0	0	0	5	38	0	0	0	0	0	0	0	31	3	77	
5:40 PM	0	0	0	0	0	8	34	0	0	0	0	0	0	0	15	4	61	
5:45 PM	0	0	0	0	0	14	47	0	0	0	0	0	0	0	16	5	82	
5:50 PM	0	0	0	0	0	4	36	0	0	0	0	0	0	0	19	7	66	
5:55 PM	0	0	0	0	0	5	39	0	0	0	0	0	0	0	18	7	69	
Count Total	0	0	0	0	0	152	1,112	0	0	0	0	0	0	0	546	204	2,014	
Peak Hour	0	0	0	0	0	83	593	0	0	0	0	0	0	0	302	102	1,080	

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	1	1	4:00 PM	0	0	0	0	0
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	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	3	3
4:15 PM	0	0	1	0	1	4:15 PM	0	0	1	0	1	4:15 PM	0	0	2	0	2
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	1	0	2	0	3
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	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	1	1	4:35 PM	0	0	0	0	0
4:40 PM	0	0	1	1	2	4:40 PM	0	0	0	2	2	4:40 PM	1	0	0	0	1
4:45 PM	0	0	0	4	4	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	1	1
4:50 PM	0	0	2	0	2	4:50 PM	0	0	0	0	0	4:50 PM	3	2	0	0	5
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	1	1	4:55 PM	2	0	0	0	2
5:00 PM	0	0	2	0	2	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	1	0	1	2
5:10 PM	0	0	2	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	1	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	2	0	0	0	2
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	2	2	5:25 PM	0	1	2	0	3
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	2	0	3	0	5
5:35 PM	0	0	1	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	1	1
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	0	1	5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	1	2	3	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	0	15	6	21	Count Total	0	0	5	9	14	Count Total	12	4	9	6	31
Peak Hour	0	0	9	5	14	Peak Hour	0	0	2	4	6	Peak Hour	8	3	2	2	15



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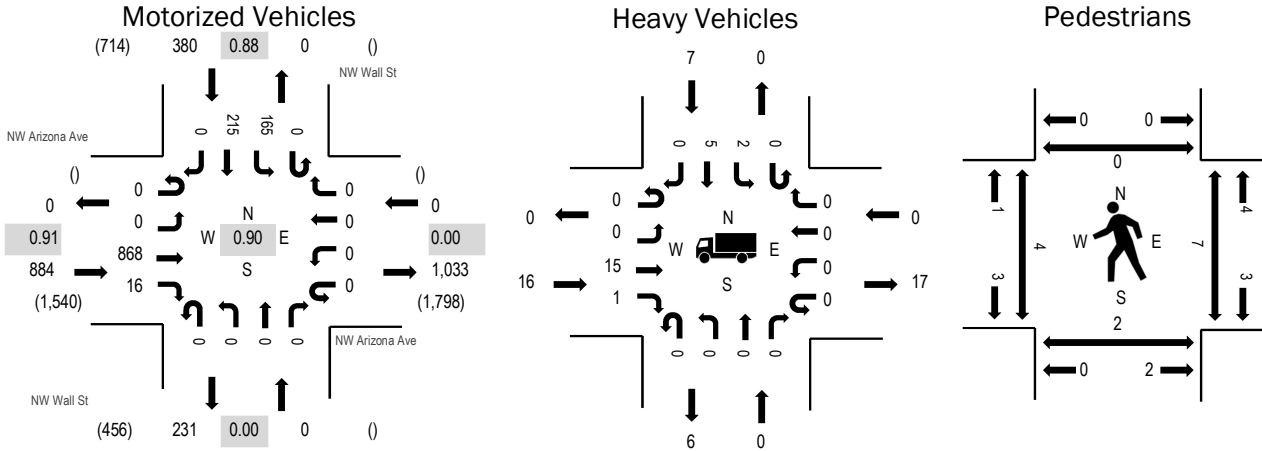
Location: 9 NW Wall St & NW Arizona Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.8%	0.91
WB	0.0%	0.00
NB	0.0%	0.00
SB	1.8%	0.88
All	1.8%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Arizona Ave Eastbound				NW Arizona Ave Westbound				NW Wall St Northbound				NW Wall St 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	71	1	0	0	0	0	0	0	0	0	0	13	11	0	96	1,190
4:05 PM	0	0	73	0	0	0	0	0	0	0	0	0	0	17	13	0	103	1,198
4:10 PM	0	0	66	1	0	0	0	0	0	0	0	0	0	11	26	0	104	1,212
4:15 PM	0	0	52	4	0	0	0	0	0	0	0	0	0	14	9	0	79	1,221
4:20 PM	0	0	74	1	0	0	0	0	0	0	0	0	0	17	23	0	115	1,264
4:25 PM	0	0	61	2	0	0	0	0	0	0	0	0	0	11	10	0	84	1,243
4:30 PM	0	0	80	1	0	0	0	0	0	0	0	0	0	9	15	0	105	1,231
4:35 PM	0	0	74	0	0	0	0	0	0	0	0	0	0	10	20	0	104	1,195
4:40 PM	0	0	67	2	0	0	0	0	0	0	0	0	0	11	21	0	101	1,181
4:45 PM	0	0	55	1	0	0	0	0	0	0	0	0	0	8	20	0	84	1,140
4:50 PM	0	0	77	5	0	0	0	0	0	0	0	0	0	14	15	0	111	1,134
4:55 PM	0	0	62	3	0	0	0	0	0	0	0	0	0	20	19	0	104	1,102
5:00 PM	0	0	77	0	0	0	0	0	0	0	0	0	0	15	12	0	104	1,064
5:05 PM	0	0	84	0	0	0	0	0	0	0	0	0	0	12	21	0	117	
5:10 PM	0	0	70	1	0	0	0	0	0	0	0	0	0	20	22	0	113	
5:15 PM	0	0	87	0	0	0	0	0	0	0	0	0	0	18	17	0	122	
5:20 PM	0	0	57	4	0	0	0	0	0	0	0	0	0	16	17	0	94	
5:25 PM	0	0	44	2	0	0	0	0	0	0	0	0	0	10	16	0	72	
5:30 PM	0	0	47	3	0	0	0	0	0	0	0	0	0	5	14	0	69	
5:35 PM	0	0	46	2	0	0	0	0	0	0	0	0	0	13	29	0	90	
5:40 PM	0	0	40	0	0	0	0	0	0	0	0	0	0	5	15	0	60	
5:45 PM	0	0	49	1	0	0	0	0	0	0	0	0	0	13	15	0	78	
5:50 PM	0	0	44	4	0	0	0	0	0	0	0	0	0	9	22	0	79	
5:55 PM	0	0	43	2	0	0	0	0	0	0	0	0	0	7	14	0	66	
Count Total	0	0	1,500	40	0	0	0	0	0	0	0	0	0	298	416	0	2,254	
Peak Hour	0	0	868	16	0	0	0	0	0	0	0	0	0	165	215	0	1,264	

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	1	0	0	0	1	4:00 PM	0	0	0	1	1	4:00 PM	0	0	1	0	1
4:05 PM	0	0	0	0	0	4:05 PM	1	0	0	0	1	4:05 PM	0	0	0	0	0
4:10 PM	2	0	0	0	2	4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	1	0	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	2	0	0	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	2	0	2
4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	1	0	0	1
4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0
4:35 PM	3	0	0	0	3	4:35 PM	1	0	0	1	2	4:35 PM	0	0	1	0	1
4:40 PM	3	0	0	0	3	4:40 PM	0	0	0	2	2	4:40 PM	1	0	1	0	2
4:45 PM	0	0	0	4	4	4:45 PM	0	0	0	0	0	4:45 PM	0	0	3	0	3
4:50 PM	2	0	0	2	4	4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	2	0	0	0	2	4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0
5:00 PM	2	0	0	1	3	5:00 PM	0	0	0	0	0	5:00 PM	3	1	0	0	4
5:05 PM	1	0	0	0	1	5:05 PM	1	0	0	0	1	5:05 PM	0	1	0	0	1
5:10 PM	0	0	0	0	0	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	1	0	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	1	1	0	0	2
5:25 PM	1	0	0	0	1	5:25 PM	1	0	0	3	4	5:25 PM	0	0	1	0	1
5:30 PM	1	0	0	1	2	5:30 PM	0	0	0	1	1	5:30 PM	0	1	1	0	2
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	2	2
5:40 PM	1	0	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	0	1	5:45 PM	0	1	0	0	1
5:50 PM	1	0	0	0	1	5:50 PM	0	0	0	2	2	5:50 PM	0	0	0	0	0
5:55 PM	1	0	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	26	0	0	8	34	Count Total	8	0	0	11	19	Count Total	5	6	10	2	23
Peak Hour	16	0	0	7	23	Peak Hour	4	0	0	4	8	Peak Hour	4	3	7	0	14

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	1	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:05 PM	0	0	1	0	1	4:05 PM	0	1	0	0	1	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	0	1	4:10 PM	0	1	1	0	2	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	1	0	1
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	1	0	0	1	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	1	0	1
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	3	0	0	3	4:40 PM	0	0	0	0	0	4:40 PM	0	0	1	0	1
4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1	4:45 PM	0	1	0	0	1
4:50 PM	0	1	1	0	2	4:50 PM	1	1	0	0	2	4:50 PM	0	0	0	1	1
4:55 PM	0	0	1	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	1	0	0	1
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	2	0	2
5:05 PM	0	2	0	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	1	0	1
5:10 PM	0	2	2	0	4	5:10 PM	0	1	0	0	1	5:10 PM	0	0	1	0	1
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	1	0	1	5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	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	1	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	1	1	2
5:40 PM	0	0	0	0	0	5:40 PM	0	1	0	0	1	5:40 PM	0	0	2	0	2
5:45 PM	0	0	1	0	1	5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	2	1	0	3	5:50 PM	0	0	2	0	2
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	10	14	0	24	Count Total	1	10	3	0	14	Count Total	0	2	13	2	17
Peak Hour	0	8	7	0	15	Peak Hour	1	3	1	0	5	Peak Hour	0	2	7	1	10



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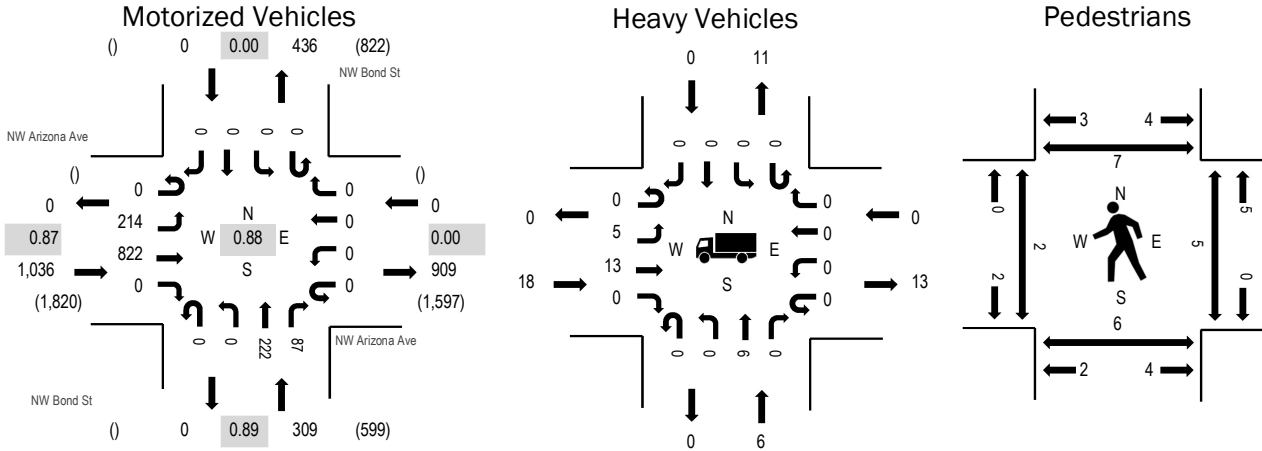
Location: 11 NW Bond St & NW Arizona Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.7%	0.87
WB	0.0%	0.00
NB	1.9%	0.89
SB	0.0%	0.00
All	1.8%	0.88

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Arizona Ave Eastbound				NW Arizona Ave Westbound				NW Bond St Northbound				NW Bond St 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	22	77	0	0	0	0	0	0	0	21	11	0	0	0	0	131	1,296
4:05 PM	0	18	66	0	0	0	0	0	0	0	22	8	0	0	0	0	114	1,276
4:10 PM	0	9	64	0	0	0	0	0	0	0	11	3	0	0	0	0	87	1,290
4:15 PM	0	19	61	0	0	0	0	0	0	0	21	12	0	0	0	0	113	1,344
4:20 PM	0	19	71	0	0	0	0	0	0	0	18	5	0	0	0	0	113	1,345
4:25 PM	0	14	55	0	0	0	0	0	0	0	21	7	0	0	0	0	97	1,318
4:30 PM	0	19	65	0	0	0	0	0	0	0	9	9	0	0	0	0	102	1,308
4:35 PM	0	18	68	0	0	0	0	0	0	0	22	7	0	0	0	0	115	1,279
4:40 PM	0	14	64	0	0	0	0	0	0	0	18	5	0	0	0	0	101	1,240
4:45 PM	0	12	63	0	0	0	0	0	0	0	21	4	0	0	0	0	100	1,211
4:50 PM	0	18	61	0	0	0	0	0	0	0	25	6	0	0	0	0	110	1,197
4:55 PM	0	17	73	0	0	0	0	0	0	0	18	5	0	0	0	0	113	1,162
5:00 PM	0	16	72	0	0	0	0	0	0	0	17	6	0	0	0	0	111	1,123
5:05 PM	0	21	71	0	0	0	0	0	0	0	20	16	0	0	0	0	128	
5:10 PM	0	22	87	0	0	0	0	0	0	0	23	9	0	0	0	0	141	
5:15 PM	0	24	72	0	0	0	0	0	0	0	10	8	0	0	0	0	114	
5:20 PM	0	13	48	0	0	0	0	0	0	0	19	6	0	0	0	0	86	
5:25 PM	0	20	41	0	0	0	0	0	0	0	21	5	0	0	0	0	87	
5:30 PM	0	10	45	0	0	0	0	0	0	0	13	5	0	0	0	0	73	
5:35 PM	0	13	41	0	0	0	0	0	0	0	17	5	0	0	0	0	76	
5:40 PM	0	5	40	0	0	0	0	0	0	0	22	5	0	0	0	0	72	
5:45 PM	0	13	47	0	0	0	0	0	0	0	20	6	0	0	0	0	86	
5:50 PM	0	13	45	0	0	0	0	0	0	0	14	3	0	0	0	0	75	
5:55 PM	0	13	41	0	0	0	0	0	0	0	17	3	0	0	0	0	74	
Count Total	0	382	1,438	0	0	0	0	0	0	0	440	159	0	0	0	0	2,419	
Peak Hour	0	214	822	0	0	0	0	0	0	0	222	87	0	0	0	0	1,345	

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	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	2	3	2	7
4:05 PM	0	1	0	0	1	4:05 PM	1	1	0	0	2	4:05 PM	1	2	0	0	3
4:10 PM	2	0	0	0	2	4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	2	0	0	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	3	0	3
4:20 PM	1	0	0	0	1	4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	2	0	1	3
4:30 PM	1	0	0	0	1	4:30 PM	2	0	0	0	2	4:30 PM	2	1	1	0	4
4:35 PM	3	0	0	0	3	4:35 PM	1	1	0	0	2	4:35 PM	0	0	0	0	0
4:40 PM	0	2	0	0	2	4:40 PM	1	0	0	0	1	4:40 PM	0	1	0	1	2
4:45 PM	3	0	0	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	5	6
4:50 PM	1	1	0	0	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	3	0	0	0	3	4:55 PM	0	0	0	0	0	4:55 PM	0	0	2	0	2
5:00 PM	2	0	0	0	2	5:00 PM	0	0	0	0	0	5:00 PM	0	1	1	0	2
5:05 PM	3	3	0	0	6	5:05 PM	1	0	0	0	1	5:05 PM	0	2	1	0	3
5:10 PM	0	0	0	0	0	5:10 PM	0	1	0	0	1	5:10 PM	1	0	0	0	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	1	0	0	1
5:20 PM	2	0	0	0	2	5:20 PM	0	1	0	0	1	5:20 PM	1	0	0	0	1
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	2	0	2
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	0	0	1	5:35 PM	0	0	0	0	0	5:35 PM	1	0	2	2	5
5:40 PM	0	0	0	0	0	5:40 PM	0	1	0	0	1	5:40 PM	0	4	2	0	6
5:45 PM	1	0	0	0	1	5:45 PM	1	1	0	0	2	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	2	0	0	2	5:50 PM	0	0	0	0	0
5:55 PM	1	0	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	1	0	0	1
Count Total	29	7	0	0	36	Count Total	8	9	0	0	17	Count Total	6	17	18	12	53
Peak Hour	18	6	0	0	24	Peak Hour	5	3	0	0	8	Peak Hour	3	8	6	8	25



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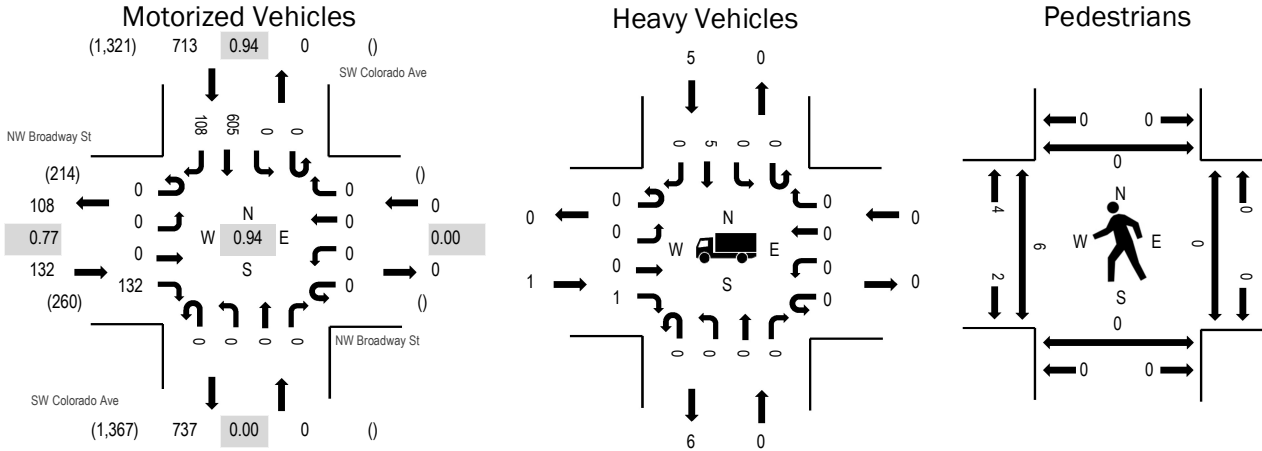
Location: 12 SW Colorado Ave & NW Broadway St PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:40 PM - 04:55 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.77
WB	0.0%	0.00
NB	0.0%	0.00
SB	0.7%	0.94
All	0.7%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Broadway St Eastbound				NW Broadway St Westbound				SW Colorado Ave Northbound				SW Colorado Ave 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	15	0	0	0	0	0	0	0	0	0	0	63	11	89	845
4:05 PM	0	0	0	8	0	0	0	0	0	0	0	0	0	0	46	4	58	819
4:10 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	47	7	65	831
4:15 PM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	53	9	75	831
4:20 PM	0	0	0	17	0	0	0	0	0	0	0	0	0	0	47	4	68	819
4:25 PM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	45	11	69	816
4:30 PM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	46	6	61	814
4:35 PM	0	0	0	5	0	0	0	0	0	0	0	0	0	0	55	11	71	823
4:40 PM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	50	12	74	804
4:45 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	47	8	66	781
4:50 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	59	14	84	773
4:55 PM	0	0	0	7	0	0	0	0	0	0	0	0	0	0	47	11	65	745
5:00 PM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	41	10	63	736
5:05 PM	0	0	0	10	0	0	0	0	0	0	0	0	0	0	48	12	70	
5:10 PM	0	0	0	10	0	0	0	0	0	0	0	0	0	0	45	10	65	
5:15 PM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	45	6	63	
5:20 PM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	44	15	65	
5:25 PM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	44	10	67	
5:30 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	45	14	70	
5:35 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	37	4	52	
5:40 PM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	31	7	51	
5:45 PM	0	0	0	7	0	0	0	0	0	0	0	0	0	0	42	9	58	
5:50 PM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	38	6	56	
5:55 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	42	3	56	
Count Total	0	0	0	260	0	0	0	0	0	0	0	0	0	0	1,107	214	1,581	
Peak Hour	0	0	0	132	0	0	0	0	0	0	0	0	0	0	605	108	845	

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	1	0	0	0	1
4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0	4:10 PM	2	0	0	0	2
4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	1	1	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	1	0	0	0	1
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	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	1	1	4:45 PM	1	0	0	0	1
4:50 PM	0	0	0	1	1	4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	1	0	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	0	0	2	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	1	1	5:15 PM	1	0	0	0	1
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	1	0	0	0	1	5:30 PM	2	0	0	0	2
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	1	0	0	0	1	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	2	0	0	11	13	Count Total	3	0	0	3	6	Count Total	9	0	0	0	9
Peak Hour	1	0	0	5	6	Peak Hour	1	0	0	2	3	Peak Hour	6	0	0	0	6



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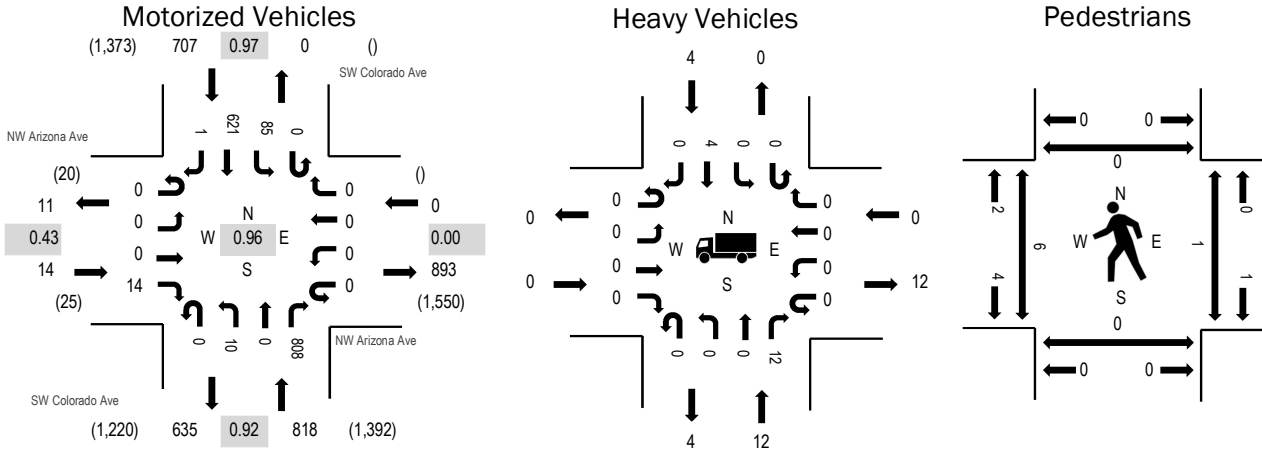
Location: 13 SW Colorado Ave & NW Arizona Ave PM

Date: Tuesday, October 12, 2021

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

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.43
WB	0.0%	0.00
NB	1.5%	0.92
SB	0.6%	0.97
All	1.0%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Arizona Ave Eastbound				NW Arizona Ave Westbound				SW Colorado Ave Northbound				SW Colorado Ave 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	2	0	0	0	0	0	1	0	76	0	10	67	0	156	1,522
4:05 PM	0	0	0	1	0	0	0	0	0	0	0	61	0	5	49	0	116	1,491
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	60	0	7	53	0	120	1,511
4:15 PM	0	0	0	2	0	0	0	0	0	1	0	45	0	11	57	0	116	1,519
4:20 PM	0	0	0	1	0	0	0	0	0	1	0	74	0	7	54	0	137	1,539
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	55	0	9	50	0	114	1,497
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	66	0	10	49	0	125	1,482
4:35 PM	0	0	0	1	0	0	0	0	0	3	0	77	0	1	56	0	138	1,460
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	60	0	7	53	0	120	1,404
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	65	0	3	58	0	126	1,363
4:50 PM	0	0	0	1	0	0	0	0	0	2	0	55	0	13	58	0	129	1,333
4:55 PM	0	0	0	2	0	0	0	0	0	2	0	66	0	8	47	0	125	1,298
5:00 PM	0	0	0	3	0	0	0	0	0	1	0	69	0	7	44	1	125	1,268
5:05 PM	0	0	0	5	0	0	0	0	0	0	0	73	0	7	51	0	136	
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	72	0	7	49	0	128	
5:15 PM	0	0	0	1	0	0	0	0	0	1	0	76	0	6	52	0	136	
5:20 PM	0	0	0	1	0	0	0	0	0	1	0	43	0	7	43	0	95	
5:25 PM	0	0	0	0	0	0	0	0	0	1	0	42	0	9	47	0	99	
5:30 PM	0	0	0	2	0	0	0	0	0	1	0	47	0	9	44	0	103	
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	33	0	6	43	0	82	
5:40 PM	0	0	0	1	0	0	0	0	0	1	0	32	0	7	38	0	79	
5:45 PM	0	0	0	1	0	0	0	0	0	1	0	44	0	3	47	0	96	
5:50 PM	0	0	1	0	0	0	0	0	0	1	0	42	0	10	40	0	94	
5:55 PM	0	0	0	0	0	0	0	0	0	1	0	40	0	7	47	0	95	
Count Total	0	0	1	24	0	0	0	0	0	19	0	1,373	0	176	1,196	1	2,790	
Peak Hour	0	0	0	14	0	0	0	0	0	10	0	808	0	85	621	1	1,539	

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	1	0	1
4:05 PM	0	0	0	1	1	4:05 PM	0	1	0	0	1	4:05 PM	2	0	0	0	2
4:10 PM	0	1	0	1	2	4:10 PM	0	1	0	0	1	4:10 PM	1	0	0	0	1
4:15 PM	0	1	0	1	2	4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0
4:20 PM	0	2	0	0	2	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	1	0	1
4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:35 PM	0	4	0	0	4	4:35 PM	0	1	0	1	2	4:35 PM	0	0	0	0	0
4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	3	0	0	0	3
4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	1	1	4:45 PM	2	0	0	0	2
4:50 PM	0	1	0	1	2	4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0
4:55 PM	0	1	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	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	2	0	0	2	5:05 PM	1	0	0	0	1
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	2	2	5:15 PM	0	1	0	1	2	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	1	0	0	1	5:25 PM	1	0	0	0	1
5:30 PM	0	0	0	1	1	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	1	0	0	0	1
5:45 PM	0	0	0	1	1	5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	1	0	0	0	1
Count Total	0	18	0	11	29	Count Total	0	9	0	5	14	Count Total	12	0	2	0	14
Peak Hour	0	12	0	4	16	Peak Hour	0	5	0	4	9	Peak Hour	6	0	1	0	7



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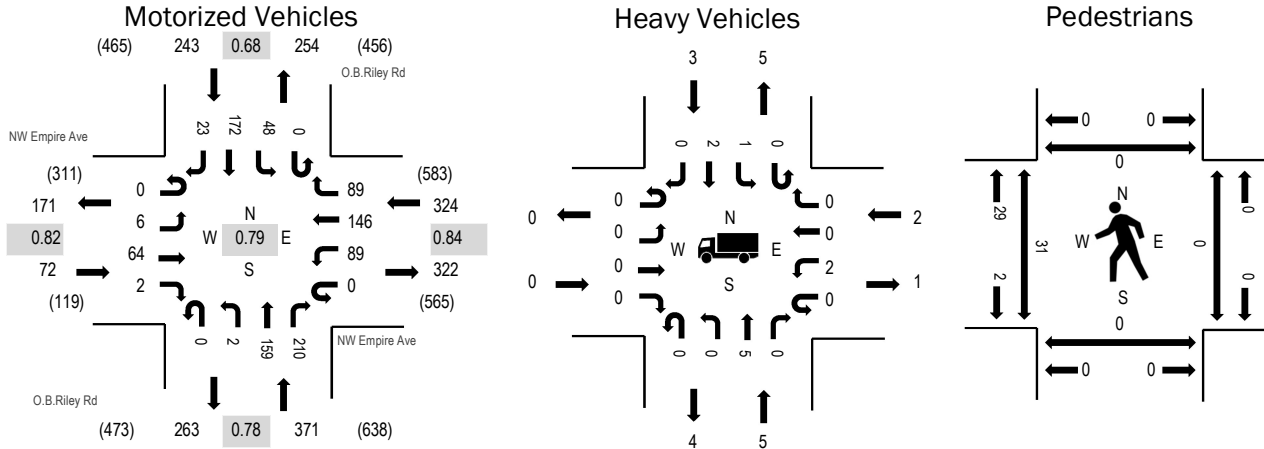
Location: 14 O.B.Riley Rd & NW Empire Ave PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:25 PM - 05:25 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.82
WB	0.6%	0.84
NB	1.3%	0.78
SB	1.2%	0.68
All	1.0%	0.79

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Empire Ave Eastbound				NW Empire Ave Westbound				O.B.Riley Rd Northbound				O.B.Riley 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	4	0	0	7	10	11	0	0	13	14	0	8	26	3	96	915
4:05 PM	0	1	8	0	0	6	21	8	0	0	15	15	0	6	15	1	96	912
4:10 PM	0	0	3	0	0	3	10	6	0	0	11	17	0	4	12	0	66	928
4:15 PM	0	0	3	0	0	8	12	7	0	0	8	13	0	2	9	0	62	967
4:20 PM	0	0	5	0	0	7	9	5	0	0	8	12	0	10	19	1	76	1,007
4:25 PM	0	1	7	0	0	7	14	4	0	0	21	23	0	4	10	2	93	1,010
4:30 PM	0	0	10	0	0	15	14	3	0	0	4	13	0	4	12	0	75	987
4:35 PM	0	0	4	0	0	9	10	8	0	0	13	18	0	5	9	2	78	969
4:40 PM	0	1	7	0	0	6	14	4	0	0	9	14	0	4	11	2	72	957
4:45 PM	0	1	2	0	0	5	11	7	0	0	8	16	0	1	14	1	66	933
4:50 PM	0	0	3	0	0	5	10	7	0	0	12	14	0	3	14	0	68	927
4:55 PM	0	1	5	0	0	8	7	8	0	1	14	7	0	6	8	2	67	906
5:00 PM	0	0	6	0	0	6	10	14	0	1	18	22	0	2	12	2	93	890
5:05 PM	0	0	3	0	0	5	8	8	0	0	23	20	0	11	31	3	112	
5:10 PM	0	1	6	1	0	6	15	12	0	0	13	22	0	3	20	6	105	
5:15 PM	0	0	6	0	0	11	20	10	0	0	11	24	0	0	18	2	102	
5:20 PM	0	1	5	1	0	6	13	4	0	0	13	17	0	5	13	1	79	
5:25 PM	0	0	6	0	0	6	9	7	0	0	15	9	0	4	13	1	70	
5:30 PM	0	0	3	0	0	3	11	6	0	0	8	13	0	3	10	0	57	
5:35 PM	0	0	3	0	0	3	12	5	0	0	13	15	0	3	10	2	66	
5:40 PM	0	0	4	0	0	2	7	6	0	0	6	10	0	4	9	0	48	
5:45 PM	0	0	2	0	0	1	12	7	0	0	13	9	0	7	9	0	60	
5:50 PM	0	0	3	0	0	1	7	2	0	0	6	12	0	1	13	2	47	
5:55 PM	0	0	2	0	0	7	8	7	0	0	8	4	0	2	11	2	51	
Count Total	0	7	110	2	0	143	274	166	0	2	283	353	0	102	328	35	1,805	
Peak Hour	0	6	64	2	0	89	146	89	0	2	159	210	0	48	172	23	1,010	

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	1	1	1	5	8	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	1	0	1	3	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	1	0	0	0	1
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	9	0	0	0	9
4:20 PM	0	0	0	1	1	4:20 PM	1	0	0	0	1	4:20 PM	21	0	0	0	21
4:25 PM	0	1	0	0	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	2	1	0	3	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	2	0	1	3	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	0	1	4:50 PM	1	0	0	0	1	4:50 PM	15	0	0	0	15
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	13	0	0	0	13
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	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	0	0	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	0	0	1	1	5:20 PM	0	0	0	0	0	5:20 PM	3	0	0	0	3
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	1	1
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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	1	0	0	1	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	1	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	2	8	5	12	27	Count Total	2	1	2	0	5	Count Total	62	0	0	1	63
Peak Hour	0	5	2	3	10	Peak Hour	1	0	1	0	2	Peak Hour	31	0	0	0	31



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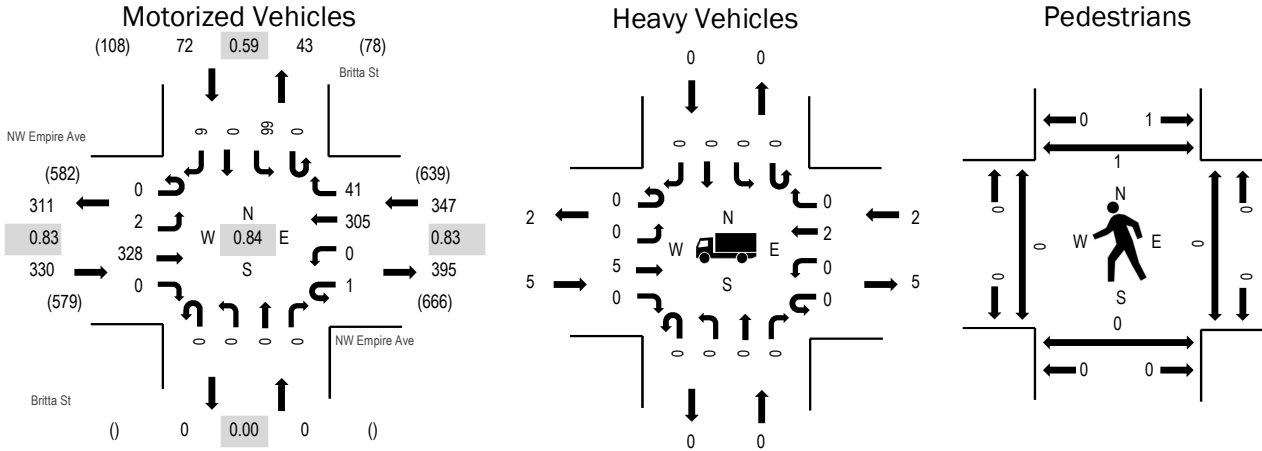
Location: 15 Britta St & NW Empire Ave PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:25 PM - 05:25 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.83
WB	0.6%	0.83
NB	0.0%	0.00
SB	0.0%	0.59
All	0.9%	0.84

Traffic Counts - Motorized Vehicles

Interval Start Time	NW Empire Ave Eastbound				NW Empire Ave Westbound				Britta St Northbound				Britta St 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	31	0	0	0	30	6	0	0	0	0	0	7	0	0	74	700
4:05 PM	0	1	23	0	0	0	29	3	0	0	0	0	0	1	0	1	58	683
4:10 PM	0	1	25	0	0	0	19	1	0	0	0	0	0	2	0	1	49	705
4:15 PM	0	1	24	0	0	0	25	5	0	0	0	0	0	3	0	0	58	726
4:20 PM	0	1	18	0	0	0	33	1	0	0	0	0	0	2	0	0	55	742
4:25 PM	0	0	31	0	0	0	17	8	0	0	0	0	0	3	0	0	59	749
4:30 PM	0	1	32	0	0	0	24	0	0	0	0	0	0	11	0	3	71	746
4:35 PM	0	1	28	0	1	0	29	4	0	0	0	0	0	11	0	0	74	714
4:40 PM	0	0	20	0	0	0	21	4	0	0	0	0	0	7	0	0	52	683
4:45 PM	0	0	22	0	0	0	26	4	0	0	0	0	0	3	0	0	55	672
4:50 PM	0	0	23	0	0	0	23	1	0	0	0	0	0	3	0	0	50	657
4:55 PM	0	0	22	0	0	0	21	1	0	0	0	0	0	1	0	0	45	630
5:00 PM	0	0	22	0	0	0	28	1	0	0	0	0	0	6	0	0	57	626
5:05 PM	0	0	35	0	0	0	34	3	0	0	0	0	0	8	0	0	80	
5:10 PM	0	0	28	0	0	0	32	7	0	0	0	0	0	2	0	1	70	
5:15 PM	0	0	36	0	0	0	25	6	0	0	0	0	0	6	0	1	74	
5:20 PM	0	0	29	0	0	0	25	2	0	0	0	0	0	5	0	1	62	
5:25 PM	0	0	19	0	0	0	28	2	0	0	0	0	0	6	0	1	56	
5:30 PM	0	2	13	0	0	0	20	2	0	0	0	0	0	2	0	0	39	
5:35 PM	0	1	19	0	0	0	19	1	0	0	0	0	0	1	0	2	43	
5:40 PM	0	0	23	0	0	0	14	1	0	0	0	0	0	3	0	0	41	
5:45 PM	0	0	23	0	0	0	15	1	0	0	0	0	0	1	0	0	40	
5:50 PM	0	0	6	0	0	0	12	2	0	0	0	0	0	1	0	2	23	
5:55 PM	0	0	18	0	0	0	20	3	0	0	0	0	0	0	0	0	41	
Count Total	0	9	570	0	1	0	569	69	0	0	0	0	0	95	0	13	1,326	
Peak Hour	0	2	328	0	1	0	305	41	0	0	0	0	0	66	0	6	749	

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	0	1	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	0	0	0	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	1	1	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	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	0	0	4:25 PM	1	0	0	0	1	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	1	0	1	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	1	0	0	0	1	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0
4:50 PM	1	0	1	0	2	4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	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	1	1
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	0	0	1	0	1	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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	0	0	0	1	5:50 PM	1	0	0	0	1	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	10	0	4	0	14	Count Total	3	0	2	1	6	Count Total	0	0	0	1	1
Peak Hour	5	0	2	0	7	Peak Hour	2	0	1	0	3	Peak Hour	0	0	0	1	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	1	0	0	3	4	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	0	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	0	0	4:15 PM	0	0	0	1	1	4:15 PM	1	0	0	0	1
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	16	0	0	0	16
4:25 PM	0	1	0	1	2	4:25 PM	0	0	0	0	0	4:25 PM	13	0	0	0	13
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1
4:35 PM	2	1	0	0	3	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	1	1	4:40 PM	0	0	0	0	0	4:40 PM	12	0	0	0	12
4:45 PM	1	0	0	3	4	4:45 PM	0	0	0	0	0	4:45 PM	18	0	0	0	18
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	0	0	1	2	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	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	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	1	0	0	0	1
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0	5:25 PM	2	0	0	0	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	1	0	0	1	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	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	1	0	0	1	5:50 PM	1	0	0	0	1
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	7	5	0	12	24	Count Total	0	2	0	1	3	Count Total	65	0	0	0	65
Peak Hour	5	3	0	7	15	Peak Hour	0	0	0	0	0	Peak Hour	45	0	0	0	45

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	3	0	5	8	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	0	0	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	1	0	0	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	1	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	0	1	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	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
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	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	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	0	0	1	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	2	2
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	2	1	3
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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	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	1	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	4	0	12	16	Count Total	0	1	0	0	1	Count Total	0	0	2	3	5
Peak Hour	0	1	0	4	5	Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	0	0

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	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	2	0	0	0	2	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	0	0	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	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	1	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	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	1	0	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	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	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	1	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	0	0	5:20 PM	0	0	1	1	2
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	0	0	1	1	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	1	0	1	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	0	0	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	1	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	6	0	2	4	12	Count Total	2	0	1	1	4	Count Total	0	0	1	1	2
Peak Hour	3	0	2	2	7	Peak Hour	1	0	0	0	1	Peak Hour	0	0	1	1	2



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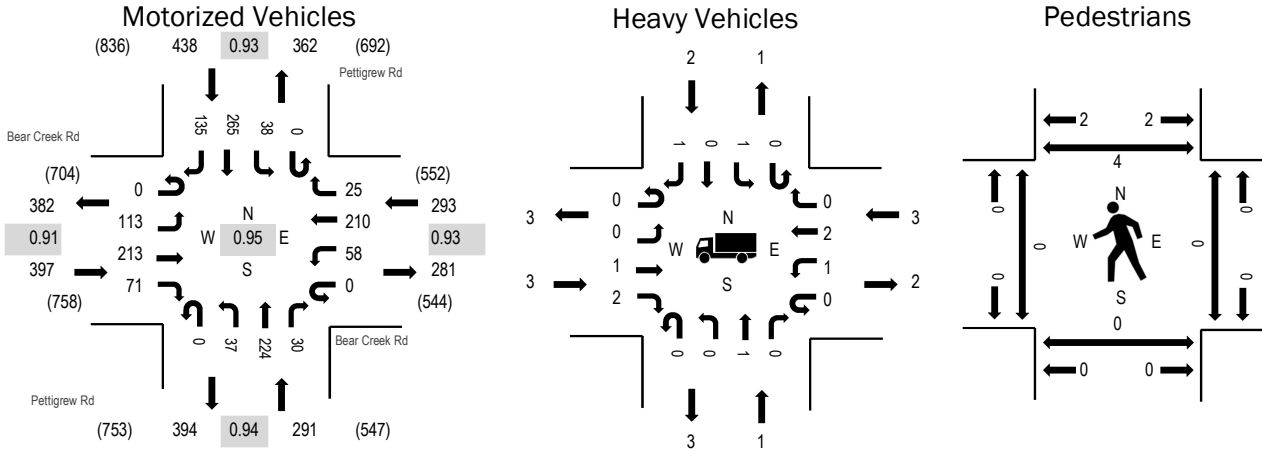
Location: 19 Pettigrew Rd & Bear Creek Rd PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:40 PM - 05:40 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.91
WB	1.0%	0.93
NB	0.3%	0.94
SB	0.5%	0.93
All	0.6%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	Bear Creek Rd Eastbound				Bear Creek Rd Westbound				Pettigrew Rd Northbound				Pettigrew 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	10	17	5	0	5	18	0	0	1	17	1	0	2	15	13	104	1,372
4:05 PM	0	10	22	9	0	7	11	2	0	2	23	2	0	4	27	10	129	1,379
4:10 PM	0	7	17	5	0	6	21	6	0	2	13	4	0	1	18	11	111	1,361
4:15 PM	0	5	19	1	0	4	16	3	0	3	18	2	0	4	20	9	104	1,372
4:20 PM	0	12	10	7	0	2	18	2	0	0	25	0	0	4	22	11	113	1,397
4:25 PM	0	9	15	7	0	4	13	3	0	1	9	2	0	3	29	10	105	1,405
4:30 PM	0	6	12	2	0	4	22	5	0	2	13	3	0	3	24	11	107	1,413
4:35 PM	0	13	21	0	0	5	18	2	0	5	19	1	0	2	18	11	115	1,418
4:40 PM	0	10	22	6	0	7	16	3	0	4	22	3	0	3	20	14	130	1,419
4:45 PM	0	10	19	4	0	4	16	1	0	5	9	2	0	4	18	12	104	1,388
4:50 PM	0	15	15	4	0	5	18	1	0	3	20	5	0	2	28	4	120	1,377
4:55 PM	0	12	17	6	0	3	25	2	0	3	22	3	0	1	23	13	130	1,359
5:00 PM	0	10	19	6	0	9	15	0	0	3	17	1	0	3	19	9	111	1,321
5:05 PM	0	7	18	4	0	8	11	3	0	3	16	4	0	3	20	14	111	
5:10 PM	0	9	23	6	0	1	24	2	0	0	21	0	0	2	27	7	122	
5:15 PM	0	7	21	10	0	6	20	0	0	4	22	2	0	3	20	14	129	
5:20 PM	0	10	17	7	0	5	15	5	0	3	16	6	0	6	20	11	121	
5:25 PM	0	6	16	8	0	2	17	4	0	4	16	1	0	5	19	15	113	
5:30 PM	0	8	11	5	0	3	18	3	0	4	16	3	0	2	28	11	112	
5:35 PM	0	9	15	5	0	5	15	1	0	1	27	0	0	4	23	11	116	
5:40 PM	0	7	18	4	0	5	8	1	0	2	19	2	0	2	21	10	99	
5:45 PM	0	4	22	7	0	3	12	2	0	0	11	2	0	2	22	6	93	
5:50 PM	0	5	22	7	0	4	16	1	0	2	20	1	0	0	18	6	102	
5:55 PM	0	5	14	5	0	1	7	2	0	5	21	3	0	4	16	9	92	
Count Total	0	206	422	130	0	108	390	54	0	62	432	53	0	69	515	252	2,693	
Peak Hour	0	113	213	71	0	58	210	25	0	37	224	30	0	38	265	135	1,419	

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	0	0	0	2	4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	1	2	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	1	0	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	2	2	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	1	0	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	1	1	2	4:35 PM	2	0	0	0	2	4:35 PM	0	0	0	0	0
4:40 PM	1	0	1	0	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	2	2
4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	1	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	2	0	2	0	4	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	1	1	5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	1	1
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	1	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	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	1	0	0	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	0	0	1	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	0	0	0	5:45 PM	0	0	0	1	1	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	8	1	7	5	21	Count Total	5	0	2	4	11	Count Total	0	0	0	4	4
Peak Hour	3	1	3	2	9	Peak Hour	3	0	2	0	5	Peak Hour	0	0	0	4	4



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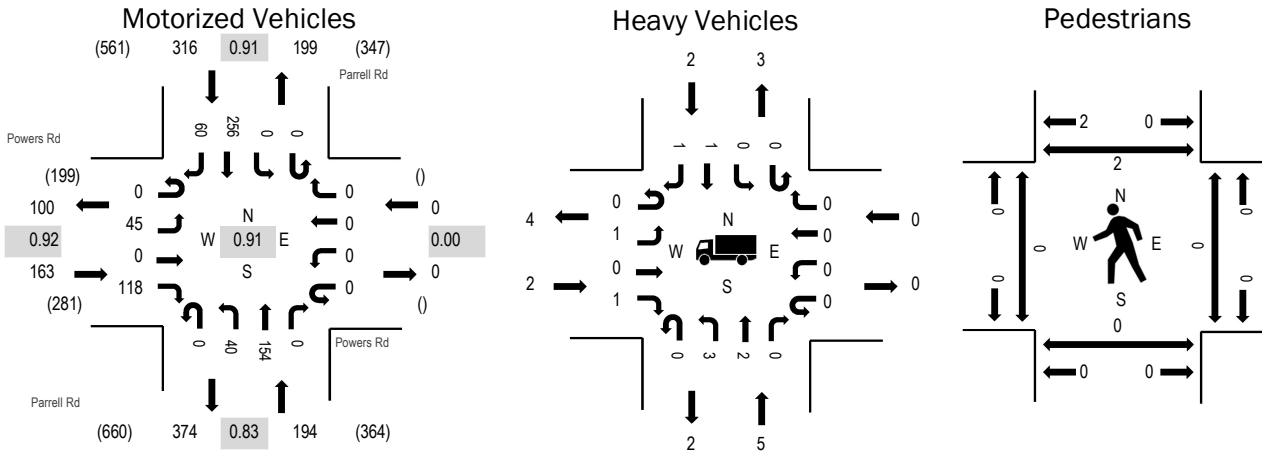
Location: 2 Parrell Rd & Powers Rd PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:25 PM - 04:40 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.2%	0.92
WB	0.0%	0.00
NB	2.6%	0.83
SB	0.6%	0.91
All	1.3%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	Powers Rd Eastbound				Powers Rd Westbound				Parrell Rd Northbound			Parrell 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	2	0	4	0	0	0	0	1	2	7	0	0	0	15	8	39	642
4:05 PM	0	3	0	7	0	0	0	0	0	3	12	0	0	0	13	6	44	654
4:10 PM	0	7	0	8	0	0	0	0	0	4	10	0	0	0	22	4	55	664
4:15 PM	0	3	0	8	0	0	0	0	0	2	16	0	0	0	21	0	50	673
4:20 PM	0	8	0	4	0	0	0	0	0	2	17	0	0	0	19	4	54	672
4:25 PM	0	1	0	14	0	0	0	0	0	6	15	0	0	0	20	6	62	665
4:30 PM	0	1	0	10	0	0	0	0	0	1	18	0	0	0	22	6	58	651
4:35 PM	0	5	0	11	0	0	0	0	0	2	13	0	0	0	29	4	64	641
4:40 PM	0	2	0	8	0	0	0	0	0	5	14	0	0	0	14	9	52	616
4:45 PM	0	3	0	14	0	0	0	0	0	4	12	0	0	0	21	4	58	614
4:50 PM	0	5	0	9	0	0	0	0	0	4	19	0	0	0	18	5	60	596
4:55 PM	0	3	0	9	0	0	0	0	0	1	5	0	0	0	23	5	46	573
5:00 PM	0	7	0	7	0	0	0	0	0	4	6	0	0	0	23	4	51	564
5:05 PM	0	3	0	14	0	0	0	0	0	4	9	0	0	0	17	7	54	
5:10 PM	0	4	0	10	0	0	0	0	0	5	10	0	0	0	29	6	64	
5:15 PM	0	3	0	10	0	0	0	0	0	4	15	0	0	0	11	6	49	
5:20 PM	0	0	0	11	0	0	0	0	0	6	9	0	0	0	17	4	47	
5:25 PM	0	6	0	7	0	0	0	0	0	3	12	0	0	0	15	5	48	
5:30 PM	0	1	0	12	0	0	0	0	0	4	10	0	0	0	18	3	48	
5:35 PM	0	2	0	4	0	0	0	0	0	8	6	0	0	0	17	2	39	
5:40 PM	0	1	0	3	0	0	0	0	0	6	7	0	0	0	29	4	50	
5:45 PM	0	0	0	6	0	0	0	0	0	5	10	0	0	0	16	3	40	
5:50 PM	0	2	0	10	0	0	0	0	0	2	8	0	0	0	13	2	37	
5:55 PM	0	2	0	7	0	0	0	0	0	3	13	0	0	0	10	2	37	
Count Total	0	74	0	207	0	0	0	0	1	90	273	0	0	0	452	109	1,206	
Peak Hour	0	45	0	118	0	0	0	0	0	40	154	0	0	0	256	60	673	

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	2	0	0	0	2
4:05 PM	0	0	0	0	0	4:05 PM	1	1	0	0	2	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	1	0	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	2	0	0	2	4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	1	0	0	0	1
4:30 PM	0	1	0	0	1	4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:35 PM	1	0	0	1	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	2	2
4:40 PM	0	1	0	0	1	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	1	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	1	0	1	2	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	1	1	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	0	0	5:10 PM	0	1	0	0	1	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	0	0	0	0	5:20 PM	0	0	0	0	0	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	1	1	0	0	2
5:35 PM	0	0	0	0	0	5:35 PM	1	0	0	0	1	5:35 PM	1	0	0	0	1
5:40 PM	0	1	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0	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	2	7	0	4	13	Count Total	2	5	0	3	10	Count Total	6	1	0	2	9
Peak Hour	2	5	0	2	9	Peak Hour	0	4	0	3	7	Peak Hour	1	0	0	2	3



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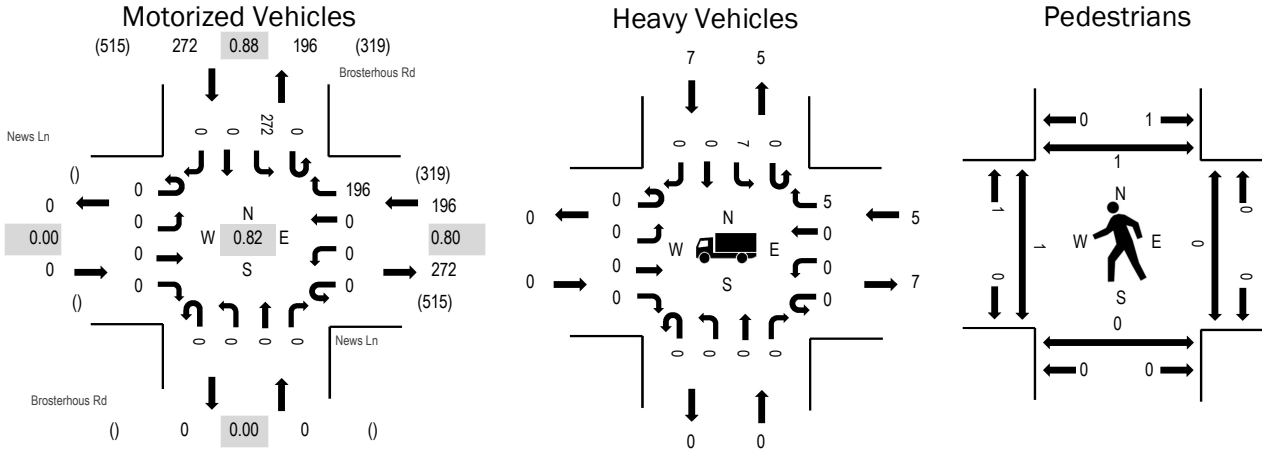
Location: 1 Brosterhaus Rd & News Ln PM

Date: Tuesday, October 12, 2021

Peak Hour: 04:10 PM - 05:10 PM

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

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	2.6%	0.80
NB	0.0%	0.00
SB	2.6%	0.88
All	2.6%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	News Ln Eastbound				News Ln Westbound				Brosterhaus Rd Northbound				Brosterhaus 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	6	0	0	0	0	0	15	0	0	21	445
4:05 PM	0	0	0	0	0	0	0	12	0	0	0	0	0	21	0	0	33	466
4:10 PM	0	0	0	0	0	0	0	17	0	0	0	0	0	28	0	0	45	468
4:15 PM	0	0	0	0	0	0	0	11	0	0	0	0	0	18	0	0	29	451
4:20 PM	0	0	0	0	0	0	0	11	0	0	0	0	0	22	0	0	33	461
4:25 PM	0	0	0	0	0	0	0	19	0	0	0	0	0	19	0	0	38	464
4:30 PM	0	0	0	0	0	0	0	15	0	0	0	0	0	19	0	0	34	455
4:35 PM	0	0	0	0	0	0	0	16	0	0	0	0	0	19	0	0	35	464
4:40 PM	0	0	0	0	0	0	0	14	0	0	0	0	0	20	0	0	34	456
4:45 PM	0	0	0	0	0	0	0	21	0	0	0	0	0	31	0	0	52	452
4:50 PM	0	0	0	0	0	0	0	17	0	0	0	0	0	27	0	0	44	439
4:55 PM	0	0	0	0	0	0	0	23	0	0	0	0	0	24	0	0	47	414
5:00 PM	0	0	0	0	0	0	0	20	0	0	0	0	0	22	0	0	42	389
5:05 PM	0	0	0	0	0	0	0	12	0	0	0	0	0	23	0	0	35	
5:10 PM	0	0	0	0	0	0	0	7	0	0	0	0	0	21	0	0	28	
5:15 PM	0	0	0	0	0	0	0	10	0	0	0	0	0	29	0	0	39	
5:20 PM	0	0	0	0	0	0	0	14	0	0	0	0	0	22	0	0	36	
5:25 PM	0	0	0	0	0	0	0	8	0	0	0	0	0	21	0	0	29	
5:30 PM	0	0	0	0	0	0	0	12	0	0	0	0	0	31	0	0	43	
5:35 PM	0	0	0	0	0	0	0	9	0	0	0	0	0	18	0	0	27	
5:40 PM	0	0	0	0	0	0	0	13	0	0	0	0	0	17	0	0	30	
5:45 PM	0	0	0	0	0	0	0	12	0	0	0	0	0	27	0	0	39	
5:50 PM	0	0	0	0	0	0	0	11	0	0	0	0	0	8	0	0	19	
5:55 PM	0	0	0	0	0	0	0	9	0	0	0	0	0	13	0	0	22	
Count Total	0	0	0	0	0	0	0	319	0	0	0	0	0	515	0	0	834	
Peak Hour	0	0	0	0	0	0	0	196	0	0	0	0	0	272	0	0	468	

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	0	0	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	1	0	1	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	2	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	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	1	0	0	1	2
4:35 PM	0	0	0	1	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	1	1	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	0	0	0	1	1	4:50 PM	0	0	1	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	2	2	4	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	1	0	1	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	1	0	2	0	3	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	1	0	0	0	1
5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	3	3	5:20 PM	3	0	0	0	3
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	1	1	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	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	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	0	5	9	14	Count Total	1	0	4	3	8	Count Total	5	0	0	1	6
Peak Hour	0	0	5	7	12	Peak Hour	0	0	2	0	2	Peak Hour	1	0	0	1	2

Appendix B.1:

Existing (2021) Intersection Operations

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:20	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	5497	5568	5637	5448	5400	5569	5436
Vehs Exited	5545	5594	5672	5503	5470	5566	5455
Starting Vehs	289	249	297	254	293	216	211
Ending Vehs	241	223	262	199	223	219	192
Travel Distance (mi)	3380	3401	3478	3355	3340	3394	3346
Travel Time (hr)	249.7	227.7	247.8	227.6	229.0	229.4	221.5
Total Delay (hr)	130.5	107.6	125.3	108.9	111.1	109.2	103.2
Total Stops	10211	10499	11086	10382	10543	10763	10268
Fuel Used (gal)	146.6	142.8	149.3	141.7	141.8	143.3	139.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	5521	5511	5435	5503
Vehs Exited	5508	5549	5475	5536
Starting Vehs	237	262	261	253
Ending Vehs	250	224	221	222
Travel Distance (mi)	3380	3373	3327	3377
Travel Time (hr)	235.9	252.7	232.1	235.3
Total Delay (hr)	116.6	133.3	114.4	116.0
Total Stops	10459	11058	10374	10564
Fuel Used (gal)	143.8	148.0	141.4	143.9

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10
Volumes adjusted by PHF, Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording1

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1469	1481	1412	1476	1498	1459	1459
Vehs Exited	1516	1490	1501	1491	1541	1435	1447
Starting Vehs	289	249	297	254	293	216	211
Ending Vehs	242	240	208	239	250	240	223
Travel Distance (mi)	920	900	897	891	926	880	883
Travel Time (hr)	74.0	60.6	65.9	63.0	71.5	59.3	57.9
Total Delay (hr)	41.5	28.8	34.4	31.4	38.9	28.0	26.7
Total Stops	2893	2707	2833	2860	2990	2737	2589
Fuel Used (gal)	41.2	37.8	38.9	38.2	41.1	37.3	36.7

Interval #1 Information Recording1

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1467	1510	1415	1464
Vehs Exited	1431	1453	1422	1473
Starting Vehs	237	262	261	253
Ending Vehs	273	319	254	247
Travel Distance (mi)	882	899	874	895
Travel Time (hr)	64.7	72.2	64.7	65.4
Total Delay (hr)	33.3	40.3	33.6	33.7
Total Stops	2840	3196	2785	2838
Fuel Used (gal)	38.3	40.2	37.7	38.7

Interval #2 Information Recording2

Start Time	4:45
End Time	5:30
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	4028	4087	4225	3972	3902	4110	3977
Vehs Exited	4029	4104	4171	4012	3929	4131	4008
Starting Vehs	242	240	208	239	250	240	223
Ending Vehs	241	223	262	199	223	219	192
Travel Distance (mi)	2460	2501	2581	2465	2414	2514	2463
Travel Time (hr)	175.7	167.1	181.9	164.6	157.5	170.1	163.7
Total Delay (hr)	89.1	78.9	90.9	77.5	72.3	81.2	76.5
Total Stops	7318	7792	8253	7522	7553	8026	7679
Fuel Used (gal)	105.4	105.1	110.5	103.6	100.7	106.0	103.1

Interval #2 Information Recording2

Start Time	4:45
End Time	5:30
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	4054	4001	4020	4039
Vehs Exited	4077	4096	4053	4063
Starting Vehs	273	319	254	247
Ending Vehs	250	224	221	222
Travel Distance (mi)	2498	2474	2453	2482
Travel Time (hr)	171.2	180.5	167.3	170.0
Total Delay (hr)	83.3	93.0	80.8	82.3
Total Stops	7619	7862	7589	7723
Fuel Used (gal)	105.5	107.8	103.7	105.1

Queuing and Blocking Report
Existing No Build PM Peak

10/26/2022

Intersection: 1: 3rd St & Olney Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	275	569	330	394	274	453	430	151	355	386
Average Queue (ft)	145	280	112	249	69	261	242	50	151	178
95th Queue (ft)	286	493	246	392	199	395	376	115	289	317
Link Distance (ft)		991		398		1208	1208		911	911
Upstream Blk Time (%)		0		1						
Queuing Penalty (veh)		0		4						
Storage Bay Dist (ft)	175		250		175			75		
Storage Blk Time (%)	4	27	0	11	0	20		3	17	
Queuing Penalty (veh)	13	31	0	11	0	13		9	12	

Intersection: 2: 4th St & Olney Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	148	219	140	261	137	151
Average Queue (ft)	48	92	30	142	62	73
95th Queue (ft)	101	174	98	241	105	126
Link Distance (ft)		398		888	969	911
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	2	21	0	40		
Queuing Penalty (veh)	7	17	2	9		

Intersection: 3: 8th St & Olney Ave

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (ft)	259	466	198	511	200	174	582	175	411
Average Queue (ft)	69	220	88	200	112	64	302	117	212
95th Queue (ft)	183	374	176	404	211	164	539	203	353
Link Distance (ft)		904		835			1218		655
Upstream Blk Time (%)				0					
Queuing Penalty (veh)				0					
Storage Bay Dist (ft)	200		100		100	75		75	
Storage Blk Time (%)		11	4	24	5	1	51	21	37
Queuing Penalty (veh)		9	25	86	23	5	26	90	58

Intersection: 4: 3rd St & Revere Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	262	457	480	251	255	256	224	539	555	200	355	339
Average Queue (ft)	131	230	249	125	114	144	96	282	301	75	212	185
95th Queue (ft)	245	382	426	215	203	229	209	474	491	172	326	296
Link Distance (ft)		861	861		379	379		911	911		1026	1026
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (ft)	175			175			125			100		
Storage Blk Time (%)	2	22		4	1		4	34		5	37	
Queuing Penalty (veh)	3	30		5	3		18	31		14	19	

Intersection: 5: 4th St & Revere Ave

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	TR	LTR	LT	R
Maximum Queue (ft)	206	270	74	150	469	304	240	137
Average Queue (ft)	73	120	29	38	173	113	90	58
95th Queue (ft)	153	220	57	124	397	248	189	111
Link Distance (ft)		379	379		1772	911	744	
Upstream Blk Time (%)		0						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)	125			50				50
Storage Blk Time (%)	1	9		0	58		28	5
Queuing Penalty (veh)	3	12		2	14		48	15

Intersection: 6: 8th St & Revere Ave

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	143	161	106	175	538	146	550
Average Queue (ft)	65	83	54	121	208	23	314
95th Queue (ft)	115	135	91	210	430	111	628
Link Distance (ft)		1772	910		655		585
Upstream Blk Time (%)					0		14
Queuing Penalty (veh)					1		0
Storage Bay Dist (ft)	75			75		75	
Storage Blk Time (%)	4	11		11	52	0	73
Queuing Penalty (veh)	11	17		47	112	0	6

Network Summary

Network wide Queuing Penalty: 861

Appendix B.2:

Future (2040) No Build Intersection Operations

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6651	6529	6571	6585	6543	6575
Vehs Exited	6212	6265	6294	6132	6236	6228
Starting Vehs	446	499	494	426	487	469
Ending Vehs	885	763	771	879	794	817
Travel Distance (mi)	5424	5491	5463	5371	5407	5431
Travel Time (hr)	867.7	860.7	1002.6	862.4	896.5	898.0
Total Delay (hr)	674.2	664.3	807.5	670.6	703.9	704.1
Total Stops	16806	17412	16817	16832	16952	16963
Fuel Used (gal)	328.4	329.8	359.4	325.8	335.3	335.7

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10
Volumes adjusted by PHF, Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording1

Start Time	4:30
End Time	4:45
Total Time (min)	15
Volumes adjusted by PHF, Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	1704	1655	1798	1713	1737	1719
Vehs Exited	1584	1579	1584	1586	1599	1586
Starting Vehs	446	499	494	426	487	469
Ending Vehs	566	575	708	553	625	602
Travel Distance (mi)	1419	1411	1422	1416	1439	1422
Travel Time (hr)	140.0	142.9	163.4	136.1	147.0	145.9
Total Delay (hr)	89.4	92.3	112.6	85.2	95.5	95.0
Total Stops	4045	4361	4862	4392	4516	4434
Fuel Used (gal)	66.4	67.0	71.3	65.4	68.6	67.7

Interval #2 Information Recording2

Start Time	4:45
End Time	5:30
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4947	4874	4773	4872	4806	4853
Vehs Exited	4628	4686	4710	4546	4637	4641
Starting Vehs	566	575	708	553	625	602
Ending Vehs	885	763	771	879	794	817
Travel Distance (mi)	4004	4080	4041	3954	3968	4009
Travel Time (hr)	727.7	717.9	839.2	726.3	749.6	752.1
Total Delay (hr)	584.9	572.0	694.9	585.4	608.4	609.1
Total Stops	12761	13051	11955	12440	12436	12529
Fuel Used (gal)	262.0	262.8	288.1	260.4	266.7	268.0

Queuing and Blocking Report
 Future No Build PM Peak

10/26/2022

Intersection: 1: 3rd St & Olney Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	350	2795	350	412	275	1255	1267	175	881	898
Average Queue (ft)	308	2185	246	343	168	1123	1120	122	480	506
95th Queue (ft)	435	3353	406	453	336	1442	1453	206	881	899
Link Distance (ft)		2758		398		1208	1208		911	911
Upstream Blk Time (%)		43		6		45	44		0	0
Queuing Penalty (veh)		0		48		0	0		1	2
Storage Bay Dist (ft)	250		250		175			75		
Storage Blk Time (%)	41	61	26	22	4	58		33	49	
Queuing Penalty (veh)	223	91	148	37	25	67		165	56	

Intersection: 2: 4th St & Olney Ave

Movement	EB	EB	WB	WB	B55	NB	SB
Directions Served	L	TR	L	TR	T	LTR	LTR
Maximum Queue (ft)	150	386	150	995	918	328	298
Average Queue (ft)	113	215	84	938	689	132	125
95th Queue (ft)	195	366	205	1079	1219	338	301
Link Distance (ft)		398		888	904	969	911
Upstream Blk Time (%)		0		88	7		
Queuing Penalty (veh)		2		579	48		
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	12	70	1	100			
Queuing Penalty (veh)	64	98	4	35			

Intersection: 3: 8th St & Olney Ave

Movement	EB	EB	B55	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T	L	T	R	L	TR	L	TR
Maximum Queue (ft)	300	607	23	200	3263	200	175	1003	175	590
Average Queue (ft)	189	329	2	130	2056	180	116	485	114	298
95th Queue (ft)	335	598	23	251	4283	260	216	941	209	504
Link Distance (ft)		904	888		3638			1218		655
Upstream Blk Time (%)		0			31			2		1
Queuing Penalty (veh)		3			0			0		6
Storage Bay Dist (ft)	200			100		100	75		75	
Storage Blk Time (%)	15	22		7	72	10	25	54	20	50
Queuing Penalty (veh)	77	50		48	260	55	113	57	119	80

Intersection: 4: 3rd St & Revere Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	274	409	420	273	344	312	225	595	629	200	595	546
Average Queue (ft)	143	235	245	183	149	160	120	413	430	103	308	282
95th Queue (ft)	260	364	393	293	310	254	253	547	567	205	479	438
Link Distance (ft)		1834	1834		379	379		911	911		1026	1026
Upstream Blk Time (%)					1	0			0			
Queuing Penalty (veh)					3	0			0			
Storage Bay Dist (ft)	175			175			125			100		
Storage Blk Time (%)	3	25		19	1		4	54		10	48	
Queuing Penalty (veh)	4	35		26	3		24	51		38	36	

Intersection: 5: 4th St & Revere Ave

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	TR	LTR	LT	R
Maximum Queue (ft)	205	248	77	150	1111	785	793	150
Average Queue (ft)	84	138	32	64	703	557	690	149
95th Queue (ft)	165	231	65	182	1414	975	943	162
Link Distance (ft)		379	379		1772	911	744	
Upstream Blk Time (%)					0	2	64	
Queuing Penalty (veh)					2	9	0	
Storage Bay Dist (ft)	125			50				50
Storage Blk Time (%)	1	16		1	94		96	25
Queuing Penalty (veh)	4	23		2	24		260	106

Intersection: 6: 8th St & Revere Ave

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	162	242	125	175	660	175	1180
Average Queue (ft)	71	99	62	158	428	41	1117
95th Queue (ft)	126	177	109	221	761	161	1231
Link Distance (ft)		1772	1908		655		1108
Upstream Blk Time (%)					1		94
Queuing Penalty (veh)					12		0
Storage Bay Dist (ft)	75			75		75	
Storage Blk Time (%)	4	19		19	81		100
Queuing Penalty (veh)	14	36		104	208		10

Network Summary

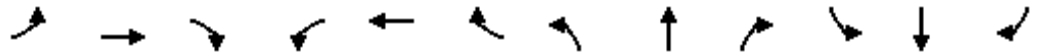
Network wide Queuing Penalty: 3596

Appendix B.3:

Alternatives Intersection Operations

HCM 6th Signalized Intersection Summary
 1: 3rd St & Olney Ave

11/03/2023

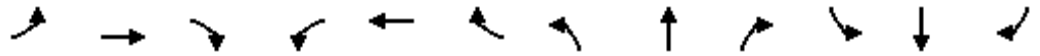


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	113	222	96	97	251	55	66	921	83	69	736	146
Future Volume (veh/h)	113	222	96	97	251	55	66	921	83	69	736	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1750	1736	1723	1750	1750	1750	1723	1750	1750	1736	1750
Adj Flow Rate, veh/h	114	224	97	98	254	56	67	930	84	70	743	147
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	0	1	2	0	0	0	2	0	0	1	0
Cap, veh/h	151	254	110	133	291	64	472	1548	140	315	1395	276
Arrive On Green	0.09	0.22	0.21	0.08	0.21	0.21	0.05	0.51	0.50	0.11	1.00	1.00
Sat Flow, veh/h	1641	1147	496	1641	1381	304	1667	3034	274	1667	2732	540
Grp Volume(v), veh/h	114	0	321	98	0	310	67	502	512	70	449	441
Grp Sat Flow(s),veh/h/ln	1641	0	1643	1641	0	1685	1667	1637	1672	1667	1650	1622
Q Serve(g_s), s	8.1	0.0	22.7	7.0	0.0	21.3	2.2	26.0	26.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	22.7	7.0	0.0	21.3	2.2	26.0	26.0	2.3	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.18	1.00		0.16	1.00		0.33
Lane Grp Cap(c), veh/h	151	0	364	133	0	355	472	835	853	315	843	829
V/C Ratio(X)	0.75	0.00	0.88	0.74	0.00	0.87	0.14	0.60	0.60	0.22	0.53	0.53
Avail Cap(c_a), veh/h	219	0	466	191	0	449	481	835	853	323	843	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.87	0.00	0.87	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	53.2	0.0	45.3	53.9	0.0	45.8	11.9	20.7	20.8	14.3	0.0	0.0
Incr Delay (d2), s/veh	6.8	0.0	14.0	5.6	0.0	12.0	0.1	3.2	3.1	0.2	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	10.7	3.1	0.0	10.2	0.8	10.3	10.5	0.8	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	0.0	59.3	59.5	0.0	57.8	12.0	23.9	23.9	14.4	1.8	1.8
LnGrp LOS	E	A	E	E	A	E	B	C	C	B	A	A
Approach Vol, veh/h		435			408			1081			960	
Approach Delay, s/veh		59.4			58.2			23.2			2.7	
Approach LOS		E			E			C			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	65.3	15.0	29.3	10.4	65.2	13.8	30.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	6.0	48.0	15.0	31.0	6.0	48.0	13.0	33.0				
Max Q Clear Time (g_c+I1), s	4.2	2.0	10.1	23.3	4.3	28.0	9.0	24.7				
Green Ext Time (p_c), s	0.0	23.0	0.1	0.8	0.0	14.7	0.1	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				26.8								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

2: 4th St & Olney Ave

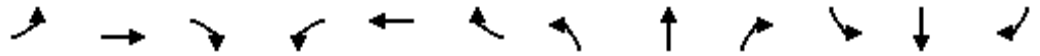
11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	277	16	24	306	47	8	147	45	95	93	89
Future Volume (veh/h)	81	277	16	24	306	47	8	147	45	95	93	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.96	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1695	1750	1750	1586	1723	1750	1736	1709	1736
Adj Flow Rate, veh/h	88	301	17	26	333	51	9	160	49	103	101	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	4	0	0	12	2	0	1	3	1
Cap, veh/h	458	581	33	491	459	70	128	288	85	321	211	429
Arrive On Green	0.07	0.35	0.35	0.03	0.31	0.31	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1667	1640	93	1615	1473	226	29	1234	366	627	903	1407
Grp Volume(v), veh/h	88	0	318	26	0	384	218	0	0	204	0	40
Grp Sat Flow(s),veh/h/ln	1667	0	1732	1615	0	1699	1630	0	0	1530	0	1407
Q Serve(g_s), s	1.1	0.0	4.5	0.3	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	1.1	0.0	4.5	0.3	0.0	6.2	3.6	0.0	0.0	3.3	0.0	0.6
Prop In Lane	1.00		0.05	1.00		0.13	0.04		0.22	0.50		1.00
Lane Grp Cap(c), veh/h	458	0	614	491	0	529	501	0	0	531	0	429
V/C Ratio(X)	0.19	0.00	0.52	0.05	0.00	0.73	0.44	0.00	0.00	0.38	0.00	0.09
Avail Cap(c_a), veh/h	827	0	1283	917	0	1258	1217	0	0	1143	0	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.0	0.0	7.9	7.1	0.0	9.5	10.5	0.0	0.0	10.4	0.0	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	1.4	0.4	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.2	0.1	0.0	1.8	1.1	0.0	0.0	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	0.0	8.4	7.1	0.0	10.9	11.0	0.0	0.0	10.7	0.0	7.9
LnGrp LOS	A	A	A	A	A	B	B	A	A	B	A	A
Approach Vol, veh/h		406			410			218			244	
Approach Delay, s/veh		8.2			10.7			11.0			10.2	
Approach LOS		A			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.2	6.1	13.7		11.2	4.8	15.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	9.0	23.0		21.0	9.0	23.0				
Max Q Clear Time (g_c+I1), s		5.3	3.1	8.2		5.6	2.3	6.5				
Green Ext Time (p_c), s		1.4	0.1	0.7		1.4	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
3: 8th St & Olney Ave

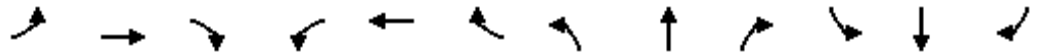
11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	348	59	143	327	235	54	388	94	156	490	21
Future Volume (veh/h)	81	348	59	143	327	235	54	388	94	156	490	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1736	1750	1736	1750	1736	1750	1736	1723	1682
Adj Flow Rate, veh/h	85	366	62	151	344	104	57	408	99	164	516	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	1	0	1	0	1	0	1	2	5
Cap, veh/h	284	401	68	215	501	517	352	591	143	360	800	717
Arrive On Green	0.07	0.28	0.27	0.08	0.29	0.29	0.05	0.44	0.43	0.08	0.46	0.46
Sat Flow, veh/h	1667	1451	246	1654	1750	1423	1667	1343	326	1654	1723	1394
Grp Volume(v), veh/h	85	0	428	151	344	104	57	0	507	164	516	22
Grp Sat Flow(s),veh/h/ln	1667	0	1696	1654	1750	1423	1667	0	1669	1654	1723	1394
Q Serve(g_s), s	4.2	0.0	29.3	7.8	21.0	6.0	2.2	0.0	29.4	6.3	27.5	0.9
Cycle Q Clear(g_c), s	4.2	0.0	29.3	7.8	21.0	6.0	2.2	0.0	29.4	6.3	27.5	0.9
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	284	0	469	215	501	517	352	0	734	360	800	717
V/C Ratio(X)	0.30	0.00	0.91	0.70	0.69	0.20	0.16	0.00	0.69	0.46	0.65	0.03
Avail Cap(c_a), veh/h	341	0	551	215	525	537	392	0	734	360	800	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	29.0	0.0	42.1	31.9	38.1	26.4	18.8	0.0	27.1	19.9	24.6	14.5
Incr Delay (d2), s/veh	0.2	0.0	16.5	8.3	2.8	0.1	0.1	0.0	5.3	0.3	3.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	14.5	3.6	9.4	2.1	0.8	0.0	12.4	2.3	11.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	58.6	40.2	40.9	26.5	18.9	0.0	32.4	20.1	27.9	14.5
LnGrp LOS	C	A	E	D	D	C	B	A	C	C	C	B
Approach Vol, veh/h		513			599			564			702	
Approach Delay, s/veh		53.7			38.2			31.0			25.7	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	59.7	11.9	38.3	13.0	56.8	13.0	37.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	46.0	11.0	35.0	8.0	46.0	8.0	38.0				
Max Q Clear Time (g_c+I1), s	4.2	29.5	7.2	23.0	8.3	31.4	9.8	31.3				
Green Ext Time (p_c), s	0.0	4.4	0.1	1.5	0.0	4.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			36.1									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
4: 3rd St & Revere Ave

11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕		↖	↕		↗	↕	↘
Traffic Volume (veh/h)	136	314	273	164	252	93	90	918	63	52	538	37
Future Volume (veh/h)	136	314	273	164	252	93	90	918	63	52	538	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1736	1736	1750	1736	1750	1723	1723	1723	1709	1750
Adj Flow Rate, veh/h	151	349	145	182	280	103	100	1020	70	58	598	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	0	1	0	2	2	2	3	0
Cap, veh/h	310	427	174	264	381	137	415	1449	99	86	833	57
Arrive On Green	0.19	0.19	0.18	0.16	0.16	0.15	0.50	0.93	0.92	0.05	0.27	0.26
Sat Flow, veh/h	1654	2274	927	1654	2384	855	1667	3104	213	1641	3082	211
Grp Volume(v), veh/h	151	251	243	182	193	190	100	538	552	58	315	324
Grp Sat Flow(s),veh/h/ln	1654	1650	1551	1654	1663	1576	1667	1637	1680	1641	1624	1670
Q Serve(g_s), s	9.8	17.5	18.1	12.5	13.2	13.8	4.1	7.6	7.8	4.2	21.0	21.1
Cycle Q Clear(g_c), s	9.8	17.5	18.1	12.5	13.2	13.8	4.1	7.6	7.8	4.2	21.0	21.1
Prop In Lane	1.00		0.60	1.00		0.54	1.00		0.13	1.00		0.13
Lane Grp Cap(c), veh/h	310	310	291	264	266	252	415	764	784	86	439	451
V/C Ratio(X)	0.49	0.81	0.83	0.69	0.73	0.75	0.24	0.70	0.70	0.68	0.72	0.72
Avail Cap(c_a), veh/h	345	344	323	331	333	315	415	764	784	96	555	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.80	0.80	0.80	0.73	0.73	0.73	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	46.7	47.2	47.6	47.9	48.4	23.7	2.4	2.5	55.9	39.6	39.7
Incr Delay (d2), s/veh	0.9	12.1	15.0	2.9	4.1	5.6	0.2	4.0	3.9	13.6	9.7	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	8.3	8.3	5.3	5.8	5.8	1.5	1.9	1.9	2.0	9.5	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	58.8	62.2	50.5	52.0	54.0	23.8	6.3	6.3	69.4	49.3	49.2
LnGrp LOS	D	E	E	D	D	D	C	A	A	E	D	D
Approach Vol, veh/h		645			565			1190			697	
Approach Delay, s/veh		56.7			52.2			7.8			50.9	
Approach LOS		E			D			A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.9	36.4		23.2	10.3	60.0		26.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	13.0	40.0		23.0	6.0	47.0		24.0				
Max Q Clear Time (g_c+I1), s	6.1	23.1		15.8	6.2	9.8		20.1				
Green Ext Time (p_c), s	0.1	8.3		1.5	0.0	23.8		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				35.8								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary

5: 4th St & Revere Ave

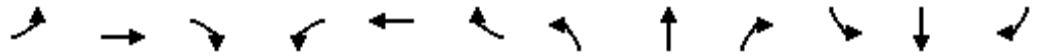
11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	231	68	24	283	88	49	208	40	131	147	168
Future Volume (veh/h)	130	231	68	24	283	88	49	208	40	131	147	168
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.97	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1750	1750	1750	1723	1750	1736	1750	1723	1736	1736
Adj Flow Rate, veh/h	141	251	31	26	308	96	53	226	43	142	160	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	0	0	0	2	0	1	0	2	1	1
Cap, veh/h	348	608	505	452	362	113	431	295	56	363	454	377
Arrive On Green	0.09	0.35	0.35	0.02	0.29	0.29	0.04	0.21	0.21	0.09	0.26	0.26
Sat Flow, veh/h	1654	1736	1441	1667	1268	395	1667	1404	267	1641	1736	1441
Grp Volume(v), veh/h	141	251	31	26	0	404	53	0	269	142	160	71
Grp Sat Flow(s),veh/h/ln	1654	1736	1441	1667	0	1664	1667	0	1671	1641	1736	1441
Q Serve(g_s), s	2.8	5.5	0.7	0.5	0.0	11.4	1.2	0.0	7.5	3.2	3.7	1.9
Cycle Q Clear(g_c), s	2.8	5.5	0.7	0.5	0.0	11.4	1.2	0.0	7.5	3.2	3.7	1.9
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	348	608	505	452	0	475	431	0	351	363	454	377
V/C Ratio(X)	0.41	0.41	0.06	0.06	0.00	0.85	0.12	0.00	0.77	0.39	0.35	0.19
Avail Cap(c_a), veh/h	799	978	812	713	0	636	664	0	605	507	629	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	12.3	10.7	12.1	0.0	16.8	14.4	0.0	18.5	13.5	14.9	14.2
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	0.0	7.5	0.1	0.0	2.6	0.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	0.2	0.2	0.0	4.8	0.4	0.0	2.9	1.1	1.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	12.6	10.8	12.1	0.0	24.3	14.5	0.0	21.1	14.0	15.3	14.4
LnGrp LOS	B	B	B	B	A	C	B	A	C	B	B	B
Approach Vol, veh/h		423			430			322			373	
Approach Delay, s/veh		12.3			23.6			20.0			14.6	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	17.0	8.4	18.2	8.6	14.4	5.2	21.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	18.0	19.0	9.0	18.0	9.0	28.0				
Max Q Clear Time (g_c+I1), s	3.2	5.7	4.8	13.4	5.2	9.5	2.5	7.5				
Green Ext Time (p_c), s	0.0	0.4	0.4	0.5	0.2	0.4	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay				17.6								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary
6: 8th St & Revere Ave

11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	78	207	22	91	14	225	463	16	8	438	50
Future Volume (veh/h)	151	78	207	22	91	14	225	463	16	8	438	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.60		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1750	1723	1750	1736	1750	1736	1723	1750	1750	1723	1750
Adj Flow Rate, veh/h	159	82	132	23	96	15	237	487	17	8	461	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	2	0	1	0	1	2	0	0	2	0
Cap, veh/h	239	97	156	137	144	22	546	1077	38	599	876	101
Arrive On Green	0.11	0.16	0.16	0.04	0.10	0.10	0.16	1.00	1.00	0.01	0.58	0.58
Sat Flow, veh/h	1654	596	960	1667	1459	228	1654	1653	58	1667	1513	174
Grp Volume(v), veh/h	159	0	214	23	0	111	237	0	504	8	0	514
Grp Sat Flow(s),veh/h/ln	1654	0	1556	1667	0	1687	1654	0	1711	1667	0	1687
Q Serve(g_s), s	10.9	0.0	16.0	0.0	0.0	7.6	7.1	0.0	0.0	0.2	0.0	22.1
Cycle Q Clear(g_c), s	10.9	0.0	16.0	0.0	0.0	7.6	7.1	0.0	0.0	0.2	0.0	22.1
Prop In Lane	1.00		0.62	1.00		0.14	1.00		0.03	1.00		0.10
Lane Grp Cap(c), veh/h	239	0	254	137	0	166	546	0	1115	599	0	977
V/C Ratio(X)	0.66	0.00	0.84	0.17	0.00	0.67	0.43	0.00	0.45	0.01	0.00	0.53
Avail Cap(c_a), veh/h	280	0	363	188	0	295	647	0	1115	711	0	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.00	0.94	1.00	0.00	1.00	0.80	0.00	0.80	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	0.0	48.7	54.8	0.0	52.2	9.7	0.0	0.0	10.3	0.0	15.3
Incr Delay (d2), s/veh	4.4	0.0	11.1	0.4	0.0	3.4	0.3	0.0	1.1	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	7.0	0.7	0.0	3.4	1.9	0.0	0.3	0.1	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	0.0	59.8	55.2	0.0	55.6	10.0	0.0	1.1	10.3	0.0	17.3
LnGrp LOS	D	A	E	E	A	E	B	A	A	B	A	B
Approach Vol, veh/h		373			134			741				522
Approach Delay, s/veh		56.8			55.5			3.9				17.2
Approach LOS		E			E			A				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	73.5	17.0	15.8	4.9	82.2	9.3	23.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	17.0	50.0	16.0	21.0	9.0	58.0	9.0	28.0				
Max Q Clear Time (g_c+I1), s	9.1	0.0	12.9	9.6	2.2	0.0	2.0	18.0				
Green Ext Time (p_c), s	0.5	0.0	0.2	0.1	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay				22.9								
HCM 6th LOS				C								

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:27	4:27	4:27	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5941	6002	6000	6037	6039	6129	6175
Vehs Exited	5775	5881	5834	5853	5915	5997	6023
Starting Vehs	270	265	251	277	268	287	266
Ending Vehs	436	386	417	461	392	419	418
Travel Distance (mi)	8696	8823	8737	8782	8850	9035	9026
Travel Time (hr)	421.4	434.2	426.3	431.3	434.8	450.0	444.8
Total Delay (hr)	118.8	127.1	121.9	124.4	127.3	135.1	130.3
Total Stops	9111	9472	9149	9283	9480	9899	9605
Fuel Used (gal)	291.0	297.8	292.8	294.7	298.7	306.6	304.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5959	5906	6070	6029
Vehs Exited	5767	5759	5899	5871
Starting Vehs	269	299	278	270
Ending Vehs	461	446	449	426
Travel Distance (mi)	8730	8615	8890	8819
Travel Time (hr)	427.6	413.5	437.0	432.1
Total Delay (hr)	123.1	113.7	127.1	124.9
Total Stops	9285	8830	9580	9369
Fuel Used (gal)	292.6	287.3	299.4	296.6

Interval #0 Information Seeding

Start Time	4:27
End Time	4:30
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5941	6002	6000	6037	6039	6129	6175
Vehs Exited	5775	5881	5834	5853	5915	5997	6023
Starting Vehs	270	265	251	277	268	287	266
Ending Vehs	436	386	417	461	392	419	418
Travel Distance (mi)	8696	8823	8737	8782	8850	9035	9026
Travel Time (hr)	421.4	434.2	426.3	431.3	434.8	450.0	444.8
Total Delay (hr)	118.8	127.1	121.9	124.4	127.3	135.1	130.3
Total Stops	9111	9472	9149	9283	9480	9899	9605
Fuel Used (gal)	291.0	297.8	292.8	294.7	298.7	306.6	304.9

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	5959	5906	6070	6029
Vehs Exited	5767	5759	5899	5871
Starting Vehs	269	299	278	270
Ending Vehs	461	446	449	426
Travel Distance (mi)	8730	8615	8890	8819
Travel Time (hr)	427.6	413.5	437.0	432.1
Total Delay (hr)	123.1	113.7	127.1	124.9
Total Stops	9285	8830	9580	9369
Fuel Used (gal)	292.6	287.3	299.4	296.6

Queuing and Blocking Report
2021 PM Peak - Build Signals

11/03/2023

Intersection: 1: 3rd St & Olney Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	274	393	294	375	223	309	336	148	251	266
Average Queue (ft)	113	196	88	200	47	200	226	42	124	147
95th Queue (ft)	228	332	195	332	126	309	327	97	226	251
Link Distance (ft)		3117		380		3164	3164		912	912
Upstream Blk Time (%)				1						
Queuing Penalty (veh)				3						
Storage Bay Dist (ft)	175		250		175			75		
Storage Blk Time (%)	1	16	0	7		10		2	17	
Queuing Penalty (veh)	2	19	1	7		7		6	12	

Intersection: 2: 4th St & Olney Ave

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	131	209	140	337	151	164	69
Average Queue (ft)	38	82	27	158	70	78	31
95th Queue (ft)	85	164	91	287	126	136	62
Link Distance (ft)		380		882	3156	911	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				150
Storage Blk Time (%)	3	10	1	22		0	
Queuing Penalty (veh)	11	9	3	6		0	

Intersection: 3: 8th St & Olney Ave

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	300	498	200	660	200	174	457	175	554	148
Average Queue (ft)	92	259	118	253	126	63	281	106	269	20
95th Queue (ft)	259	433	217	507	237	167	434	202	485	106
Link Distance (ft)		891		4920			3387		656	
Upstream Blk Time (%)									0	
Queuing Penalty (veh)									0	
Storage Bay Dist (ft)	200		100		100	75		75		100
Storage Blk Time (%)		22	13	38	5	1	43	20	36	
Queuing Penalty (veh)		19	75	151	25	6	25	110	67	

Queuing and Blocking Report
2021 PM Peak - Build Signals

11/03/2023

Intersection: 4: 3rd St & Revere Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	275	378	412	241	228	228	224	483	496	189	275	311
Average Queue (ft)	116	198	205	124	111	134	94	249	262	63	171	188
95th Queue (ft)	234	321	354	211	192	205	201	415	424	146	271	297
Link Distance (ft)		2720	2720		372	372		912	912		3176	3176
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	175			175			125			100		
Storage Blk Time (%)	1	18		4	1		1	29		5	30	
Queuing Penalty (veh)	2	28		5	2		7	29		14	17	

Intersection: 5: 4th St & Revere Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	T	R
Maximum Queue (ft)	172	219	61	148	326	140	193	143	150	114
Average Queue (ft)	67	101	19	26	145	33	97	52	64	52
95th Queue (ft)	133	202	46	91	259	86	169	101	119	93
Link Distance (ft)		372	372		1766		911		3149	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	125			50		50		100		100
Storage Blk Time (%)	1	4		0	37	3	22	1	1	0
Queuing Penalty (veh)	2	6		2	10	7	11	3	4	1

Intersection: 6: 8th St & Revere Ave

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	174	431	66	180	174	351	101	386
Average Queue (ft)	116	175	22	79	96	142	8	206
95th Queue (ft)	201	336	56	147	174	291	54	360
Link Distance (ft)		1766		4859		656		3133
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75		100		75		75	
Storage Blk Time (%)	25	33	0	11	16	17		28
Queuing Penalty (veh)	74	52	0	2	80	41		2

Network Summary

Network wide Queuing Penalty: 967

HCM 6th Signalized Intersection Summary

1: 3rd St & Olney Ave

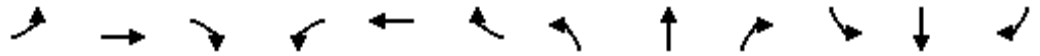
11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	150	400	140	165	495	85	115	1185	145	115	990	245
Future Volume (veh/h)	150	400	140	165	495	85	115	1185	145	115	990	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1750	1736	1723	1750	1750	1750	1723	1750	1750	1736	1750
Adj Flow Rate, veh/h	150	400	140	165	495	85	115	1185	145	115	990	245
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	1	2	0	0	0	2	0	0	1	0
Cap, veh/h	188	359	125	191	426	73	192	1174	143	157	1043	257
Arrive On Green	0.11	0.29	0.28	0.12	0.29	0.29	0.06	0.40	0.39	0.12	0.80	0.78
Sat Flow, veh/h	1641	1229	430	1641	1449	249	1667	2934	358	1667	2606	643
Grp Volume(v), veh/h	150	0	540	165	0	580	115	659	671	115	625	610
Grp Sat Flow(s),veh/h/ln	1641	0	1660	1641	0	1698	1667	1637	1656	1667	1650	1599
Q Serve(g_s), s	10.7	0.0	35.0	11.9	0.0	35.3	4.8	48.0	48.0	4.9	37.6	38.8
Cycle Q Clear(g_c), s	10.7	0.0	35.0	11.9	0.0	35.3	4.8	48.0	48.0	4.9	37.6	38.8
Prop In Lane	1.00		0.26	1.00		0.15	1.00		0.22	1.00		0.40
Lane Grp Cap(c), veh/h	188	0	484	191	0	499	192	655	662	157	660	640
V/C Ratio(X)	0.80	0.00	1.12	0.86	0.00	1.16	0.60	1.01	1.01	0.73	0.95	0.95
Avail Cap(c_a), veh/h	219	0	484	191	0	499	192	655	662	157	660	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	0.53	0.00	0.53	1.00	1.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	51.8	0.0	42.6	52.1	0.0	42.4	27.1	36.0	36.1	26.8	11.0	11.4
Incr Delay (d2), s/veh	15.4	0.0	76.4	18.4	0.0	84.5	4.4	37.0	38.2	9.8	17.5	18.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	24.6	5.9	0.0	26.5	2.1	25.1	25.7	2.1	7.2	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	119.1	70.5	0.0	126.9	31.5	73.0	74.3	36.6	28.5	30.2
LnGrp LOS	E	A	F	E	A	F	C	F	F	D	C	C
Approach Vol, veh/h		690			745			1445			1350	
Approach Delay, s/veh		107.8			114.4			70.3			30.0	
Approach LOS		F			F			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	52.0	17.7	39.3	11.0	52.0	18.0	39.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	6.0	47.0	15.0	32.0	6.0	47.0	13.0	34.0				
Max Q Clear Time (g_c+I1), s	6.8	40.8	12.7	37.3	6.9	50.0	13.9	37.0				
Green Ext Time (p_c), s	0.0	5.7	0.1	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				71.3								
HCM 6th LOS				E								

HCM 6th Signalized Intersection Summary
 2: 4th St & Olney Ave

11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	495	25	35	595	70	15	210	70	120	100	135
Future Volume (veh/h)	140	495	25	35	595	70	15	210	70	120	100	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1695	1750	1750	1586	1723	1750	1736	1709	1736
Adj Flow Rate, veh/h	140	495	25	35	595	70	15	210	70	120	100	83
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	4	0	0	12	2	0	1	3	1
Cap, veh/h	317	783	40	405	657	77	81	292	93	250	173	481
Arrive On Green	0.08	0.47	0.47	0.03	0.43	0.43	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1667	1651	83	1615	1530	180	28	1113	355	540	660	1411
Grp Volume(v), veh/h	140	0	520	35	0	665	295	0	0	220	0	83
Grp Sat Flow(s),veh/h/ln	1667	0	1734	1615	0	1710	1496	0	0	1200	0	1411
Q Serve(g_s), s	2.3	0.0	11.6	0.6	0.0	18.7	0.9	0.0	0.0	0.0	0.0	2.1
Cycle Q Clear(g_c), s	2.3	0.0	11.6	0.6	0.0	18.7	9.7	0.0	0.0	8.8	0.0	2.1
Prop In Lane	1.00		0.05	1.00		0.11	0.05		0.24	0.55		1.00
Lane Grp Cap(c), veh/h	317	0	822	405	0	734	466	0	0	423	0	481
V/C Ratio(X)	0.44	0.00	0.63	0.09	0.00	0.91	0.63	0.00	0.00	0.52	0.00	0.17
Avail Cap(c_a), veh/h	483	0	1112	638	0	1097	700	0	0	613	0	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	10.2	8.5	0.0	13.7	17.2	0.0	0.0	16.9	0.0	12.0
Incr Delay (d2), s/veh	0.7	0.0	0.6	0.1	0.0	6.9	1.1	0.0	0.0	0.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	3.7	0.2	0.0	7.4	3.0	0.0	0.0	2.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	10.8	8.6	0.0	20.6	18.2	0.0	0.0	17.6	0.0	12.1
LnGrp LOS	B	A	B	A	A	C	B	A	A	B	A	B
Approach Vol, veh/h		660			700			295			303	
Approach Delay, s/veh		11.0			20.0			18.2			16.1	
Approach LOS		B			C			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.5	7.9	26.1		17.5	5.6	28.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	9.0	33.0		21.0	9.0	33.0				
Max Q Clear Time (g_c+I1), s		10.8	4.3	20.7		11.7	2.6	13.6				
Green Ext Time (p_c), s		1.4	0.2	1.4		1.5	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay				16.1								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

4: 3rd St & Revere Ave

11/03/2023



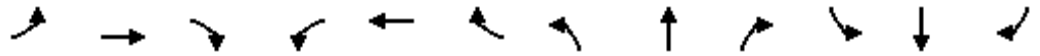
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	315	275	265	275	140	95	1190	115	75	785	40
Future Volume (veh/h)	140	315	275	265	275	140	95	1190	115	75	785	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1736	1736	1750	1736	1750	1723	1723	1723	1709	1750
Adj Flow Rate, veh/h	140	315	133	265	275	140	95	1190	115	75	785	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	0	1	0	2	2	2	3	0
Cap, veh/h	293	401	166	312	404	199	265	1332	128	96	1074	55
Arrive On Green	0.18	0.18	0.17	0.19	0.19	0.18	0.32	0.88	0.87	0.06	0.34	0.33
Sat Flow, veh/h	1654	2264	934	1654	2143	1058	1667	3011	290	1641	3143	160
Grp Volume(v), veh/h	140	228	220	265	211	204	95	646	659	75	405	420
Grp Sat Flow(s),veh/h/ln	1654	1650	1548	1654	1663	1539	1667	1637	1665	1641	1624	1679
Q Serve(g_s), s	9.1	15.8	16.4	18.6	14.2	14.9	5.3	25.8	26.6	5.4	26.3	26.3
Cycle Q Clear(g_c), s	9.1	15.8	16.4	18.6	14.2	14.9	5.3	25.8	26.6	5.4	26.3	26.3
Prop In Lane	1.00		0.60	1.00		0.69	1.00		0.17	1.00		0.10
Lane Grp Cap(c), veh/h	293	292	275	312	313	290	265	724	737	96	555	574
V/C Ratio(X)	0.48	0.78	0.80	0.85	0.67	0.70	0.36	0.89	0.90	0.78	0.73	0.73
Avail Cap(c_a), veh/h	345	344	323	331	333	308	265	724	737	96	555	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.73	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	47.1	47.7	47.0	45.3	45.9	36.2	5.3	5.5	55.8	34.7	34.7
Incr Delay (d2), s/veh	0.9	8.6	11.1	13.3	3.3	4.5	0.1	1.8	1.8	32.5	8.3	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	7.2	7.2	8.8	6.1	6.1	2.0	2.6	2.7	3.1	11.4	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	55.7	58.8	60.3	48.6	50.3	36.2	7.1	7.3	88.3	42.9	42.7
LnGrp LOS	D	E	E	E	D	D	D	A	A	F	D	D
Approach Vol, veh/h		588			680			1400				900
Approach Delay, s/veh		54.4			53.7			9.2				46.6
Approach LOS		D			D			A				D
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.1	45.0		26.6	11.0	57.1		25.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	13.0	40.0		23.0	6.0	47.0		24.0				
Max Q Clear Time (g_c+I1), s	7.3	28.3		20.6	7.4	28.6		18.4				
Green Ext Time (p_c), s	0.1	7.8		0.8	0.0	15.6		1.4				

Intersection Summary

HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
5: 4th St & Revere Ave

11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	280	80	25	325	100	75	310	60	205	225	270
Future Volume (veh/h)	145	280	80	25	325	100	75	310	60	205	225	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.97	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1750	1750	1750	1723	1750	1736	1750	1723	1736	1736
Adj Flow Rate, veh/h	145	280	40	25	325	100	75	310	60	205	225	88
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	0	0	0	2	0	1	0	2	1	1
Cap, veh/h	300	610	507	395	364	112	435	357	69	349	561	466
Arrive On Green	0.09	0.35	0.35	0.02	0.29	0.29	0.05	0.26	0.26	0.12	0.32	0.32
Sat Flow, veh/h	1654	1736	1441	1667	1273	392	1667	1401	271	1641	1736	1443
Grp Volume(v), veh/h	145	280	40	25	0	425	75	0	370	205	225	88
Grp Sat Flow(s),veh/h/ln	1654	1736	1441	1667	0	1665	1667	0	1672	1641	1736	1443
Q Serve(g_s), s	3.6	7.8	1.2	0.7	0.0	15.4	2.1	0.0	13.3	5.3	6.3	2.8
Cycle Q Clear(g_c), s	3.6	7.8	1.2	0.7	0.0	15.4	2.1	0.0	13.3	5.3	6.3	2.8
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	300	610	507	395	0	477	435	0	427	349	561	466
V/C Ratio(X)	0.48	0.46	0.08	0.06	0.00	0.89	0.17	0.00	0.87	0.59	0.40	0.19
Avail Cap(c_a), veh/h	630	913	758	597	0	637	594	0	613	394	637	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	15.7	13.6	15.3	0.0	21.5	16.0	0.0	22.4	15.1	16.5	15.3
Incr Delay (d2), s/veh	0.9	0.4	0.0	0.0	0.0	11.2	0.1	0.0	8.1	1.4	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.9	0.4	0.2	0.0	7.1	0.8	0.0	5.9	1.9	2.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	16.1	13.6	15.4	0.0	32.6	16.1	0.0	30.5	16.5	16.9	15.5
LnGrp LOS	B	B	B	B	A	C	B	A	C	B	B	B
Approach Vol, veh/h		465			450			445			518	
Approach Delay, s/veh		15.8			31.7			28.1			16.5	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	24.3	9.5	22.0	11.3	20.0	5.4	26.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	23.0	18.0	24.0	9.0	23.0	9.0	33.0				
Max Q Clear Time (g_c+I1), s	4.1	8.3	5.6	17.4	7.3	15.3	2.7	9.8				
Green Ext Time (p_c), s	0.1	0.6	0.4	0.6	0.1	0.5	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay				22.7								
HCM 6th LOS				C								

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:27	4:27	4:27	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5930	6001	5934	6075	5935	5999	6053
Vehs Exited	5657	5713	5676	5730	5569	5604	5713
Starting Vehs	307	268	309	305	262	241	254
Ending Vehs	580	556	567	650	628	636	594
Travel Distance (mi)	7326	7396	7301	7410	7248	7305	7419
Travel Time (hr)	500.8	504.4	506.4	503.4	535.6	514.6	525.0
Total Delay (hr)	243.9	245.3	250.5	244.7	281.9	258.5	265.0
Total Stops	10707	10417	9909	11123	10372	11373	11489
Fuel Used (gal)	278.9	280.7	279.4	281.8	284.3	280.9	286.0

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6029	6054	5993	6000
Vehs Exited	5733	5672	5615	5670
Starting Vehs	283	282	283	279
Ending Vehs	579	664	661	610
Travel Distance (mi)	7403	7392	7302	7350
Travel Time (hr)	536.5	531.1	584.1	524.2
Total Delay (hr)	277.3	272.4	328.6	266.8
Total Stops	11221	11959	11528	11010
Fuel Used (gal)	287.6	286.6	295.4	284.2

Interval #0 Information Seeding

Start Time	4:27
End Time	4:30
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5930	6001	5934	6075	5935	5999	6053
Vehs Exited	5657	5713	5676	5730	5569	5604	5713
Starting Vehs	307	268	309	305	262	241	254
Ending Vehs	580	556	567	650	628	636	594
Travel Distance (mi)	7326	7396	7301	7410	7248	7305	7419
Travel Time (hr)	500.8	504.4	506.4	503.4	535.6	514.6	525.0
Total Delay (hr)	243.9	245.3	250.5	244.7	281.9	258.5	265.0
Total Stops	10707	10417	9909	11123	10372	11373	11489
Fuel Used (gal)	278.9	280.7	279.4	281.8	284.3	280.9	286.0

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	6029	6054	5993	6000
Vehs Exited	5733	5672	5615	5670
Starting Vehs	283	282	283	279
Ending Vehs	579	664	661	610
Travel Distance (mi)	7403	7392	7302	7350
Travel Time (hr)	536.5	531.1	584.1	524.2
Total Delay (hr)	277.3	272.4	328.6	266.8
Total Stops	11221	11959	11528	11010
Fuel Used (gal)	287.6	286.6	295.4	284.2

Queuing and Blocking Report
2040 PM Peak - Build Signals

11/03/2023

Intersection: 1: 3rd St & Olney Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	275	2560	350	410	275	891	892	174	524	543
Average Queue (ft)	228	1571	265	386	157	555	575	102	294	317
95th Queue (ft)	358	2838	442	423	334	987	1001	195	545	563
Link Distance (ft)		3117		380		3164	3164		912	912
Upstream Blk Time (%)		1		26					0	0
Queuing Penalty (veh)		0		190					0	1
Storage Bay Dist (ft)	175		250		175			75		
Storage Blk Time (%)	11	68	12	54	2	46		29	44	
Queuing Penalty (veh)	60	102	69	89	13	53		143	51	

Intersection: 2: 4th St & Olney Ave

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	149	330	149	2733	451	538	250
Average Queue (ft)	72	156	43	1676	188	197	108
95th Queue (ft)	142	288	142	3193	384	448	243
Link Distance (ft)		380		2712	3156	911	
Upstream Blk Time (%)		0		23			
Queuing Penalty (veh)		0		0			
Storage Bay Dist (ft)	50		50				150
Storage Blk Time (%)	16	18	1	69		26	2
Queuing Penalty (veh)	83	25	6	24		36	4

Intersection: 4: 3rd St & Revere Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	248	332	360	273	313	251	225	422	434	200	362	370
Average Queue (ft)	99	182	190	175	131	149	112	320	335	85	216	238
95th Queue (ft)	196	295	326	272	256	225	240	432	446	182	331	349
Link Distance (ft)		2720	2720		372	372		912	912		3176	3176
Upstream Blk Time (%)					1							
Queuing Penalty (veh)					2							
Storage Bay Dist (ft)	175			175			125			100		
Storage Blk Time (%)	1	15		16	1		2	50		8	33	
Queuing Penalty (veh)	1	21		21	3		9	48		33	25	

Queuing and Blocking Report
 2040 PM Peak - Build Signals

11/03/2023

Intersection: 5: 4th St & Revere Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	T	R
Maximum Queue (ft)	192	239	67	149	352	150	331	159	211	158
Average Queue (ft)	72	118	21	29	177	48	148	72	87	68
95th Queue (ft)	144	211	51	100	293	124	268	125	163	124
Link Distance (ft)		372	372		2016		911		3150	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	125			50		50		100		100
Storage Blk Time (%)	1	5		1	45	4	34	3	4	1
Queuing Penalty (veh)	2	7		4	11	17	25	15	21	6

Network Summary

Network wide Queuing Penalty: 1222

HCM 6th Signalized Intersection Summary

3: 8th St & Olney Ave

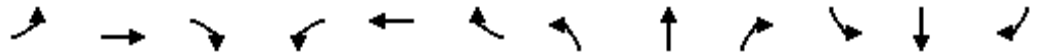
11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	480	85	145	435	250	110	415	95	160	600	115
Future Volume (veh/h)	195	480	85	145	435	250	110	415	95	160	600	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1736	1750	1736	1750	1736	1750	1736	1723	1682
Adj Flow Rate, veh/h	195	480	85	145	435	164	110	415	95	160	600	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	0	1	0	1	0	1	2	5
Cap, veh/h	291	468	83	184	525	537	228	533	122	296	696	682
Arrive On Green	0.10	0.32	0.32	0.08	0.30	0.30	0.06	0.39	0.38	0.08	0.40	0.40
Sat Flow, veh/h	1667	1440	255	1654	1750	1423	1667	1360	311	1654	1723	1394
Grp Volume(v), veh/h	195	0	565	145	435	164	110	0	510	160	600	115
Grp Sat Flow(s),veh/h/ln	1667	0	1695	1654	1750	1423	1667	0	1672	1654	1723	1394
Q Serve(g_s), s	9.3	0.0	39.0	7.2	27.8	9.8	4.6	0.0	32.1	6.9	38.2	5.5
Cycle Q Clear(g_c), s	9.3	0.0	39.0	7.2	27.8	9.8	4.6	0.0	32.1	6.9	38.2	5.5
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	551	184	525	537	228	0	655	296	696	682
V/C Ratio(X)	0.67	0.00	1.03	0.79	0.83	0.31	0.48	0.00	0.78	0.54	0.86	0.17
Avail Cap(c_a), veh/h	291	0	551	184	525	537	249	0	655	296	696	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	27.6	0.0	40.6	31.1	39.1	26.5	25.7	0.0	32.0	24.1	32.7	17.2
Incr Delay (d2), s/veh	4.8	0.0	45.0	18.6	10.0	0.1	0.6	0.0	8.9	0.7	8.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	23.1	3.8	13.4	3.4	1.8	0.0	14.2	2.6	17.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	85.6	49.6	49.2	26.6	26.3	0.0	40.9	24.8	41.0	17.5
LnGrp LOS	C	A	F	D	D	C	C	A	D	C	D	B
Approach Vol, veh/h		760			744			620			875	
Approach Delay, s/veh		72.0			44.3			38.3			35.0	
Approach LOS		E			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	52.5	16.0	40.0	13.0	51.0	13.0	43.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	46.0	11.0	35.0	8.0	46.0	8.0	38.0				
Max Q Clear Time (g_c+I1), s	6.6	40.2	12.3	29.8	8.9	34.1	9.2	41.0				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.3	0.0	3.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			47.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
6: 8th St & Revere Ave

11/03/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	80	275	25	95	15	270	570	20	10	575	65
Future Volume (veh/h)	185	80	275	25	95	15	270	570	20	10	575	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.84		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1750	1723	1750	1736	1750	1736	1723	1750	1750	1723	1750
Adj Flow Rate, veh/h	185	80	170	25	95	15	270	570	20	10	575	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	0	2	0	1	0	1	2	0	0	2	0
Cap, veh/h	262	91	193	129	143	23	435	1053	37	528	844	95
Arrive On Green	0.12	0.18	0.18	0.04	0.10	0.10	0.12	0.85	0.85	0.01	0.56	0.56
Sat Flow, veh/h	1654	493	1048	1667	1456	230	1654	1653	58	1667	1516	171
Grp Volume(v), veh/h	185	0	250	25	0	110	270	0	590	10	0	640
Grp Sat Flow(s),veh/h/ln	1654	0	1541	1667	0	1686	1654	0	1711	1667	0	1687
Q Serve(g_s), s	12.6	0.0	19.0	0.0	0.0	7.6	8.2	0.0	11.7	0.3	0.0	32.5
Cycle Q Clear(g_c), s	12.6	0.0	19.0	0.0	0.0	7.6	8.2	0.0	11.7	0.3	0.0	32.5
Prop In Lane	1.00		0.68	1.00		0.14	1.00		0.03	1.00		0.10
Lane Grp Cap(c), veh/h	262	0	284	129	0	165	435	0	1089	528	0	940
V/C Ratio(X)	0.71	0.00	0.88	0.19	0.00	0.67	0.62	0.00	0.54	0.02	0.00	0.68
Avail Cap(c_a), veh/h	280	0	360	194	0	295	522	0	1089	638	0	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.70	0.00	0.70	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	47.7	55.5	0.0	52.2	15.1	0.0	4.2	11.4	0.0	19.0
Incr Delay (d2), s/veh	7.3	0.0	18.2	0.5	0.0	3.4	0.9	0.0	1.4	0.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	8.8	0.8	0.0	3.4	2.6	0.0	3.0	0.1	0.0	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	65.9	56.1	0.0	55.6	16.0	0.0	5.6	11.4	0.0	23.0
LnGrp LOS	D	A	E	E	A	E	B	A	A	B	A	C
Approach Vol, veh/h		435			135			860			650	
Approach Delay, s/veh		60.9			55.7			8.8			22.8	
Approach LOS		E			E			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	70.8	18.7	15.8	5.1	80.4	8.3	26.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	17.0	50.0	16.0	21.0	9.0	58.0	9.0	28.0				
Max Q Clear Time (g_c+I1), s	10.2	0.0	14.6	9.6	2.3	0.0	2.0	21.0				
Green Ext Time (p_c), s	0.6	0.0	0.1	0.1	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay				27.1								
HCM 6th LOS				C								

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:27	4:27	4:27	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	3522	3529	3512	3664	3529	3636	3558
Vehs Exited	3400	3385	3316	3426	3348	3425	3384
Starting Vehs	168	155	152	170	169	166	173
Ending Vehs	290	299	348	408	350	377	347
Travel Distance (mi)	4341	4319	4279	4435	4303	4385	4364
Travel Time (hr)	287.1	263.5	249.3	343.5	273.4	286.9	287.8
Total Delay (hr)	135.1	112.9	100.1	188.2	122.6	134.1	135.2
Total Stops	6173	6260	5390	7504	6449	6846	6381
Fuel Used (gal)	160.5	155.5	149.8	173.8	155.6	160.8	161.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:27	4:27	4:27	4:27
End Time	5:30	5:30	5:30	5:30
Total Time (min)	63	63	63	63
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3522	3494	3547	3551
Vehs Exited	3308	3376	3406	3379
Starting Vehs	186	166	171	169
Ending Vehs	400	284	312	343
Travel Distance (mi)	4261	4303	4368	4336
Travel Time (hr)	285.7	256.4	269.9	280.3
Total Delay (hr)	137.0	106.0	117.3	128.9
Total Stops	6514	5783	6442	6374
Fuel Used (gal)	158.7	153.2	157.3	158.6

Interval #0 Information Seeding

Start Time	4:27
End Time	4:30
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3522	3529	3512	3664	3529	3636	3558
Vehs Exited	3400	3385	3316	3426	3348	3425	3384
Starting Vehs	168	155	152	170	169	166	173
Ending Vehs	290	299	348	408	350	377	347
Travel Distance (mi)	4341	4319	4279	4435	4303	4385	4364
Travel Time (hr)	287.1	263.5	249.3	343.5	273.4	286.9	287.8
Total Delay (hr)	135.1	112.9	100.1	188.2	122.6	134.1	135.2
Total Stops	6173	6260	5390	7504	6449	6846	6381
Fuel Used (gal)	160.5	155.5	149.8	173.8	155.6	160.8	161.1

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	3522	3494	3547	3551
Vehs Exited	3308	3376	3406	3379
Starting Vehs	186	166	171	169
Ending Vehs	400	284	312	343
Travel Distance (mi)	4261	4303	4368	4336
Travel Time (hr)	285.7	256.4	269.9	280.3
Total Delay (hr)	137.0	106.0	117.3	128.9
Total Stops	6514	5783	6442	6374
Fuel Used (gal)	158.7	153.2	157.3	158.6

Intersection: 3: 8th St & Olney Ave

Movement	EB	EB	B1	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	T	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	300	943	555	200	2013	200	174	538	175	669	200
Average Queue (ft)	254	750	207	155	1140	166	105	315	123	466	90
95th Queue (ft)	390	1163	705	247	2151	269	203	501	209	768	232
Link Distance (ft)		889	930		4920			3387		655	
Upstream Blk Time (%)		28	3							2	
Queuing Penalty (veh)		0	0							19	
Storage Bay Dist (ft)	200			100		100	75		75		100
Storage Blk Time (%)	12	57		41	62	10	14	47	26	49	0
Queuing Penalty (veh)	65	111		283	244	57	71	52	183	136	0

Intersection: 6: 8th St & Revere Ave

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	175	559	72	174	175	580	146	1255
Average Queue (ft)	139	248	21	78	140	283	12	604
95th Queue (ft)	210	470	57	144	215	518	72	1280
Link Distance (ft)		1113		4859		655		3133
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						3		
Storage Bay Dist (ft)	75		100		75		75	
Storage Blk Time (%)	42	48	0	11	34	27		53
Queuing Penalty (veh)	148	88	0	3	201	72		5

Network Summary

Network wide Queuing Penalty: 1741

USER REPORT FOR SITE

 **Project: Bend GO Sidra_new8th_v9.1**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

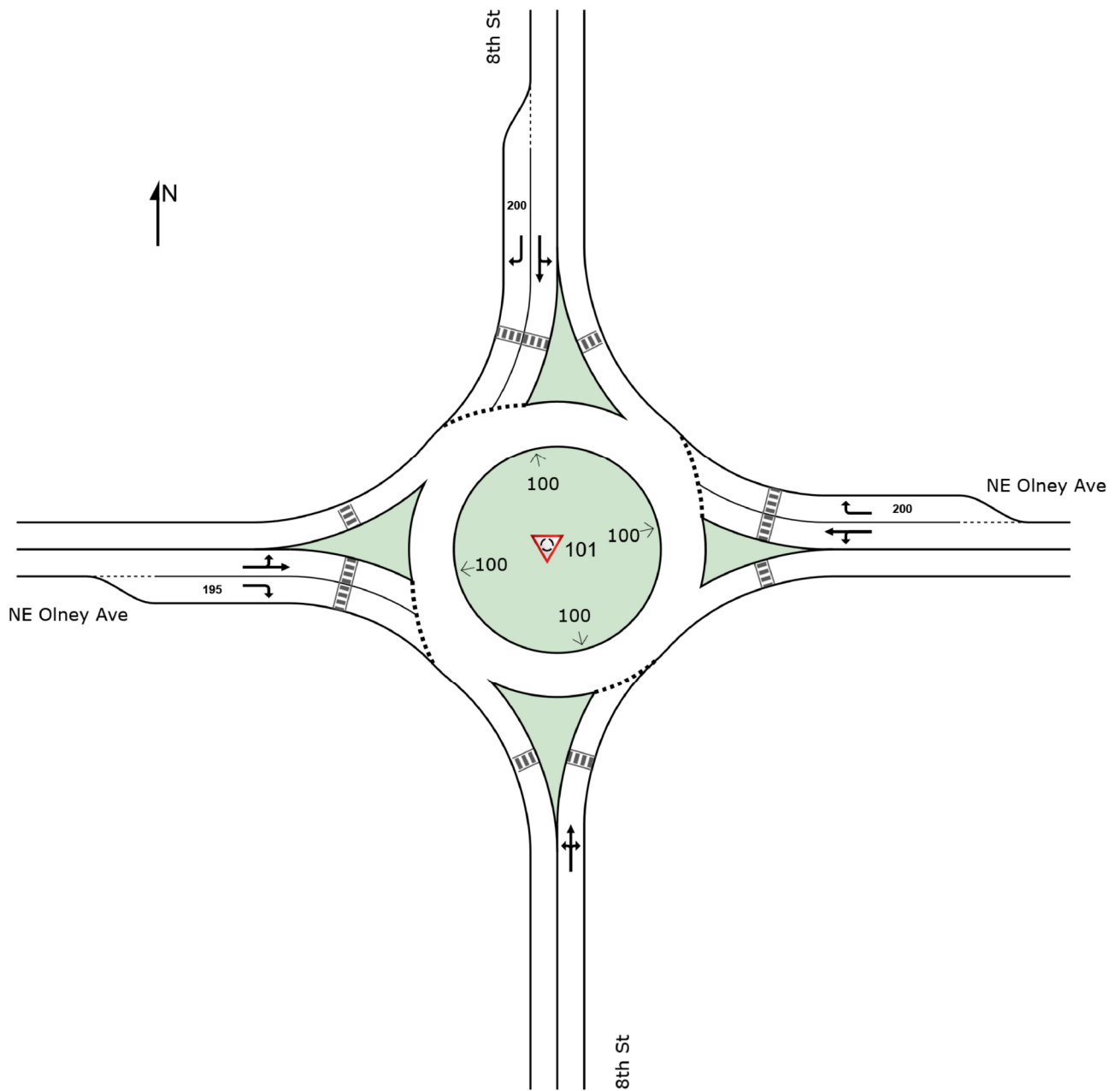
**Template: Default Site User
Report**

 **Site: 101 [Olney and 8th - 2040 - Partial Multi right turns (Site Folder: Future 2040)]**

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

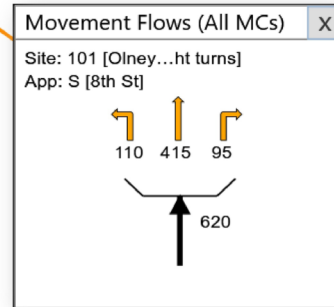
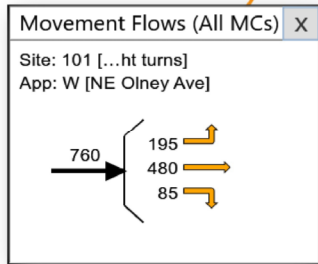
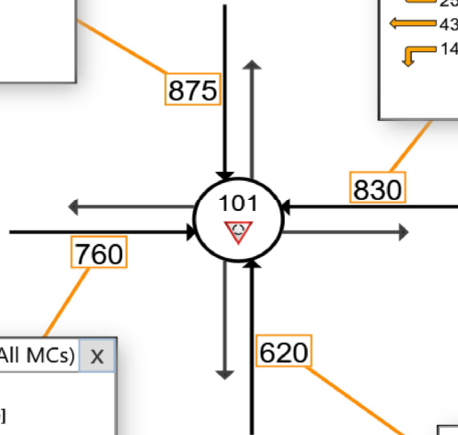
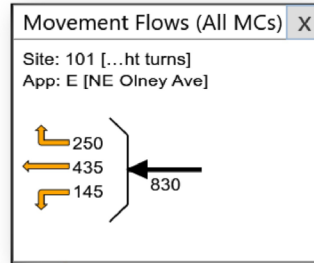
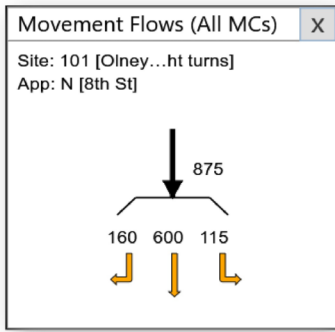


Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones. Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	110	0.0	110	0.0	0.880	34.1	LOS D	11.4	287.6	0.94	1.39	2.41	13.4
8	T1	All MCs	415	1.0	415	1.0	0.880	34.5	LOS D	11.4	287.6	0.94	1.39	2.41	21.9
18	R2	All MCs	95	0.0	95	0.0	0.880	34.1	LOS D	11.4	287.6	0.94	1.39	2.41	19.7
Approach			620	0.7	620	0.7	0.880	34.4	LOS D	11.4	287.6	0.94	1.39	2.41	20.1
East: NE Olney Ave															
1	L2	All MCs	145	1.0	145	1.0	0.780	23.5	LOS C	8.1	202.1	0.86	1.22	1.80	21.7
6	T1	All MCs	435	0.0	435	0.0	0.780	23.2	LOS C	8.1	202.1	0.86	1.22	1.80	17.1
16	R2	All MCs	250	1.0	250	1.0	0.341	9.1	LOS A	1.4	34.3	0.60	0.58	0.67	25.3
Approach			830	0.5	830	0.5	0.780	19.0	LOS C	8.1	202.1	0.78	1.03	1.46	20.6
North: 8th St															
7	L2	All MCs	115	1.0	115	1.0	0.970	48.1	LOS E	20.8	526.9	1.00	1.90	3.57	17.5
4	T1	All MCs	600	2.0	600	2.0	0.970	48.4	LOS E	20.8	526.9	1.00	1.90	3.57	19.4
14	R2	All MCs	160	5.0	160	5.0	0.231	7.9	LOS A	0.7	19.2	0.54	0.49	0.54	25.8
Approach			875	2.4	875	2.4	0.970	40.9	LOS E	20.8	526.9	0.92	1.64	3.02	19.6
West: NE Olney Ave															
5	L2	All MCs	195	0.0	195	0.0	1.020	63.7	LOS F	22.5	562.8	1.00	2.48	4.34	12.4
2	T1	All MCs	480	0.0	480	0.0	1.020	63.7	LOS F	22.5	562.8	1.00	2.48	4.34	11.3
12	R2	All MCs	85	0.0	85	0.0	0.128	6.9	LOS A	0.4	10.4	0.56	0.54	0.56	26.7
Approach			760	0.0	760	0.0	1.020	57.3	LOS F	22.5	562.8	0.95	2.26	3.92	12.3
All Vehicles			3085	0.9	3085	0.9	1.020	37.7	LOS E	22.5	562.8	0.89	1.58	2.70	18.0

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

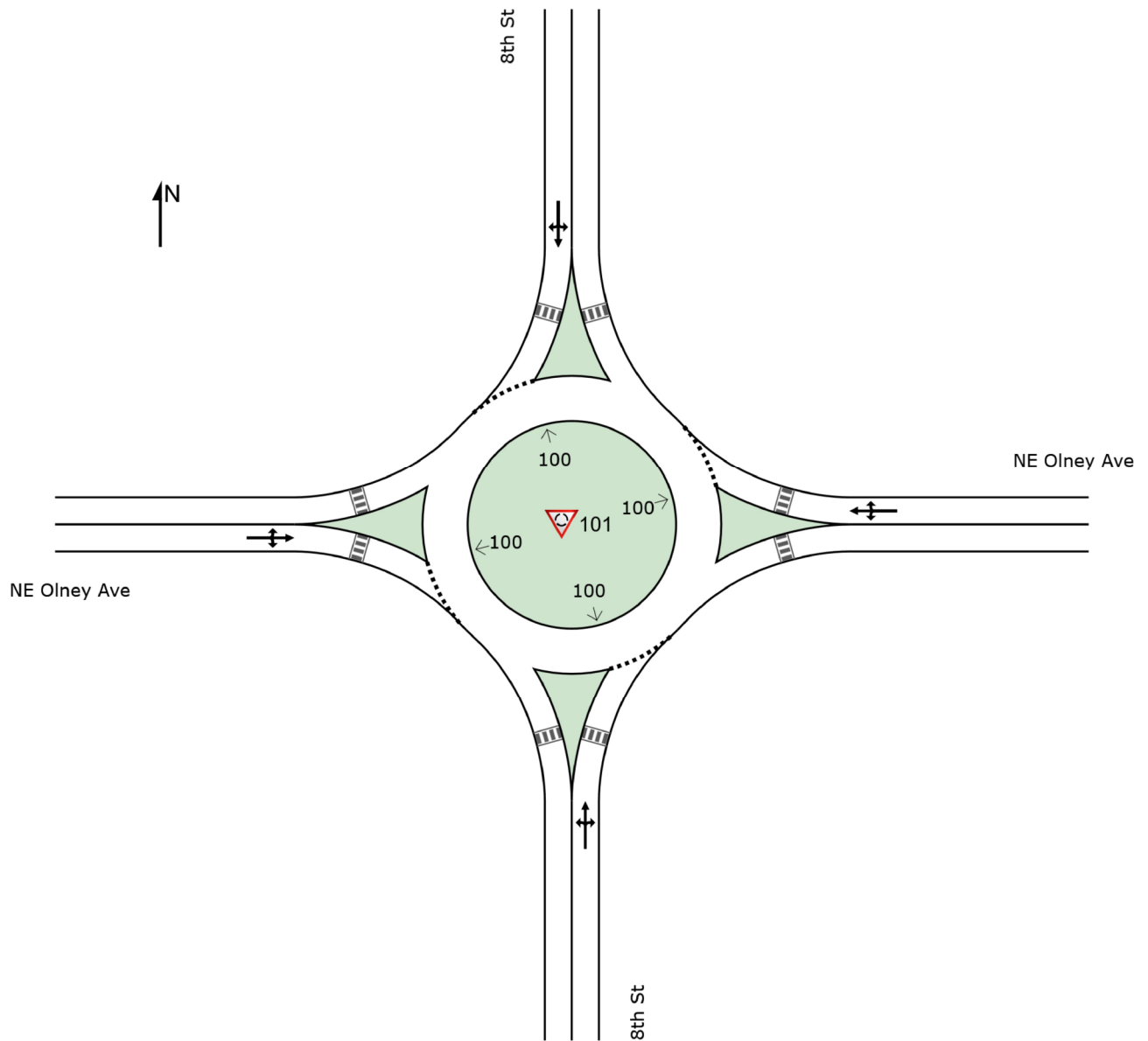
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Olney and 8th - 2040 (Site Folder: Future 2040)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



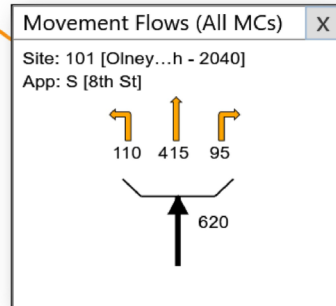
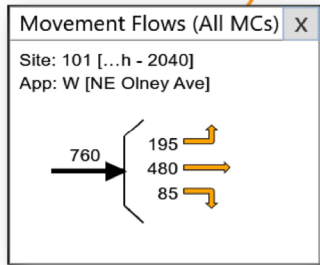
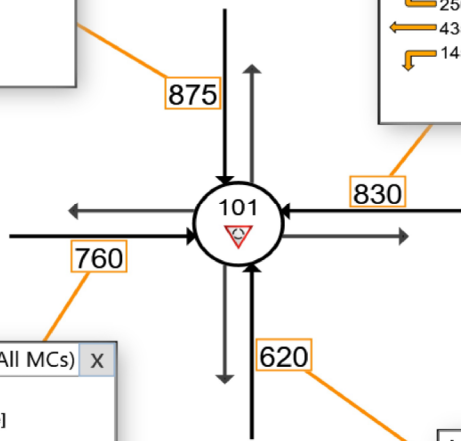
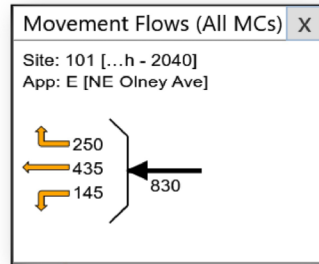
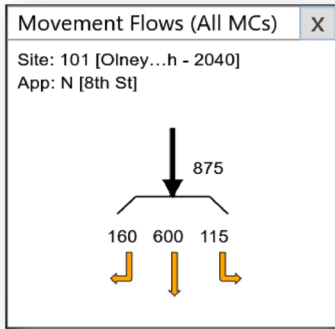
Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	110	0.0	110	0.0	0.853	30.1	LOS D	10.5	265.0	0.92	1.30	2.20	13.9
8	T1	All MCs	415	1.0	415	1.0	0.853	30.4	LOS D	10.5	265.0	0.92	1.30	2.20	22.8
18	R2	All MCs	95	0.0	95	0.0	0.853	30.1	LOS D	10.5	265.0	0.92	1.30	2.20	20.4
Approach			620	0.7	620	0.7	0.853	30.3	LOS D	10.5	265.0	0.92	1.30	2.20	20.9
East: NE Olney Ave															
1	L2	All MCs	145	1.0	145	1.0	1.114	88.9	LOS F	43.0	1079.7	1.00	3.62	6.53	13.3
6	T1	All MCs	435	0.0	435	0.0	1.114	88.6	LOS F	43.0	1079.7	1.00	3.62	6.53	9.2
16	R2	All MCs	250	1.0	250	1.0	1.114	88.9	LOS F	43.0	1079.7	1.00	3.62	6.53	13.4
Approach			830	0.5	830	0.5	1.114	88.8	LOS F	43.0	1079.7	1.00	3.62	6.53	11.4
North: 8th St															
7	L2	All MCs	115	1.0	115	1.0	1.141	97.2	LOS F	50.3	1282.2	1.00	3.27	7.00	12.7
4	T1	All MCs	600	2.0	600	2.0	1.141	97.5	LOS F	50.3	1282.2	1.00	3.27	7.00	13.6
14	R2	All MCs	160	5.0	160	5.0	1.141	98.3	LOS F	50.3	1282.2	1.00	3.27	7.00	9.4
Approach			875	2.4	875	2.4	1.141	97.6	LOS F	50.3	1282.2	1.00	3.27	7.00	12.8
West: NE Olney Ave															
5	L2	All MCs	195	0.0	195	0.0	1.053	70.4	LOS F	30.5	761.7	1.00	2.89	5.10	11.6
2	T1	All MCs	480	0.0	480	0.0	1.053	70.4	LOS F	30.5	761.7	1.00	2.89	5.10	10.6
12	R2	All MCs	85	0.0	85	0.0	1.053	70.4	LOS F	30.5	761.7	1.00	2.89	5.10	11.7
Approach			760	0.0	760	0.0	1.053	70.4	LOS F	30.5	761.7	1.00	2.89	5.10	11.0
All Vehicles			3085	0.9	3085	0.9	1.141	75.0	LOS F	50.3	1282.2	0.98	2.88	5.44	13.2

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

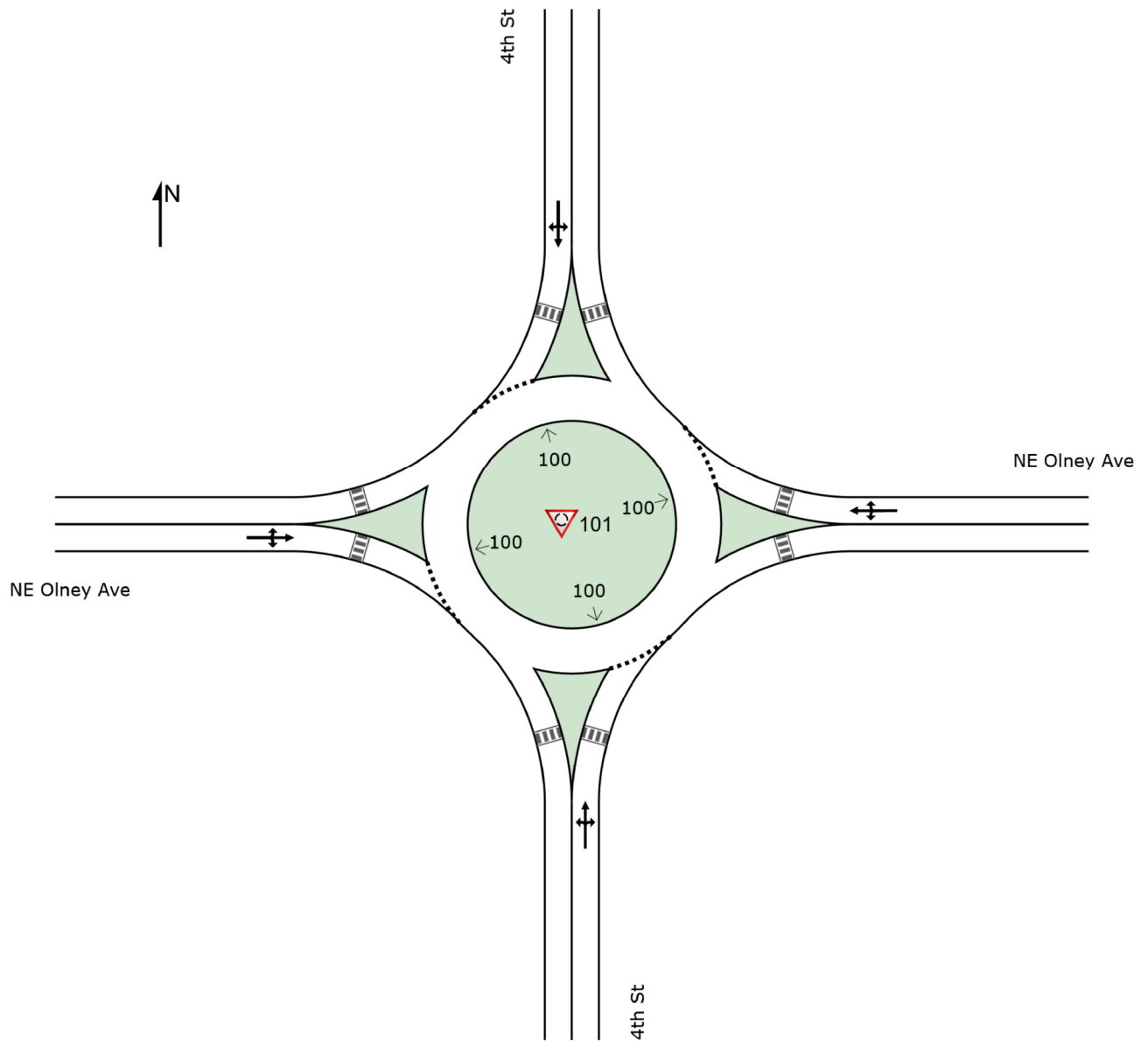
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Olney and 4th - 2040 (Site Folder: Future 2040)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



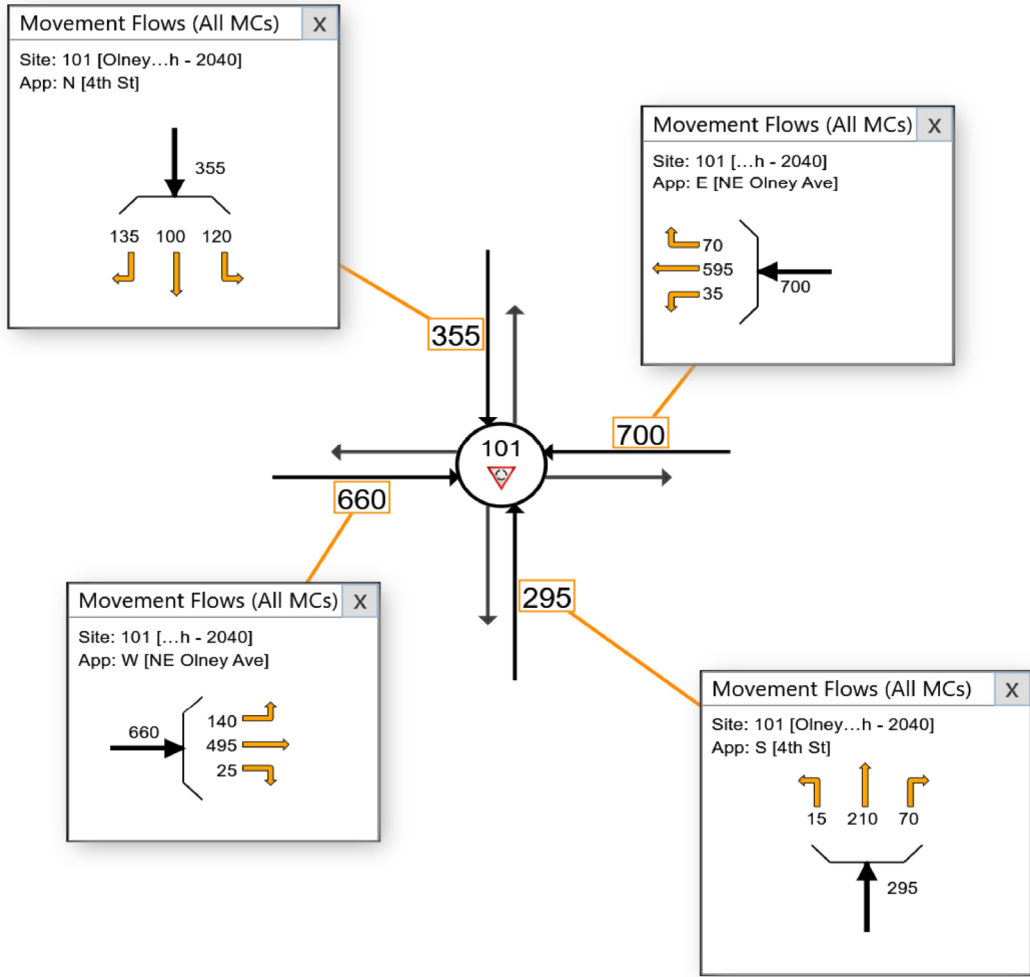
Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 4th St															
3	L2	All MCs	15	12.0	15	12.0	0.424	13.8	LOS B	2.0	49.6	0.64	0.69	0.86	5.1
8	T1	All MCs	210	2.0	210	2.0	0.424	11.0	LOS B	2.0	49.6	0.64	0.69	0.86	20.5
18	R2	All MCs	70	0.0	70	0.0	0.424	10.5	LOS B	2.0	49.6	0.64	0.69	0.86	20.4
Approach			295	2.0	295	2.0	0.424	11.0	LOS B	2.0	49.6	0.64	0.69	0.86	19.6
East: NE Olney Ave															
1	L2	All MCs	35	4.0	35	4.0	0.709	15.8	LOS C	9.4	236.5	0.74	0.91	1.35	19.2
6	T1	All MCs	595	0.0	595	0.0	0.709	15.2	LOS C	9.4	236.5	0.74	0.91	1.35	19.3
16	R2	All MCs	70	0.0	70	0.0	0.709	15.2	LOS C	9.4	236.5	0.74	0.91	1.35	21.3
Approach			700	0.2	700	0.2	0.709	15.2	LOS C	9.4	236.5	0.74	0.91	1.35	19.6
North: 4th St															
7	L2	All MCs	120	1.0	120	1.0	0.461	10.7	LOS B	2.4	60.8	0.63	0.67	0.87	21.7
4	T1	All MCs	100	3.0	100	3.0	0.461	11.2	LOS B	2.4	60.8	0.63	0.67	0.87	20.0
14	R2	All MCs	135	1.0	135	1.0	0.461	10.7	LOS B	2.4	60.8	0.63	0.67	0.87	20.0
Approach			355	1.6	355	1.6	0.461	10.9	LOS B	2.4	60.8	0.63	0.67	0.87	20.8
West: NE Olney Ave															
5	L2	All MCs	140	0.0	140	0.0	0.610	11.2	LOS B	5.8	145.3	0.58	0.51	0.78	20.0
2	T1	All MCs	495	0.0	495	0.0	0.610	11.2	LOS B	5.8	145.3	0.58	0.51	0.78	20.2
12	R2	All MCs	25	0.0	25	0.0	0.610	11.2	LOS B	5.8	145.3	0.58	0.51	0.78	13.6
Approach			660	0.0	660	0.0	0.610	11.2	LOS B	5.8	145.3	0.58	0.51	0.78	20.1
All Vehicles			2010	0.6	2010	0.6	0.709	12.5	LOS B	9.4	236.5	0.66	0.70	1.01	20.0

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

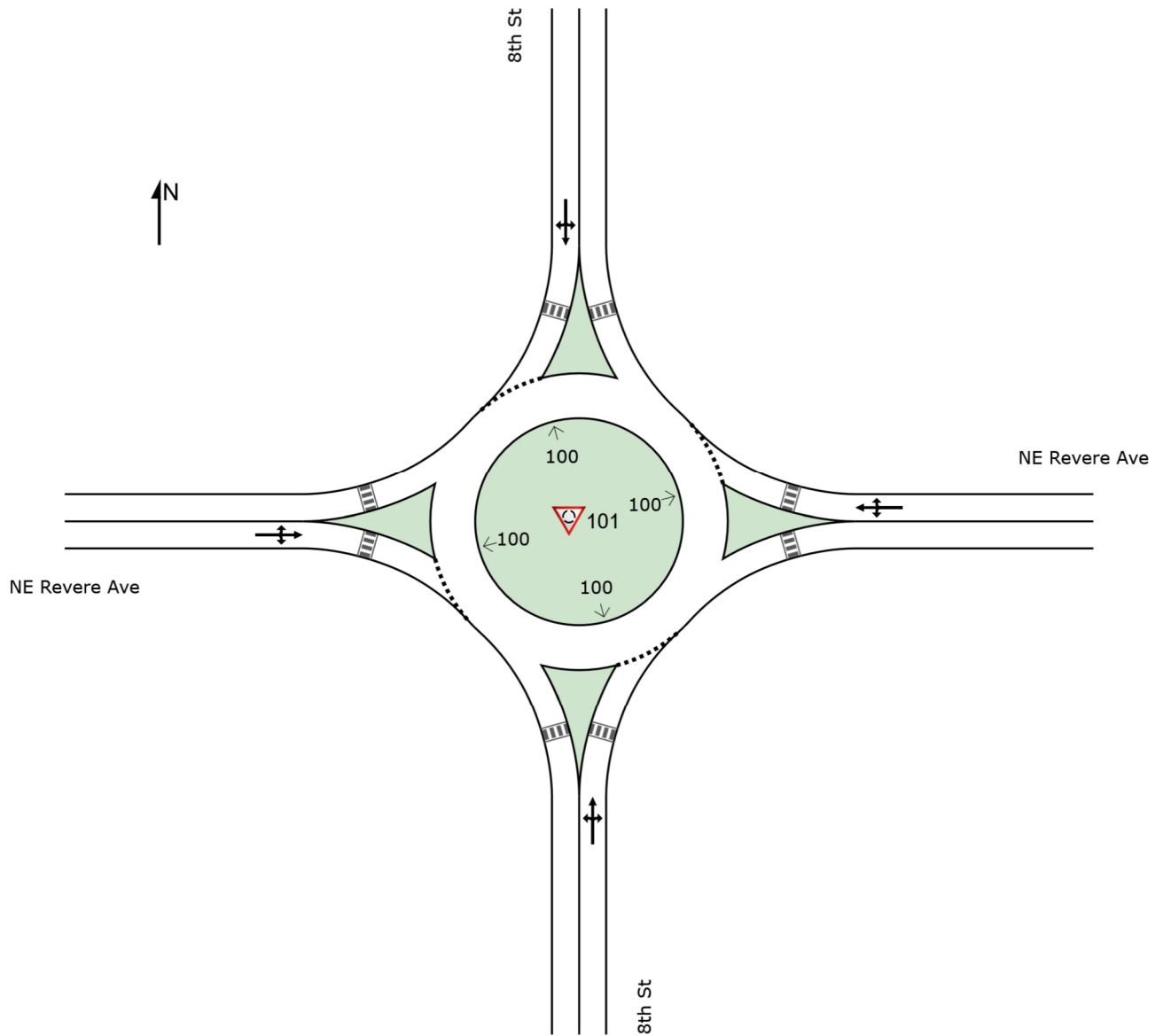
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Revere and 8th - 2040 (Site Folder: Future 2040)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

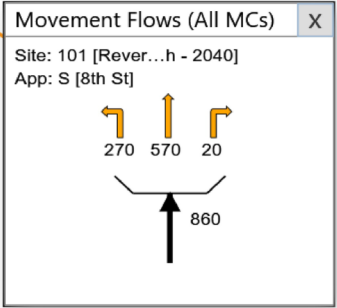
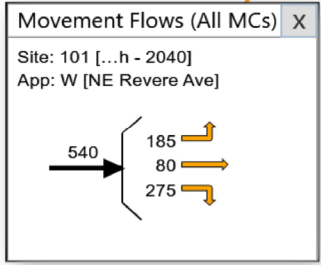
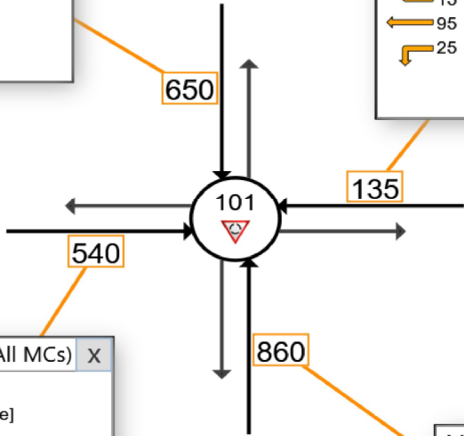
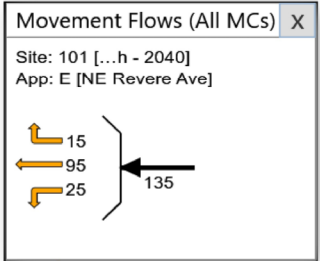
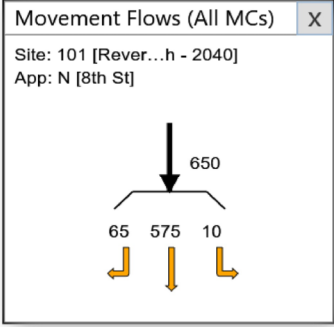


Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones. Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	270	1.0	270	1.0	0.822	20.3	LOS C	18.9	477.9	0.89	1.04	1.77	15.5
8	T1	All MCs	570	2.0	570	2.0	0.822	20.4	LOS C	18.9	477.9	0.89	1.04	1.77	25.2
18	R2	All MCs	20	0.0	20	0.0	0.822	20.2	LOS C	18.9	477.9	0.89	1.04	1.77	22.2
Approach			860	1.6	860	1.6	0.822	20.4	LOS C	18.9	477.9	0.89	1.04	1.77	22.2
East: NE Revere Ave															
1	L2	All MCs	25	0.0	25	0.0	0.238	9.2	LOS A	0.8	19.6	0.63	0.63	0.63	25.0
6	T1	All MCs	95	1.0	95	1.0	0.238	9.6	LOS A	0.8	19.6	0.63	0.63	0.63	20.8
16	R2	All MCs	15	0.0	15	0.0	0.238	9.2	LOS A	0.8	19.6	0.63	0.63	0.63	25.2
Approach			135	0.7	135	0.7	0.238	9.5	LOS A	0.8	19.6	0.63	0.63	0.63	22.4
North: 8th St															
7	L2	All MCs	10	0.0	10	0.0	0.686	14.6	LOS B	8.0	202.7	0.73	0.79	1.29	23.7
4	T1	All MCs	575	2.0	575	2.0	0.686	14.9	LOS B	8.0	202.7	0.73	0.79	1.29	27.3
14	R2	All MCs	65	0.0	65	0.0	0.686	14.6	LOS B	8.0	202.7	0.73	0.79	1.29	23.1
Approach			650	1.8	650	1.8	0.686	14.8	LOS B	8.0	202.7	0.73	0.79	1.29	26.9
West: NE Revere Ave															
5	L2	All MCs	185	1.0	185	1.0	0.684	16.9	LOS C	6.0	152.2	0.77	0.96	1.41	18.2
2	T1	All MCs	80	0.0	80	0.0	0.684	16.7	LOS C	6.0	152.2	0.77	0.96	1.41	18.3
12	R2	All MCs	275	2.0	275	2.0	0.684	17.2	LOS C	6.0	152.2	0.77	0.96	1.41	21.8
Approach			540	1.4	540	1.4	0.684	17.0	LOS C	6.0	152.2	0.77	0.96	1.41	19.9
All Vehicles			2185	1.6	2185	1.6	0.822	17.2	LOS C	18.9	477.9	0.79	0.92	1.47	23.2

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

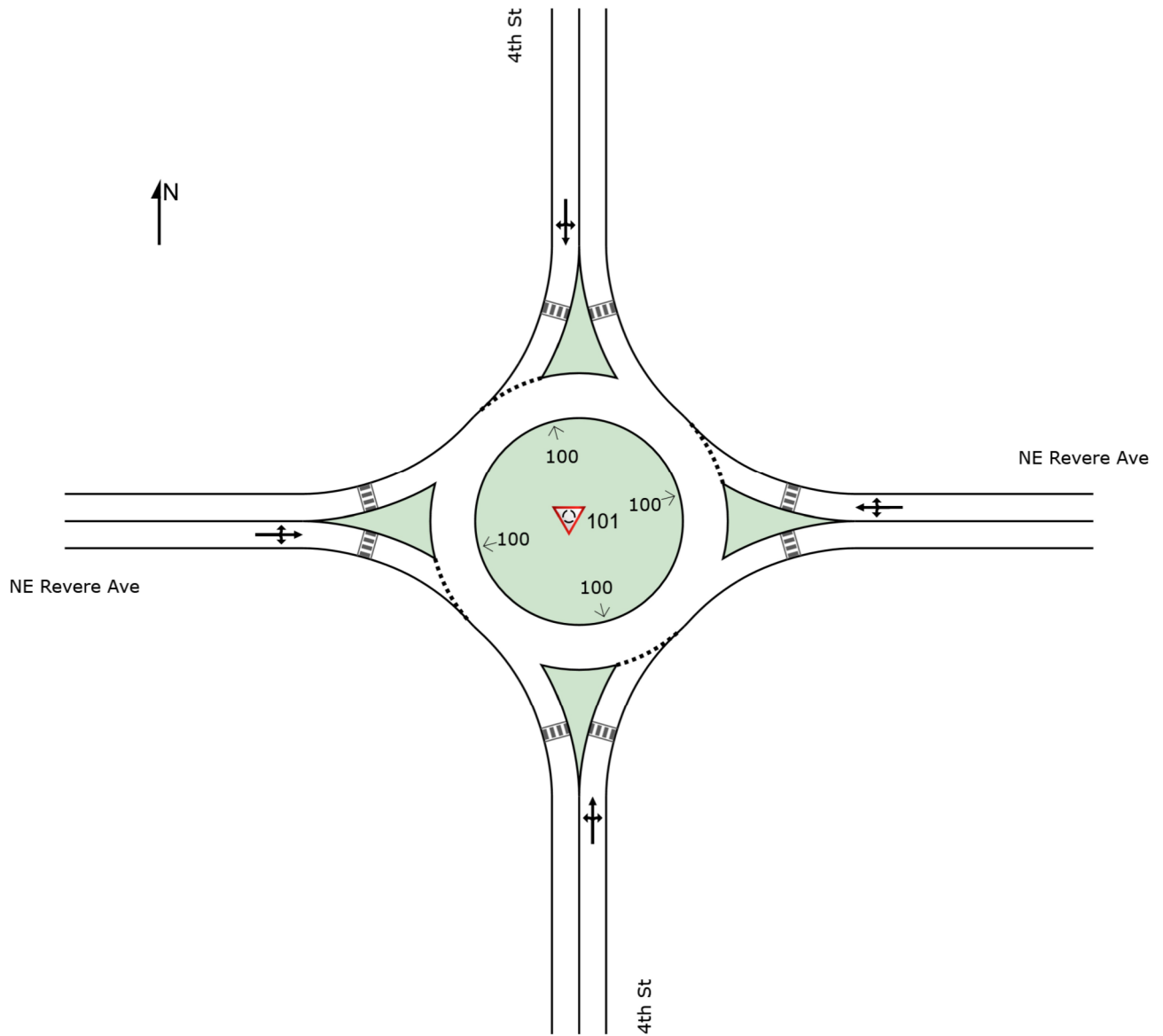
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Revere and 4th - 2040 (Site Folder: Future 2040)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

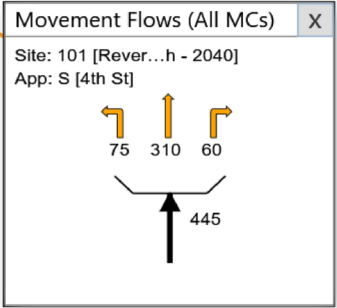
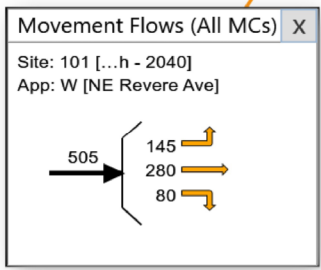
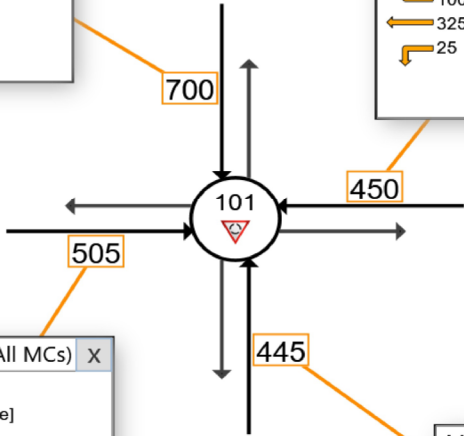
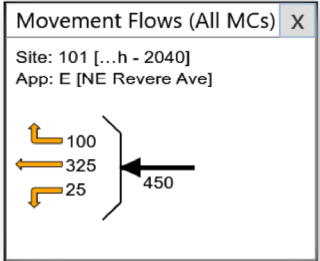
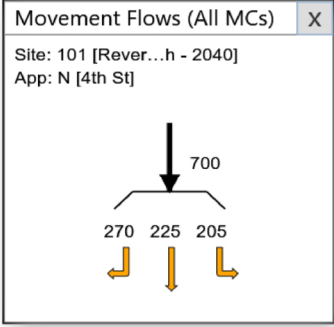


Movement Flows - Input

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Close All Popups

All Movement Classes



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: 4th St															
3	L2	All MCs	75	0.0	75	0.0	0.564	12.9	LOS B	3.8	95.7	0.69	0.81	1.10	11.9
8	T1	All MCs	310	1.0	310	1.0	0.564	13.1	LOS B	3.8	95.7	0.69	0.81	1.10	21.6
18	R2	All MCs	60	0.0	60	0.0	0.564	12.9	LOS B	3.8	95.7	0.69	0.81	1.10	21.6
Approach			445	0.7	445	0.7	0.564	13.0	LOS B	3.8	95.7	0.69	0.81	1.10	19.9
East: NE Revere Ave															
1	L2	All MCs	25	0.0	25	0.0	0.522	11.1	LOS B	3.4	85.8	0.64	0.68	0.94	22.0
6	T1	All MCs	325	0.0	325	0.0	0.522	11.1	LOS B	3.4	85.8	0.64	0.68	0.94	20.4
16	R2	All MCs	100	2.0	100	2.0	0.522	11.5	LOS B	3.4	85.8	0.64	0.68	0.94	22.1
Approach			450	0.4	450	0.4	0.522	11.2	LOS B	3.4	85.8	0.64	0.68	0.94	21.0
North: 4th St															
7	L2	All MCs	205	2.0	205	2.0	0.753	18.1	LOS C	10.6	267.8	0.81	1.08	1.61	20.4
4	T1	All MCs	225	1.0	225	1.0	0.753	18.0	LOS C	10.6	267.8	0.81	1.08	1.61	20.5
14	R2	All MCs	270	1.0	270	1.0	0.753	18.0	LOS C	10.6	267.8	0.81	1.08	1.61	18.1
Approach			700	1.3	700	1.3	0.753	18.0	LOS C	10.6	267.8	0.81	1.08	1.61	19.7
West: NE Revere Ave															
5	L2	All MCs	145	1.0	145	1.0	0.556	11.5	LOS B	4.1	103.4	0.64	0.67	0.95	19.8
2	T1	All MCs	280	1.0	280	1.0	0.556	11.5	LOS B	4.1	103.4	0.64	0.67	0.95	20.0
12	R2	All MCs	80	0.0	80	0.0	0.556	11.3	LOS B	4.1	103.4	0.64	0.67	0.95	20.0
Approach			505	0.8	505	0.8	0.556	11.5	LOS B	4.1	103.4	0.64	0.67	0.95	20.0
All Vehicles			2100	0.9	2100	0.9	0.753	13.9	LOS B	10.6	267.8	0.71	0.84	1.20	20.1

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

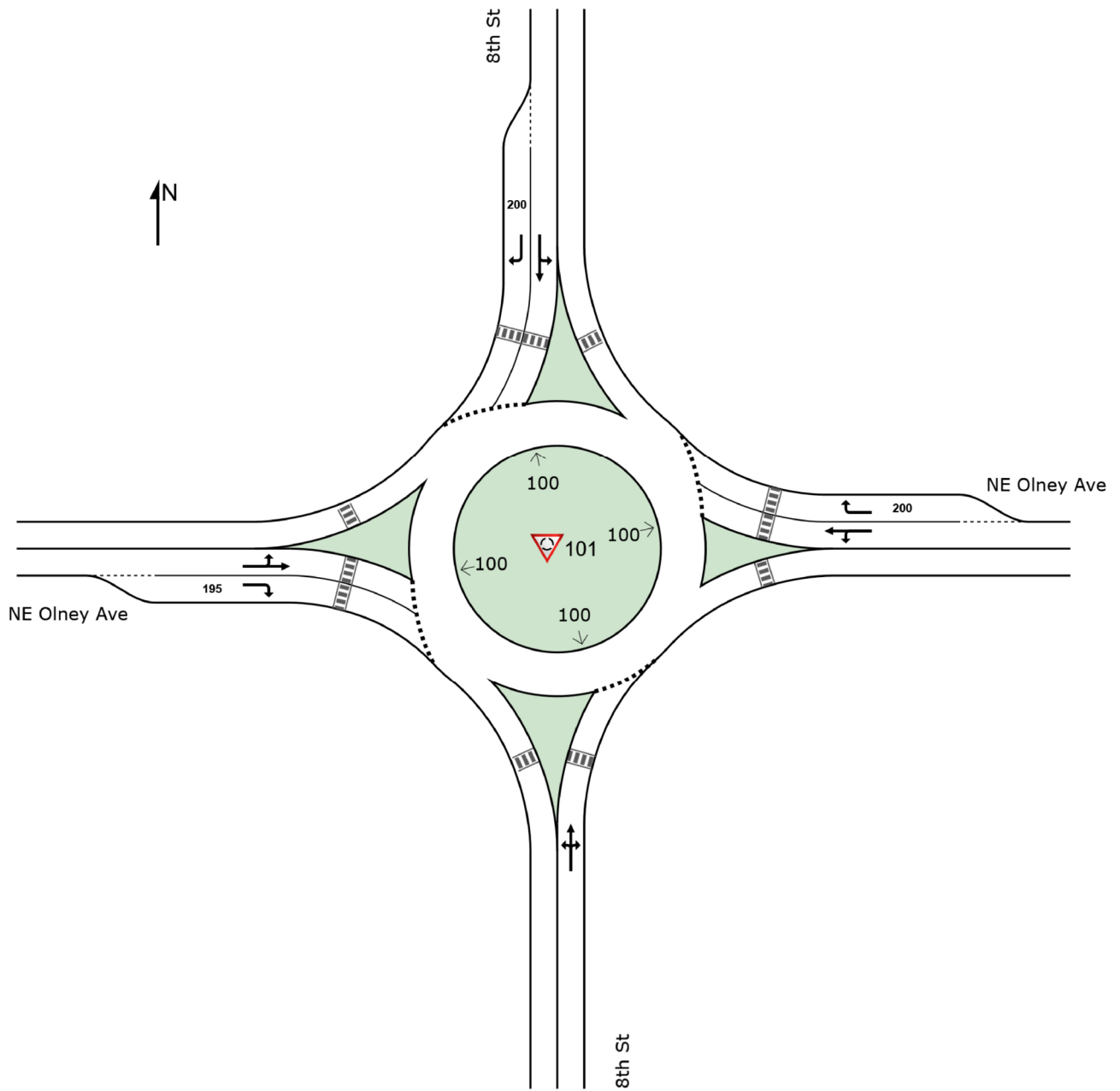
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

 **Site: 101 [Olney and 8th - 2021 - Partial Multi right turns (Site Folder: Existing)]**

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

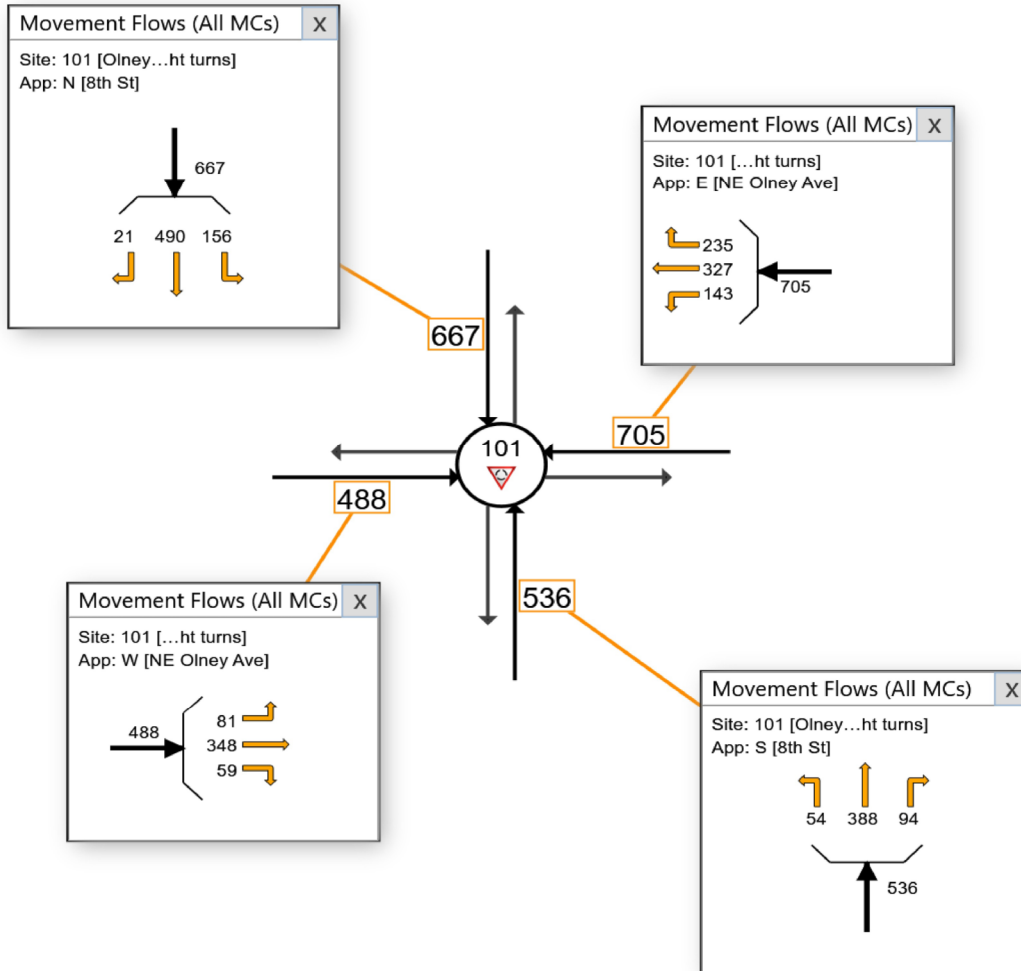


Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	57	0.0	57	0.0	0.704	17.5	LOS C	6.7	168.5	0.79	0.95	1.49	16.1
8	T1	All MCs	408	1.0	408	1.0	0.704	17.7	LOS C	6.7	168.5	0.79	0.95	1.49	26.2
18	R2	All MCs	99	0.0	99	0.0	0.704	17.5	LOS C	6.7	168.5	0.79	0.95	1.49	23.0
Approach			564	0.7	564	0.7	0.704	17.7	LOS C	6.7	168.5	0.79	0.95	1.49	24.7
East: NE Olney Ave															
1	L2	All MCs	151	1.0	151	1.0	0.583	12.9	LOS B	4.4	109.2	0.68	0.78	1.09	24.0
6	T1	All MCs	344	0.0	344	0.0	0.583	12.7	LOS B	4.4	109.2	0.68	0.78	1.09	19.7
16	R2	All MCs	247	1.0	247	1.0	0.295	7.5	LOS A	1.1	27.9	0.53	0.44	0.53	25.7
Approach			742	0.5	742	0.5	0.583	11.0	LOS B	4.4	109.2	0.63	0.67	0.90	22.9
North: 8th St															
7	L2	All MCs	164	1.0	164	1.0	0.821	24.3	LOS C	11.9	301.1	0.91	1.22	2.06	21.4
4	T1	All MCs	516	2.0	516	2.0	0.821	24.5	LOS C	11.9	301.1	0.91	1.22	2.06	24.2
14	R2	All MCs	22	5.0	22	5.0	0.028	4.9	LOS A	0.1	2.1	0.44	0.34	0.44	27.5
Approach			702	1.9	702	1.9	0.821	23.9	LOS C	11.9	301.1	0.89	1.19	2.01	23.5
West: NE Olney Ave															
5	L2	All MCs	85	0.0	85	0.0	0.666	18.4	LOS C	4.6	115.4	0.78	1.00	1.35	21.4
2	T1	All MCs	366	0.0	366	0.0	0.666	18.4	LOS C	4.6	115.4	0.78	1.00	1.35	18.3
12	R2	All MCs	62	0.0	62	0.0	0.092	6.3	LOS A	0.3	7.3	0.54	0.51	0.54	27.0
Approach			514	0.0	514	0.0	0.666	16.9	LOS C	4.6	115.4	0.75	0.94	1.25	19.5
All Vehicles			2522	0.8	2522	0.8	0.821	17.3	LOS C	11.9	301.1	0.76	0.93	1.41	23.0

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

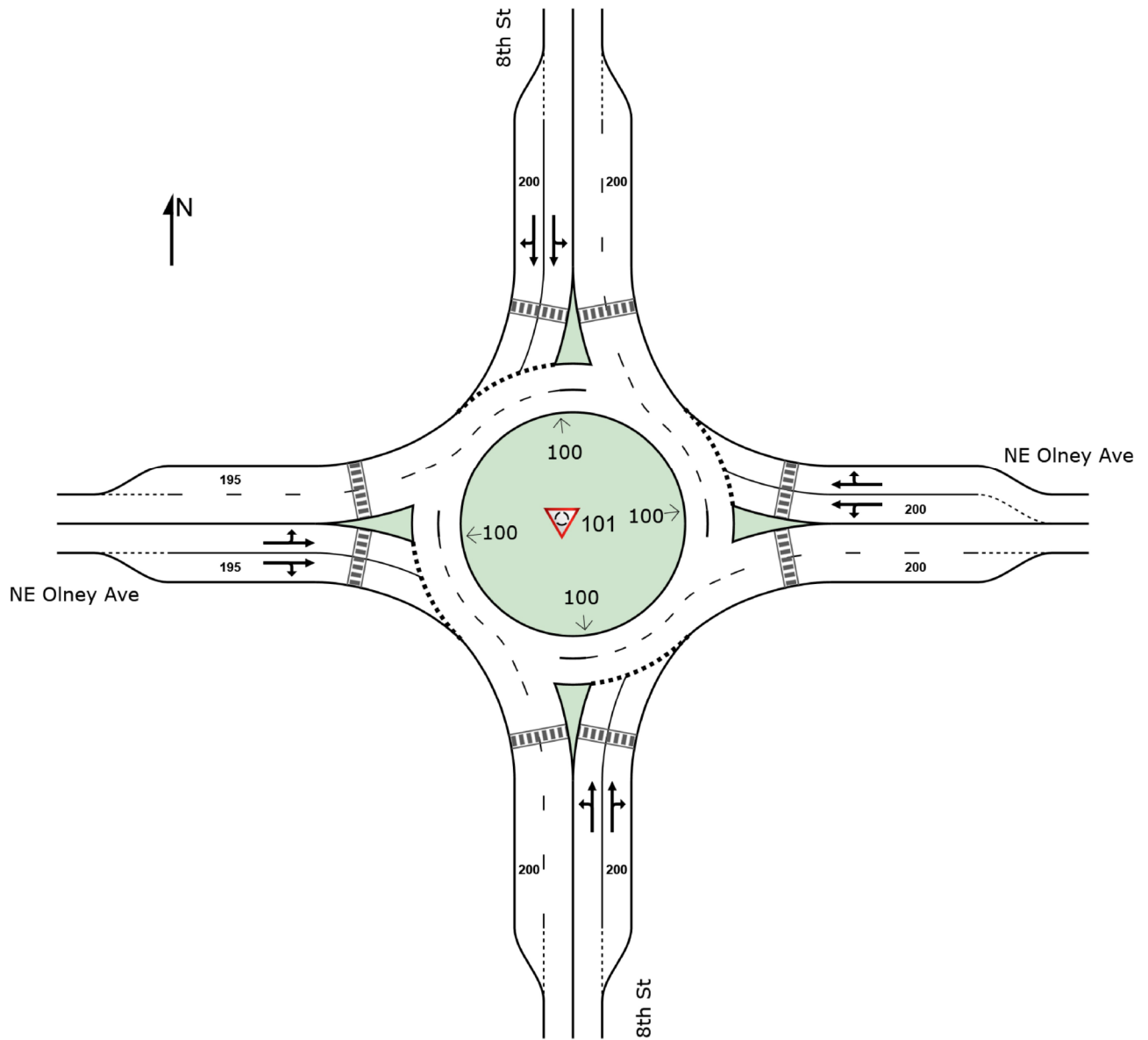
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Olney and 8th - 2021 - Full Multi (Site Folder: Existing)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



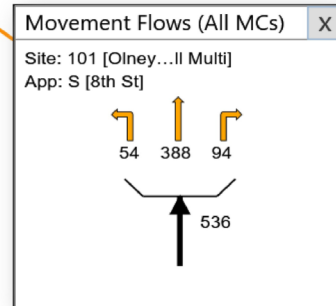
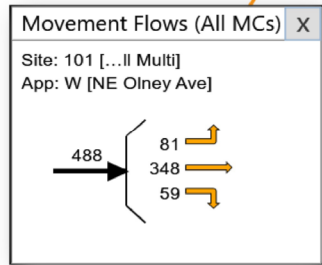
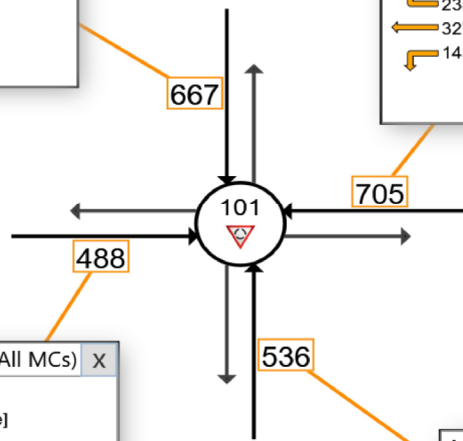
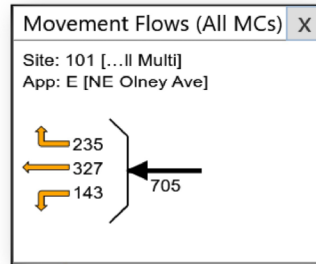
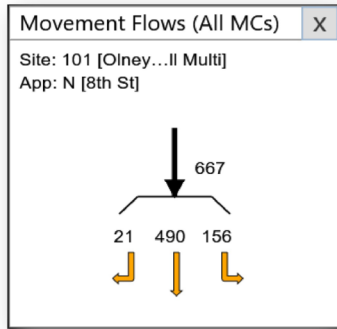
Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	54	0.0	54	0.0	0.439	9.5	LOS A	2.4	61.0	0.64	0.60	0.81	24.9
8	T1	All MCs	388	1.0	388	1.0	0.439	10.0	LOS A	2.4	61.0	0.63	0.58	0.77	29.1
18	R2	All MCs	94	0.0	94	0.0	0.211	10.3	LOS B	0.8	20.9	0.56	0.48	0.56	25.9
Approach			536	0.7	536	0.7	0.439	10.0	LOS B	2.4	61.0	0.62	0.56	0.74	28.0
East: NE Olney Ave															
1	L2	All MCs	143	1.0	143	1.0	0.523	10.9	LOS B	3.7	92.1	0.67	0.69	0.95	24.5
6	T1	All MCs	327	0.0	327	0.0	0.523	10.8	LOS B	3.7	92.1	0.67	0.69	0.95	22.0
16	R2	All MCs	235	1.0	235	1.0	0.288	11.9	LOS B	1.2	30.4	0.57	0.47	0.57	25.7
Approach			705	0.5	705	0.5	0.523	11.2	LOS B	3.7	92.1	0.64	0.62	0.83	23.6
North: 8th St															
7	L2	All MCs	156	1.0	156	1.0	0.528	11.0	LOS B	3.7	92.9	0.68	0.66	0.97	24.3
4	T1	All MCs	490	2.0	490	2.0	0.528	11.2	LOS B	3.7	92.9	0.63	0.59	0.81	28.7
14	R2	All MCs	21	5.0	21	5.0	0.254	10.5	LOS B	1.0	25.9	0.56	0.45	0.56	25.9
Approach			667	1.9	667	1.9	0.528	11.1	LOS B	3.7	92.9	0.64	0.60	0.84	27.5
West: NE Olney Ave															
5	L2	All MCs	81	0.0	81	0.0	0.475	11.8	LOS B	2.6	65.5	0.70	0.78	0.99	24.3
2	T1	All MCs	348	0.0	348	0.0	0.475	11.8	LOS B	2.6	65.5	0.68	0.73	0.90	22.1
12	R2	All MCs	59	0.0	59	0.0	0.229	12.4	LOS B	0.9	21.8	0.62	0.59	0.62	25.7
Approach			488	0.0	488	0.0	0.475	11.9	LOS B	2.6	65.5	0.68	0.72	0.88	22.8
All Vehicles			2396	0.8	2396	0.8	0.528	11.0	LOS B	3.7	92.9	0.64	0.62	0.82	25.3

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

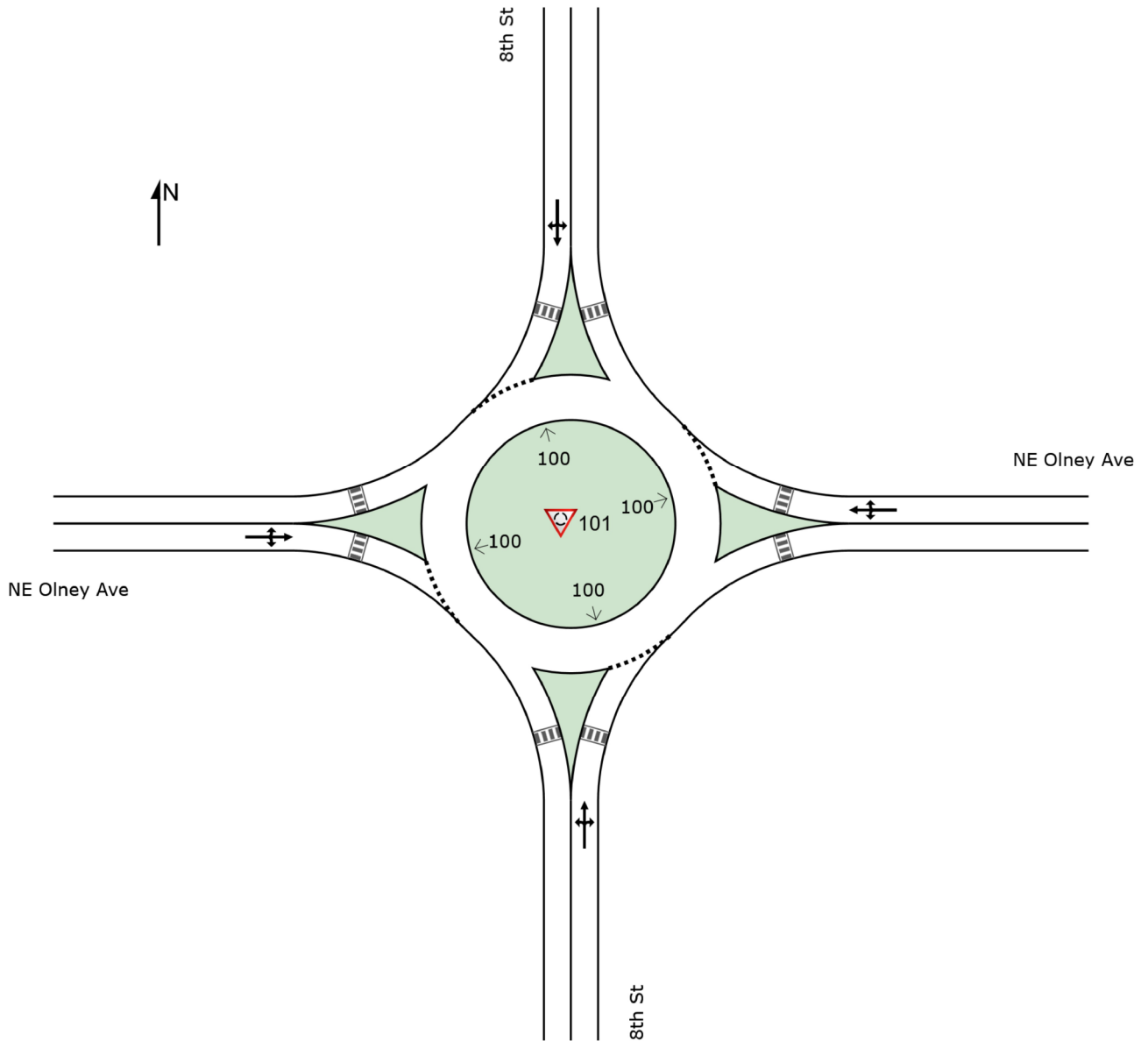
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Olney and 8th (Site Folder: Existing)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



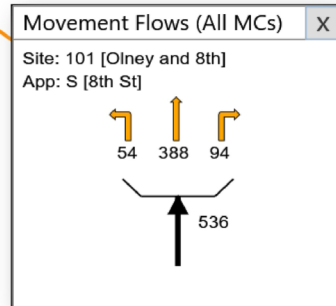
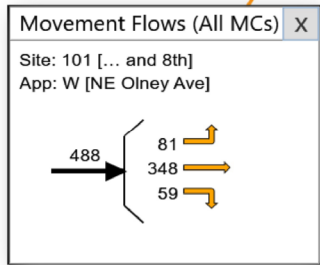
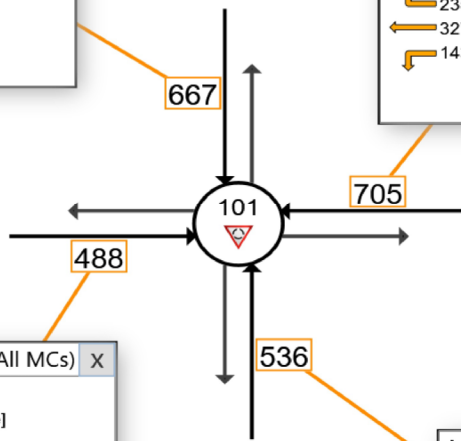
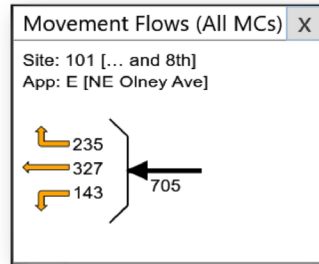
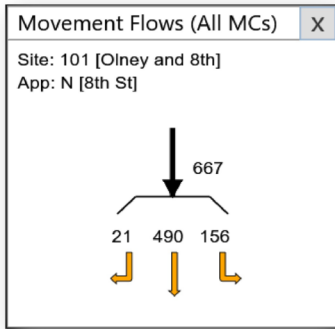
Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	57	0.0	57	0.0	0.704	17.5	LOS C	6.7	167.9	0.79	0.95	1.48	16.1
8	T1	All MCs	408	1.0	408	1.0	0.704	17.8	LOS C	6.7	167.9	0.79	0.95	1.48	26.2
18	R2	All MCs	99	0.0	99	0.0	0.704	17.5	LOS C	6.7	167.9	0.79	0.95	1.48	23.0
Approach			564	0.7	564	0.7	0.704	17.7	LOS C	6.7	167.9	0.79	0.95	1.48	24.7
East: NE Olney Ave															
1	L2	All MCs	151	1.0	151	1.0	0.877	29.6	LOS D	15.8	397.4	0.98	1.60	2.48	20.4
6	T1	All MCs	344	0.0	344	0.0	0.877	29.4	LOS D	15.8	397.4	0.98	1.60	2.48	15.7
16	R2	All MCs	247	1.0	247	1.0	0.877	29.6	LOS D	15.8	397.4	0.98	1.60	2.48	20.6
Approach			742	0.5	742	0.5	0.877	29.5	LOS D	15.8	397.4	0.98	1.60	2.48	18.6
North: 8th St															
7	L2	All MCs	164	1.0	164	1.0	0.847	26.7	LOS D	13.2	334.3	0.94	1.29	2.20	20.9
4	T1	All MCs	516	2.0	516	2.0	0.847	26.9	LOS D	13.2	334.3	0.94	1.29	2.20	23.6
14	R2	All MCs	22	5.0	22	5.0	0.847	27.6	LOS D	13.2	334.3	0.94	1.29	2.20	18.8
Approach			702	1.9	702	1.9	0.847	26.9	LOS D	13.2	334.3	0.94	1.29	2.20	22.8
West: NE Olney Ave															
5	L2	All MCs	85	0.0	85	0.0	0.758	23.4	LOS C	6.4	160.1	0.84	1.16	1.65	19.8
2	T1	All MCs	366	0.0	366	0.0	0.758	23.4	LOS C	6.4	160.1	0.84	1.16	1.65	17.1
12	R2	All MCs	62	0.0	62	0.0	0.758	23.4	LOS C	6.4	160.1	0.84	1.16	1.65	20.0
Approach			514	0.0	514	0.0	0.758	23.4	LOS C	6.4	160.1	0.84	1.16	1.65	17.8
All Vehicles			2522	0.8	2522	0.8	0.877	24.9	LOS C	15.8	397.4	0.90	1.28	2.01	21.1

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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

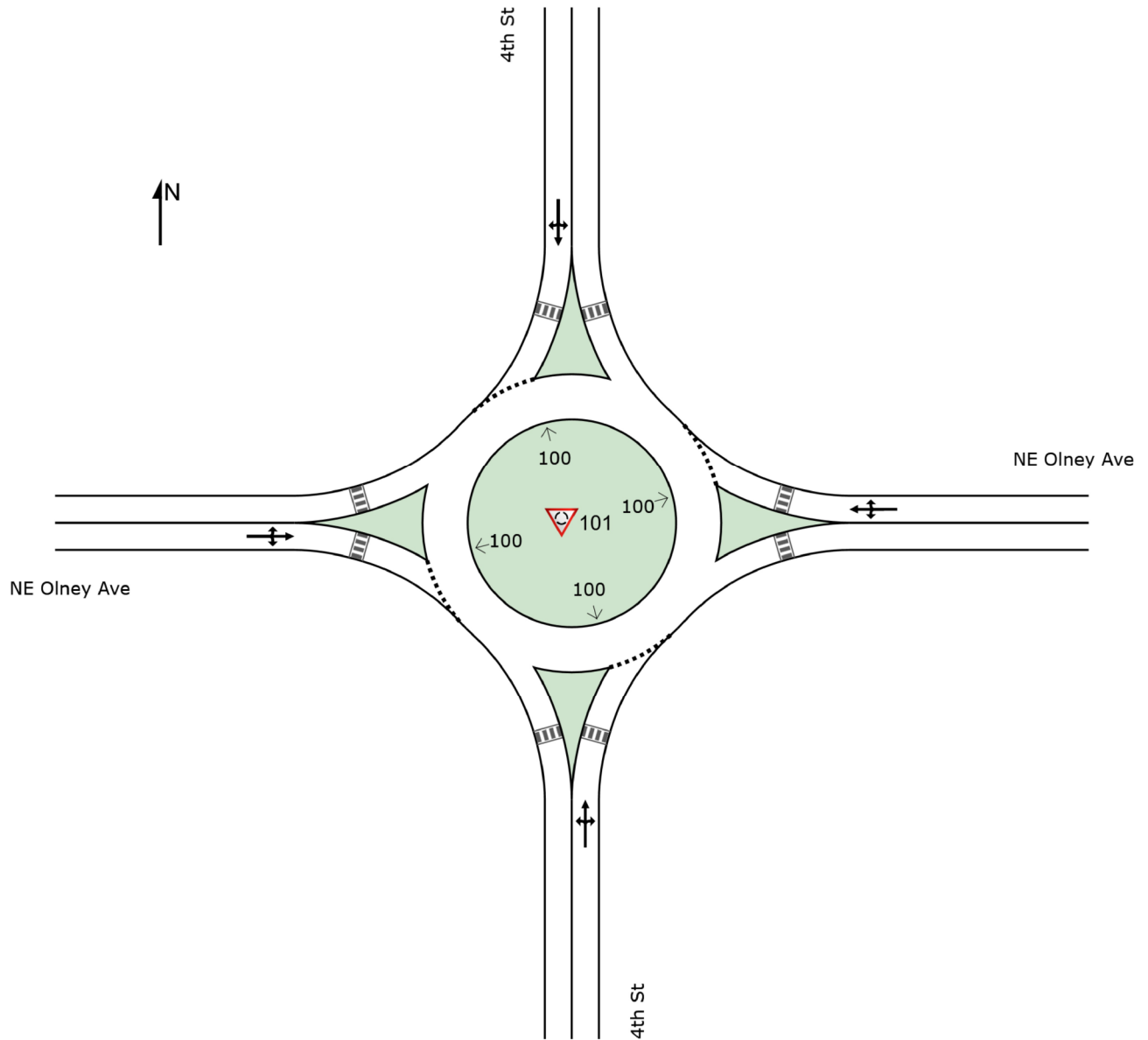
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Olney and 4th (Site Folder: Existing)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



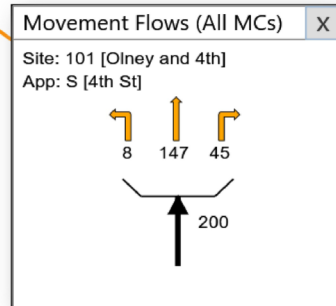
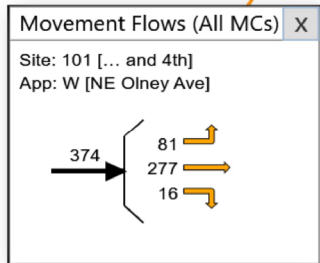
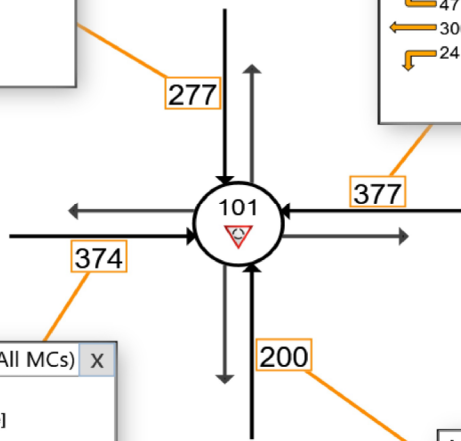
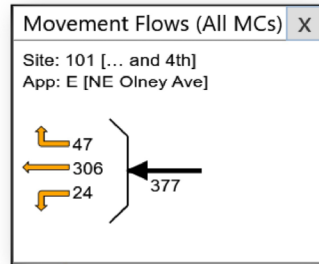
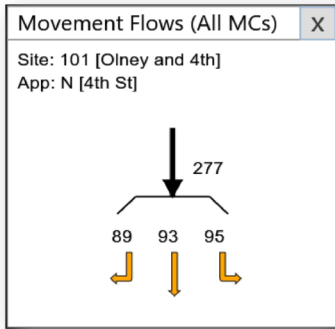
Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 4th St															
3	L2	All MCs	9	12.0	9	12.0	0.250	8.4	LOS A	0.9	23.0	0.49	0.39	0.49	5.4
8	T1	All MCs	160	2.0	160	2.0	0.250	6.7	LOS A	0.9	23.0	0.49	0.39	0.49	22.0
18	R2	All MCs	49	0.0	49	0.0	0.250	6.4	LOS A	0.9	23.0	0.49	0.39	0.49	21.9
Approach			217	2.0	217	2.0	0.250	6.7	LOS A	0.9	23.0	0.49	0.39	0.49	21.2
East: NE Olney Ave															
1	L2	All MCs	26	4.0	26	4.0	0.380	7.6	LOS A	1.7	43.2	0.42	0.27	0.42	21.7
6	T1	All MCs	333	0.0	333	0.0	0.380	7.2	LOS A	1.7	43.2	0.42	0.27	0.42	21.8
16	R2	All MCs	51	0.0	51	0.0	0.380	7.2	LOS A	1.7	43.2	0.42	0.27	0.42	23.0
Approach			410	0.3	410	0.3	0.380	7.2	LOS A	1.7	43.2	0.42	0.27	0.42	22.0
North: 4th St															
7	L2	All MCs	103	1.0	103	1.0	0.311	6.8	LOS A	1.2	31.4	0.46	0.33	0.46	22.6
4	T1	All MCs	101	3.0	101	3.0	0.311	7.1	LOS A	1.2	31.4	0.46	0.33	0.46	21.3
14	R2	All MCs	97	1.0	97	1.0	0.311	6.8	LOS A	1.2	31.4	0.46	0.33	0.46	21.3
Approach			301	1.7	301	1.7	0.311	6.9	LOS A	1.2	31.4	0.46	0.33	0.46	21.9
West: NE Olney Ave															
5	L2	All MCs	88	0.0	88	0.0	0.368	6.9	LOS A	1.7	41.8	0.40	0.25	0.40	21.4
2	T1	All MCs	301	0.0	301	0.0	0.368	6.9	LOS A	1.7	41.8	0.40	0.25	0.40	21.7
12	R2	All MCs	17	0.0	17	0.0	0.368	6.9	LOS A	1.7	41.8	0.40	0.25	0.40	16.1
Approach			407	0.0	407	0.0	0.368	6.9	LOS A	1.7	41.8	0.40	0.25	0.40	21.5
All Vehicles			1335	0.8	1335	0.8	0.380	7.0	LOS A	1.7	43.2	0.43	0.30	0.43	21.7

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 (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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

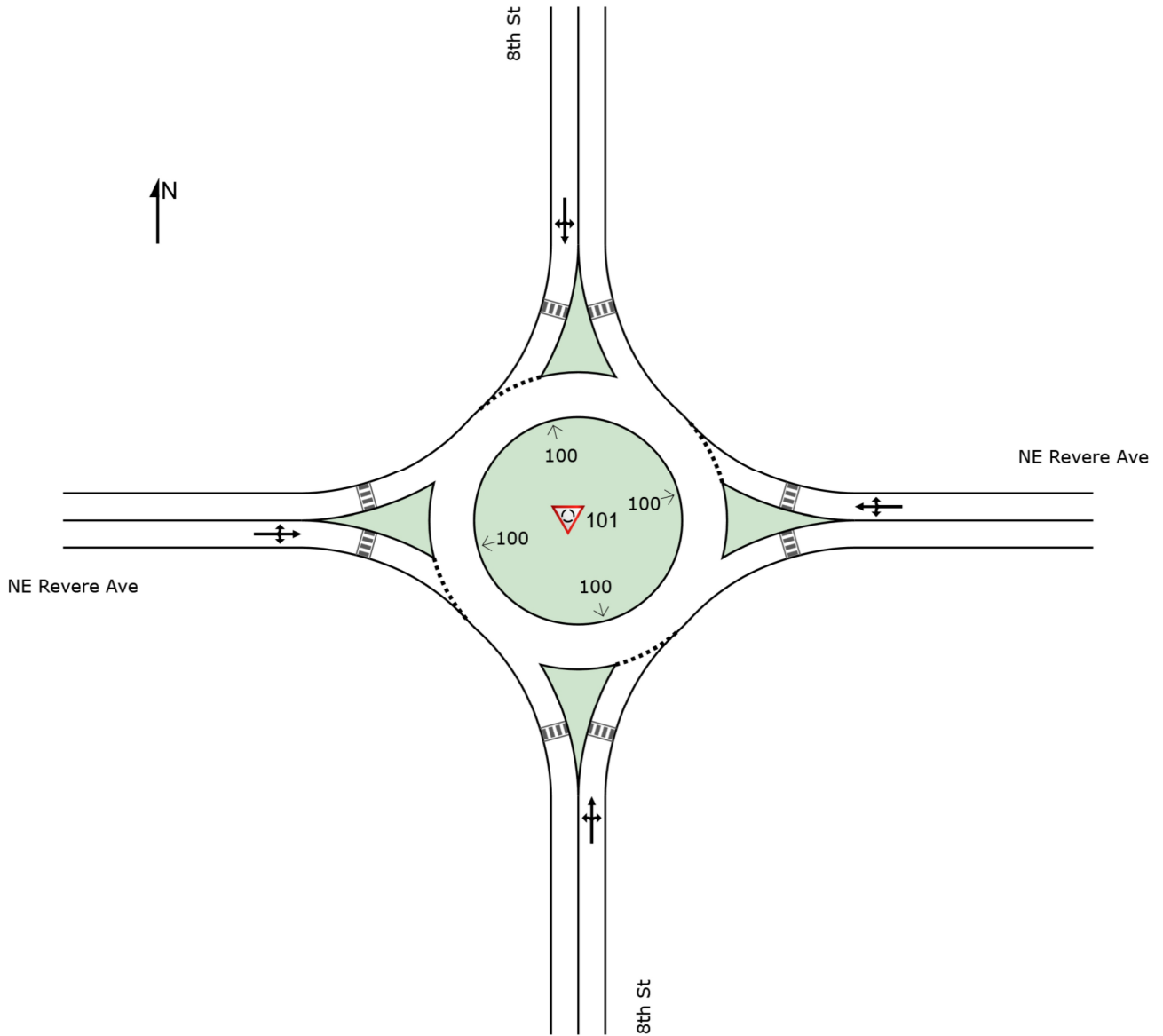
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

 **Site: 101 [Revere and 8th (Site Folder: Existing)]**

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

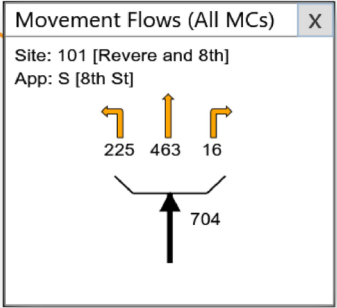
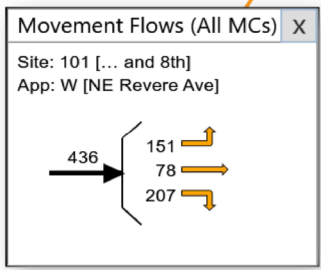
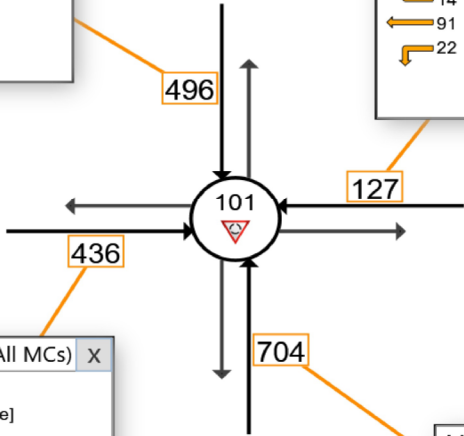
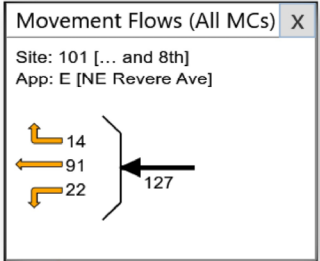
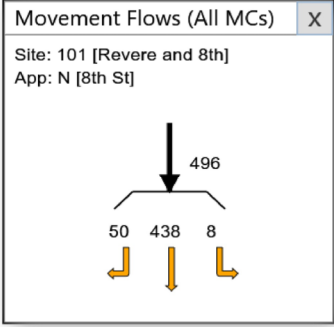


Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones. Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 8th St															
3	L2	All MCs	237	1.0	237	1.0	0.694	13.7	LOS B	9.5	241.6	0.66	0.63	1.05	16.8
8	T1	All MCs	487	2.0	487	2.0	0.694	13.8	LOS B	9.5	241.6	0.66	0.63	1.05	27.2
18	R2	All MCs	17	0.0	17	0.0	0.694	13.5	LOS B	9.5	241.6	0.66	0.63	1.05	23.8
Approach			741	1.6	741	1.6	0.694	13.7	LOS B	9.5	241.6	0.66	0.63	1.05	23.9
East: NE Revere Ave															
1	L2	All MCs	23	0.0	23	0.0	0.209	7.9	LOS A	0.7	17.5	0.59	0.57	0.59	25.4
6	T1	All MCs	96	1.0	96	1.0	0.209	8.2	LOS A	0.7	17.5	0.59	0.57	0.59	21.3
16	R2	All MCs	15	0.0	15	0.0	0.209	7.9	LOS A	0.7	17.5	0.59	0.57	0.59	25.6
Approach			134	0.7	134	0.7	0.209	8.1	LOS A	0.7	17.5	0.59	0.57	0.59	22.8
North: 8th St															
7	L2	All MCs	8	0.0	8	0.0	0.535	10.2	LOS B	3.9	98.3	0.58	0.52	0.79	24.9
4	T1	All MCs	461	2.0	461	2.0	0.535	10.5	LOS B	3.9	98.3	0.58	0.52	0.79	28.8
14	R2	All MCs	53	0.0	53	0.0	0.535	10.2	LOS B	3.9	98.3	0.58	0.52	0.79	25.0
Approach			522	1.8	522	1.8	0.535	10.4	LOS B	3.9	98.3	0.58	0.52	0.79	28.5
West: NE Revere Ave															
5	L2	All MCs	159	1.0	159	1.0	0.526	11.1	LOS B	3.5	88.5	0.63	0.65	0.92	19.8
2	T1	All MCs	82	0.0	82	0.0	0.526	10.9	LOS B	3.5	88.5	0.63	0.65	0.92	20.0
12	R2	All MCs	218	2.0	218	2.0	0.526	11.3	LOS B	3.5	88.5	0.63	0.65	0.92	24.2
Approach			459	1.3	459	1.3	0.526	11.1	LOS B	3.5	88.5	0.63	0.65	0.92	21.7
All Vehicles			1856	1.5	1856	1.5	0.694	11.8	LOS B	9.5	241.6	0.63	0.60	0.91	24.7

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 (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: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

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

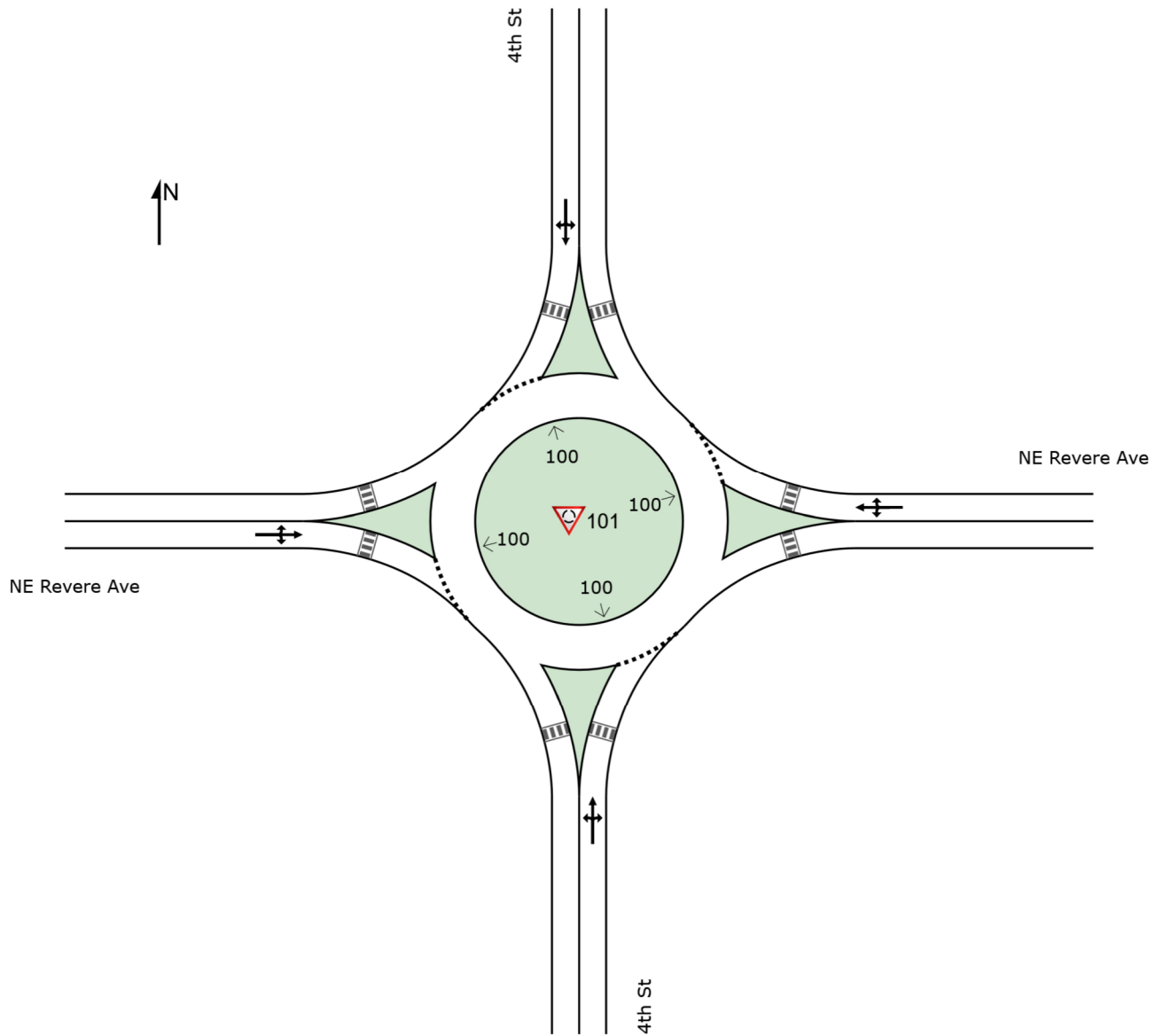
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Site: 101 [Revere and 4th (Site Folder: Existing)]

Revere and 4th
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

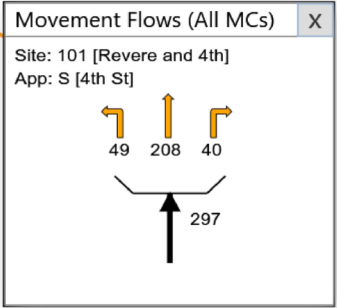
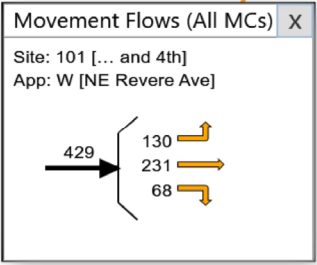
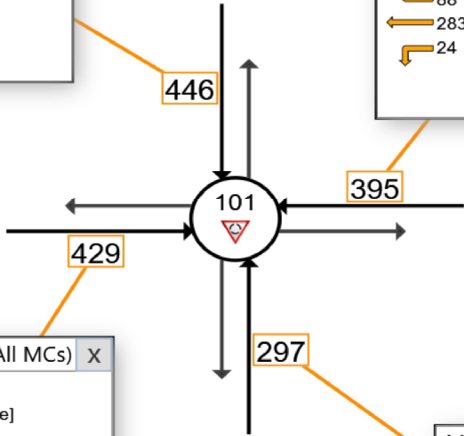
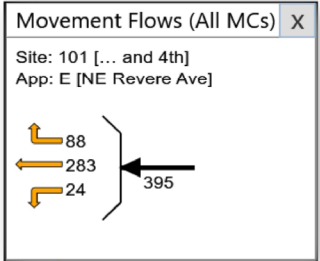
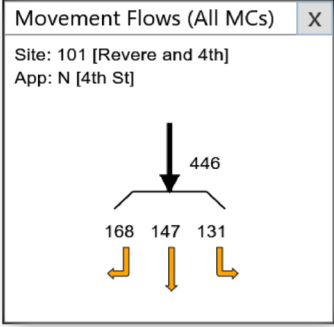


Movement Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones. Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes



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: 4th St															
3	L2	All MCs	53	0.0	53	0.0	0.378	8.5	LOS A	1.7	42.1	0.56	0.50	0.63	12.4
8	T1	All MCs	226	1.0	226	1.0	0.378	8.7	LOS A	1.7	42.1	0.56	0.50	0.63	22.6
18	R2	All MCs	43	0.0	43	0.0	0.378	8.5	LOS A	1.7	42.1	0.56	0.50	0.63	22.6
Approach			323	0.7	323	0.7	0.378	8.6	LOS A	1.7	42.1	0.56	0.50	0.63	20.8
East: NE Revere Ave															
1	L2	All MCs	26	0.0	26	0.0	0.456	9.1	LOS A	2.5	63.5	0.56	0.50	0.68	22.4
6	T1	All MCs	308	0.0	308	0.0	0.456	9.1	LOS A	2.5	63.5	0.56	0.50	0.68	21.1
16	R2	All MCs	96	2.0	96	2.0	0.456	9.4	LOS A	2.5	63.5	0.56	0.50	0.68	22.5
Approach			429	0.4	429	0.4	0.456	9.2	LOS A	2.5	63.5	0.56	0.50	0.68	21.6
North: 4th St															
7	L2	All MCs	142	2.0	142	2.0	0.505	10.1	LOS B	3.3	83.2	0.57	0.53	0.75	22.0
4	T1	All MCs	160	1.0	160	1.0	0.505	9.9	LOS A	3.3	83.2	0.57	0.53	0.75	22.1
14	R2	All MCs	183	1.0	183	1.0	0.505	9.9	LOS A	3.3	83.2	0.57	0.53	0.75	20.3
Approach			485	1.3	485	1.3	0.505	10.0	LOS A	3.3	83.2	0.57	0.53	0.75	21.6
West: NE Revere Ave															
5	L2	All MCs	141	1.0	141	1.0	0.462	8.8	LOS A	2.4	60.7	0.52	0.39	0.55	20.6
2	T1	All MCs	251	1.0	251	1.0	0.462	8.8	LOS A	2.4	60.7	0.52	0.39	0.55	20.8
12	R2	All MCs	74	0.0	74	0.0	0.462	8.7	LOS A	2.4	60.7	0.52	0.39	0.55	20.8
Approach			466	0.8	466	0.8	0.462	8.8	LOS A	2.4	60.7	0.52	0.39	0.55	20.8
All Vehicles			1703	0.8	1703	0.8	0.505	9.2	LOS A	3.3	83.2	0.55	0.48	0.66	21.2

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: Sieglösch 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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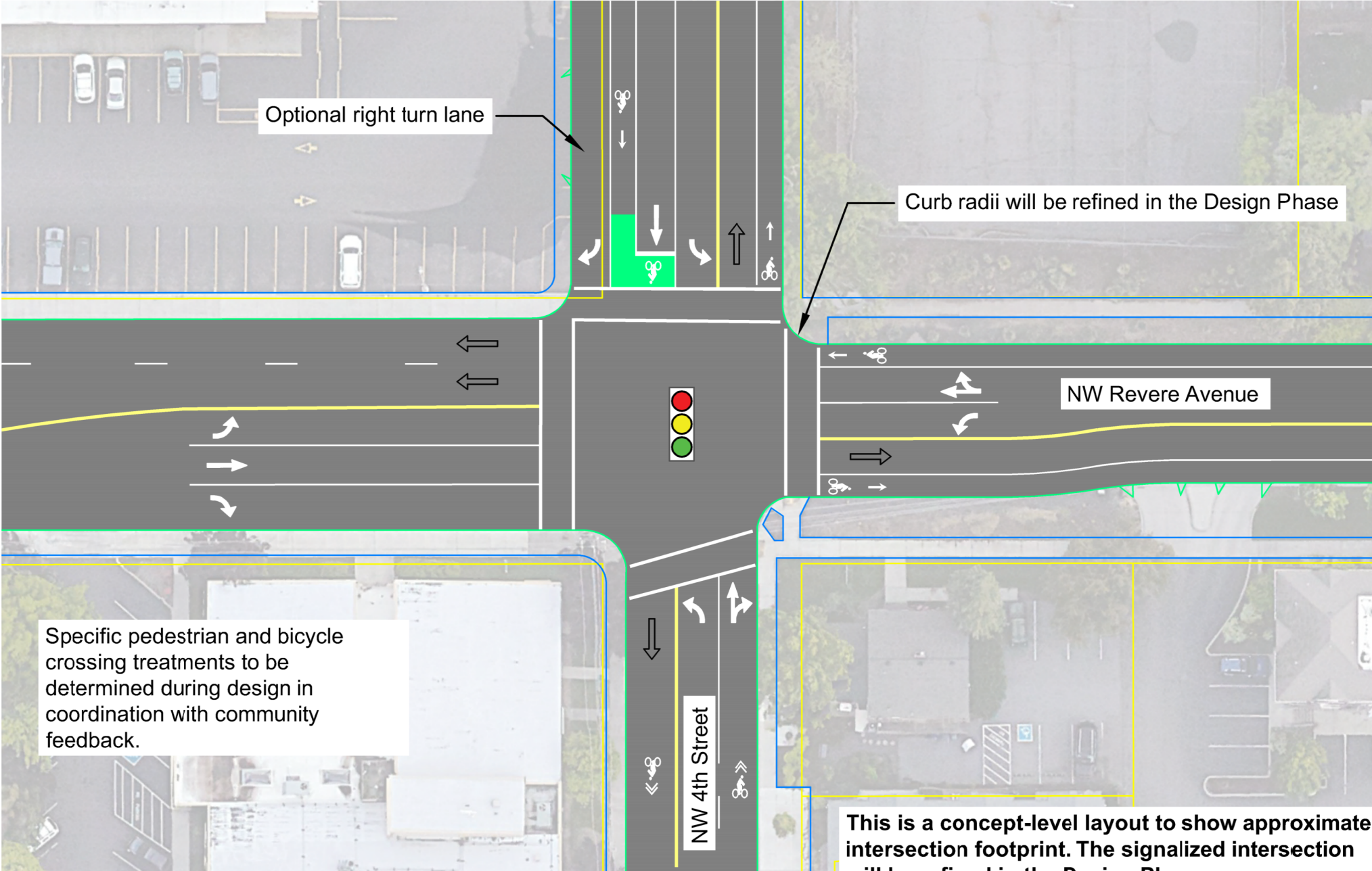
Organisation: DKS ASSOCIATES | Licence: PLUS / FLOATING | Created: Sunday, November 5, 2023 9:36:23 AM

Project: X:\Projects\2021\IP21239-000 (Bend GO Bond Traffic Engineering Service)\02 Delivery\Analysis\02_Olney and Revere\Synchro_Sidra\01_Existing\Bend GO Sidra_new8th_v9.1.sip9

Appendix C:

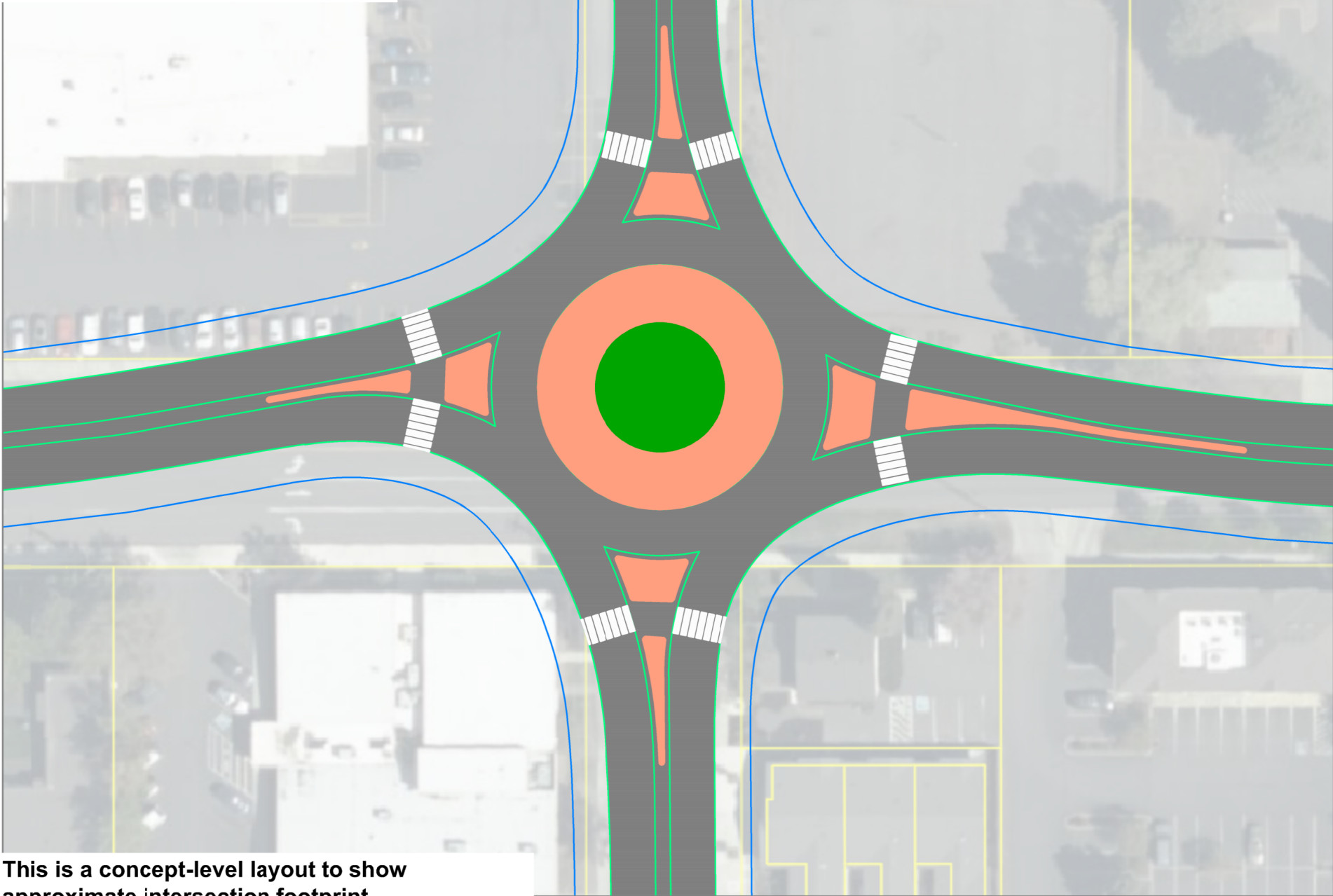
NE 4th Street Concepts

NW 4th Street and NW Revere Avenue Proposed Signalized Intersection



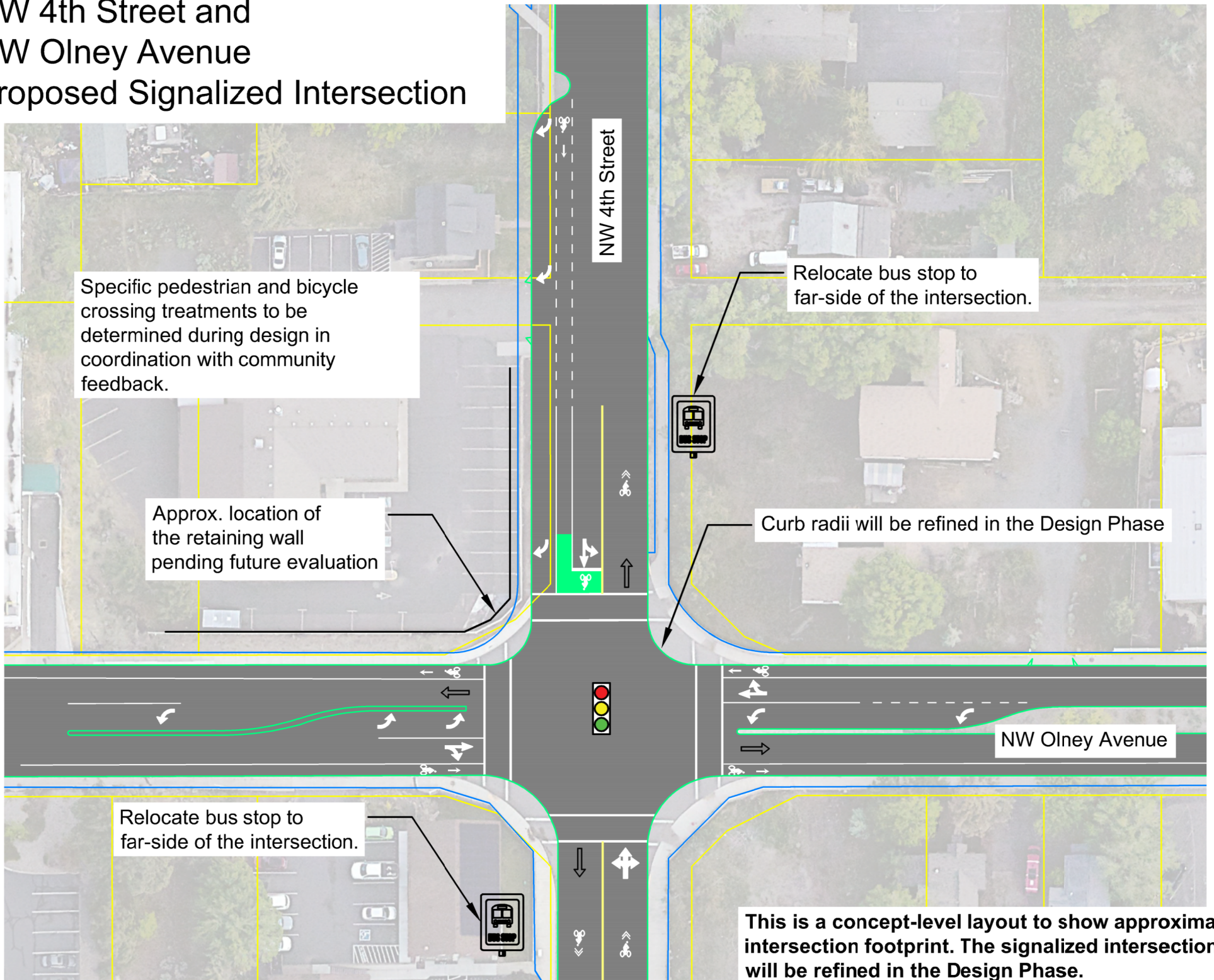
NW 4th Street and NW Revere Avenue Proposed Roundabout

- 130' Inscribed Circle Diameter
- Design Vehicle: WB-67
- Single lane 20' entry/exit on all approaches
- Blue line 14' offset for sidewalk and buffer



This is a concept-level layout to show approximate intersection footprint.

NW 4th Street and NW Olney Avenue Proposed Signalized Intersection



Specific pedestrian and bicycle crossing treatments to be determined during design in coordination with community feedback.

Approx. location of the retaining wall pending future evaluation

Relocate bus stop to far-side of the intersection.

Curb radii will be refined in the Design Phase

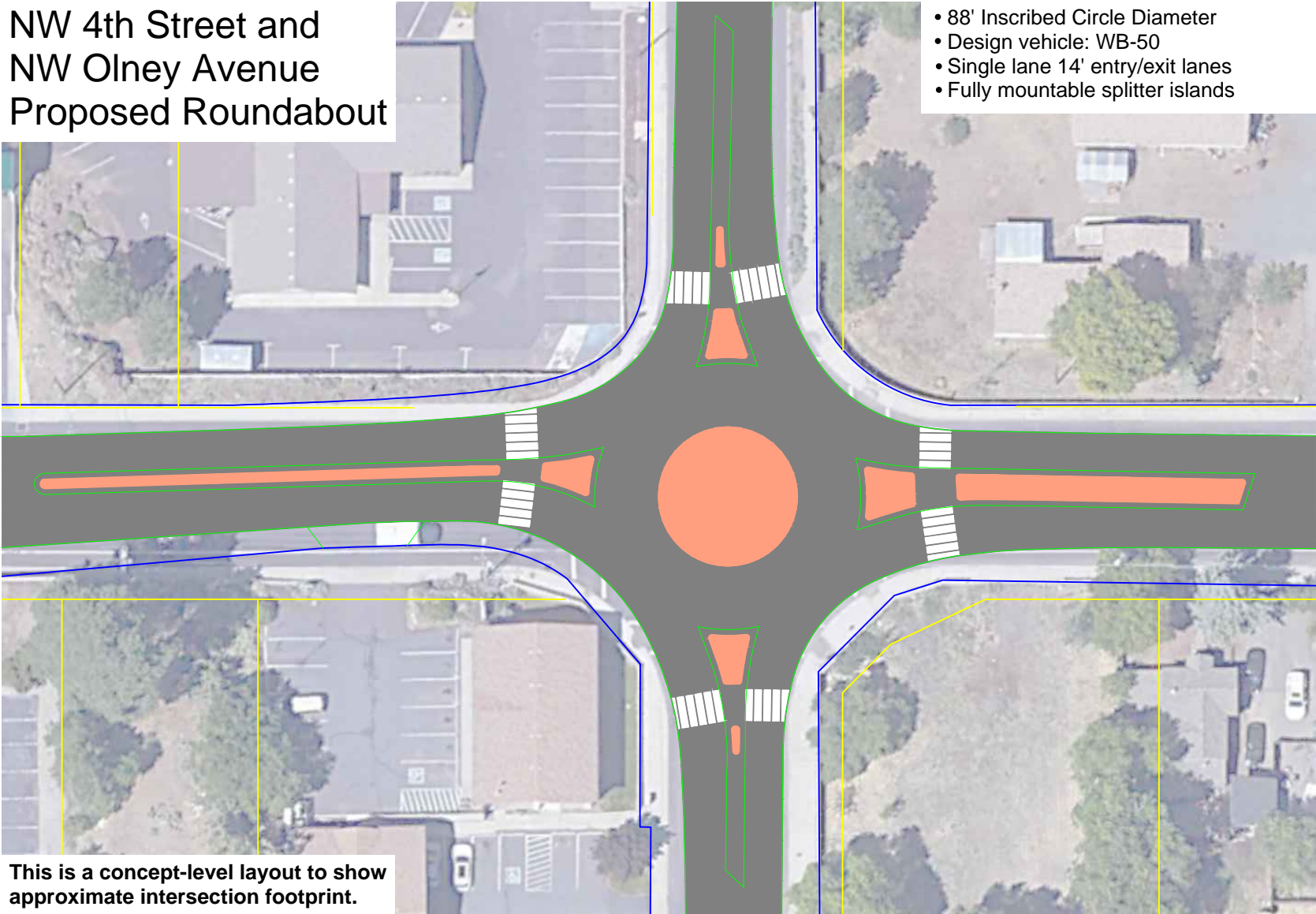
NW Olney Avenue

Relocate bus stop to far-side of the intersection.

This is a concept-level layout to show approximate intersection footprint. The signalized intersection will be refined in the Design Phase.

NW 4th Street and NW Olney Avenue Proposed Roundabout

- 88' Inscribed Circle Diameter
- Design vehicle: WB-50
- Single lane 14' entry/exit lanes
- Fully mountable splitter islands



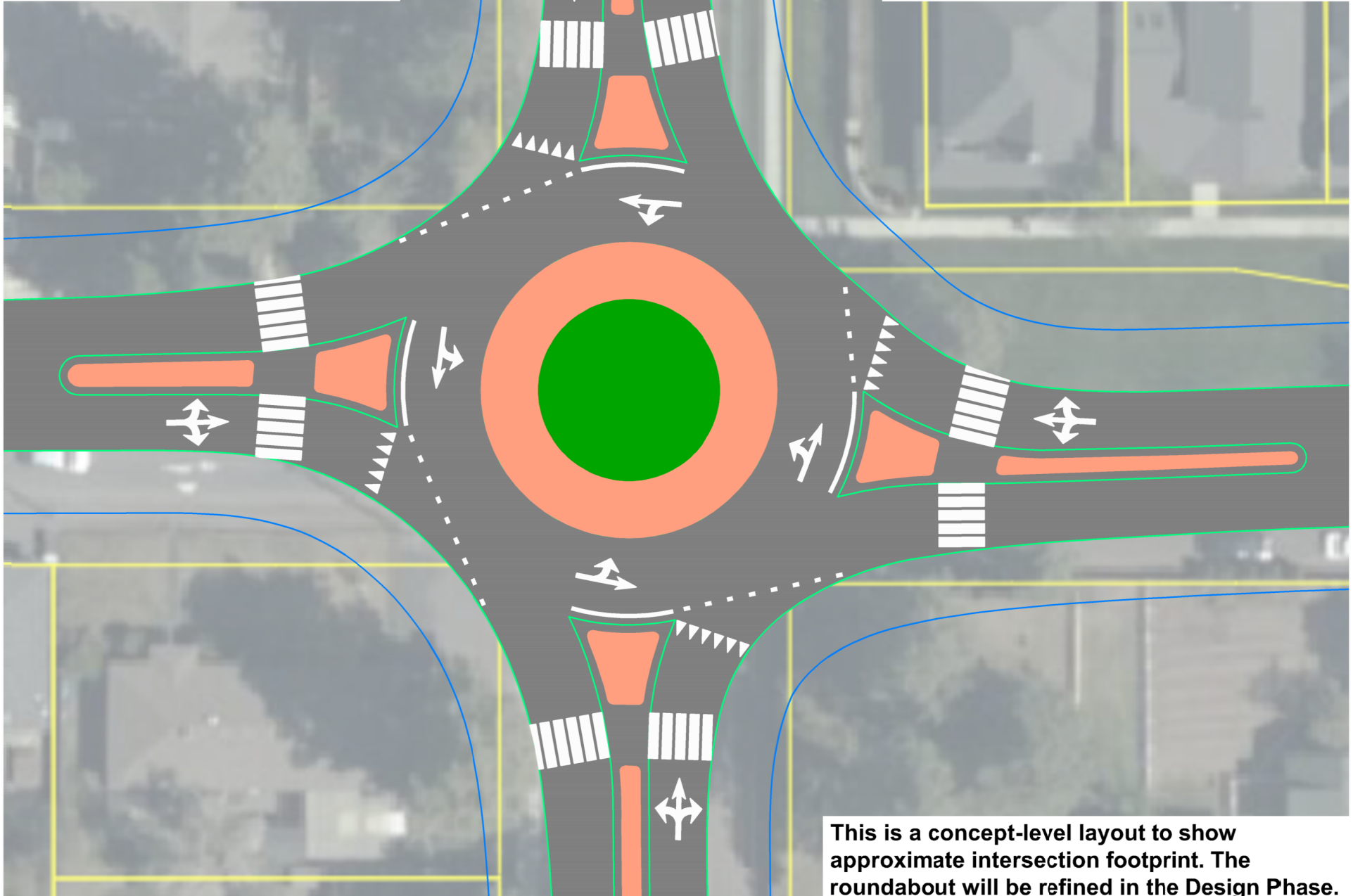
This is a concept-level layout to show approximate intersection footprint.

Appendix D:

NE 8th Street Concepts

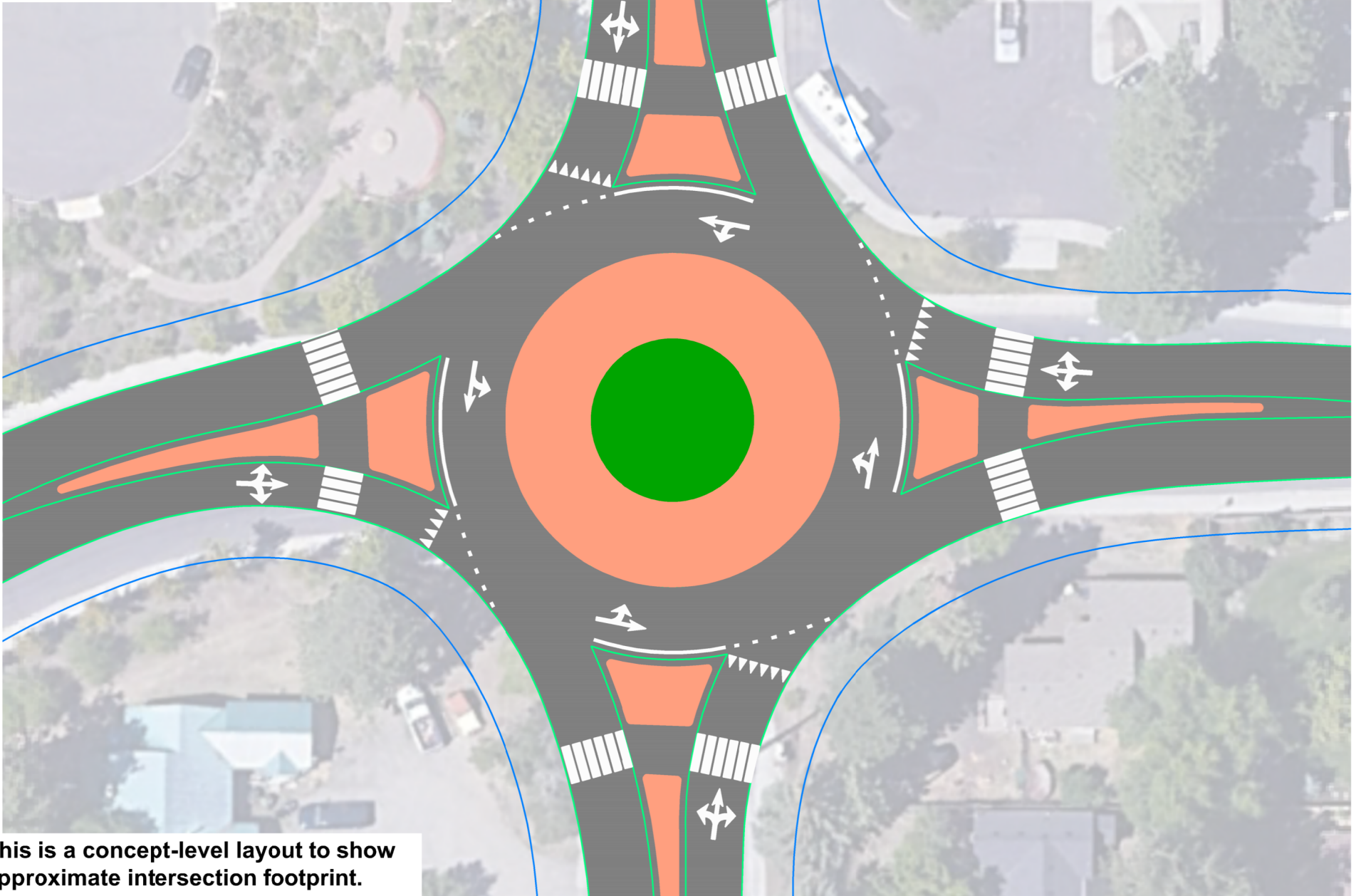
NW 8th Street and NW Revere Avenue Proposed Roundabout

- 130' Inscribed Circle Diameter
- Design Vehicle: WB-50
- Single lane 18' entry/exit lanes on all approaches
- Blue line 14' offset for sidewalk and buffer



NW 8th Street and NW Olney Avenue Single-lane Roundabout

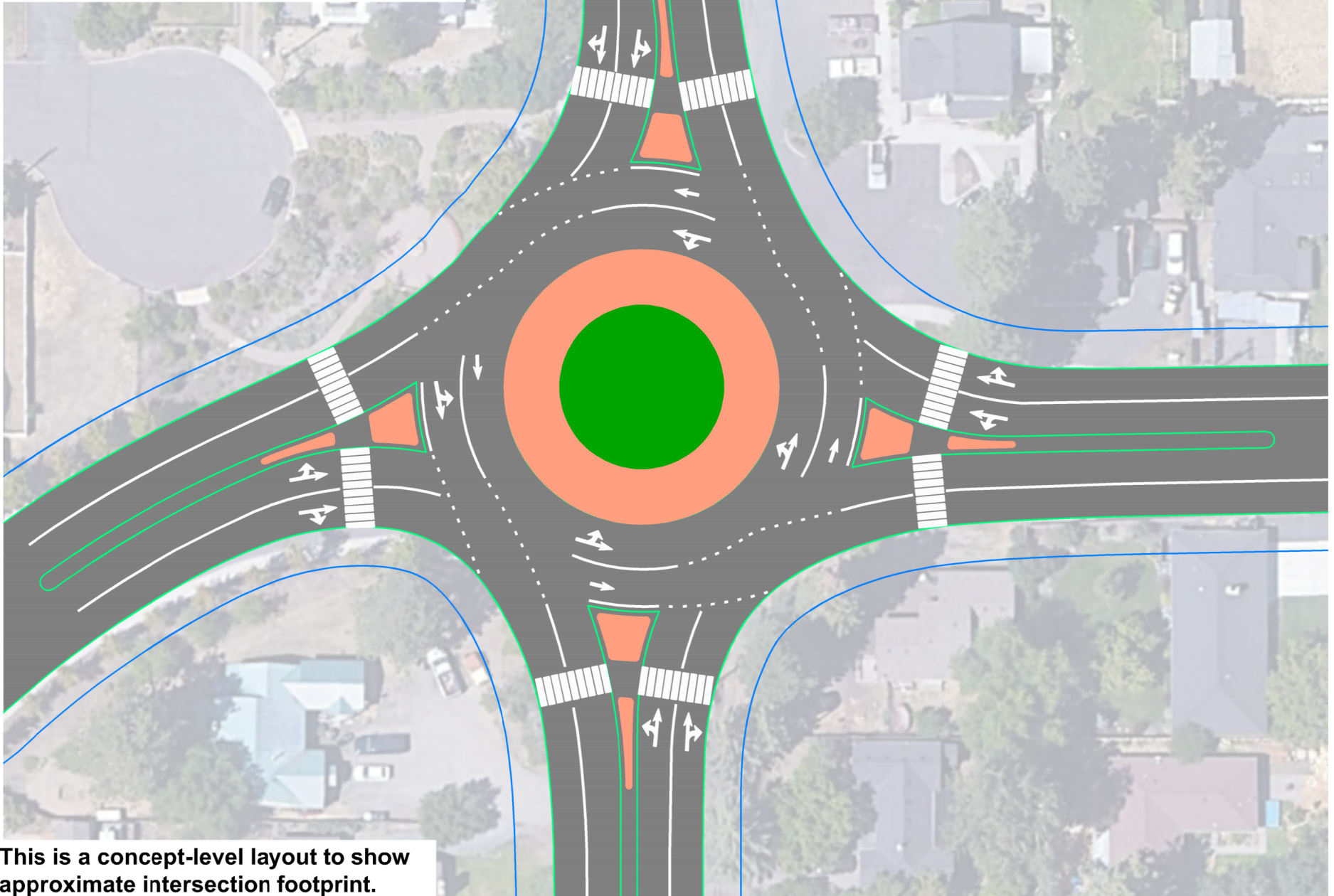
- 130' Inscribed Circle Diameter
- Design Vehicle: WB-67
- Single lane, 20' entry and exits on all approaches
- Blue line 14' offset for sidewalk and buffer



This is a concept-level layout to show approximate intersection footprint.

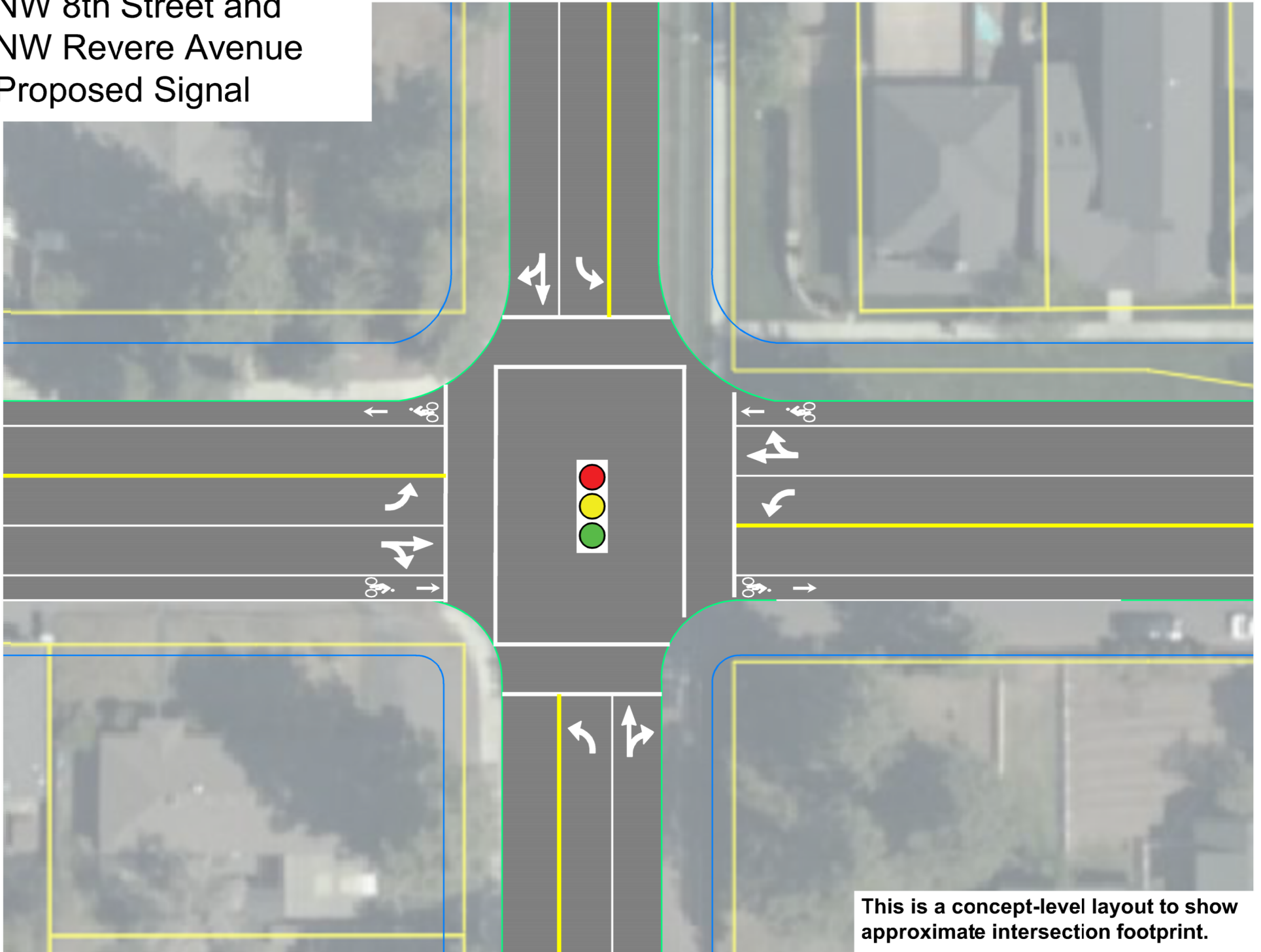
NW 8th Street and NW Olney Avenue Full Multi-lane Roundabout

- 165' Inscribed Circle Diameter
- Design Vehicle: WB-67
- Dual lane entry and exits on all approaches
- Blue line 14' offset for sidewalk and buffer



This is a concept-level layout to show approximate intersection footprint.

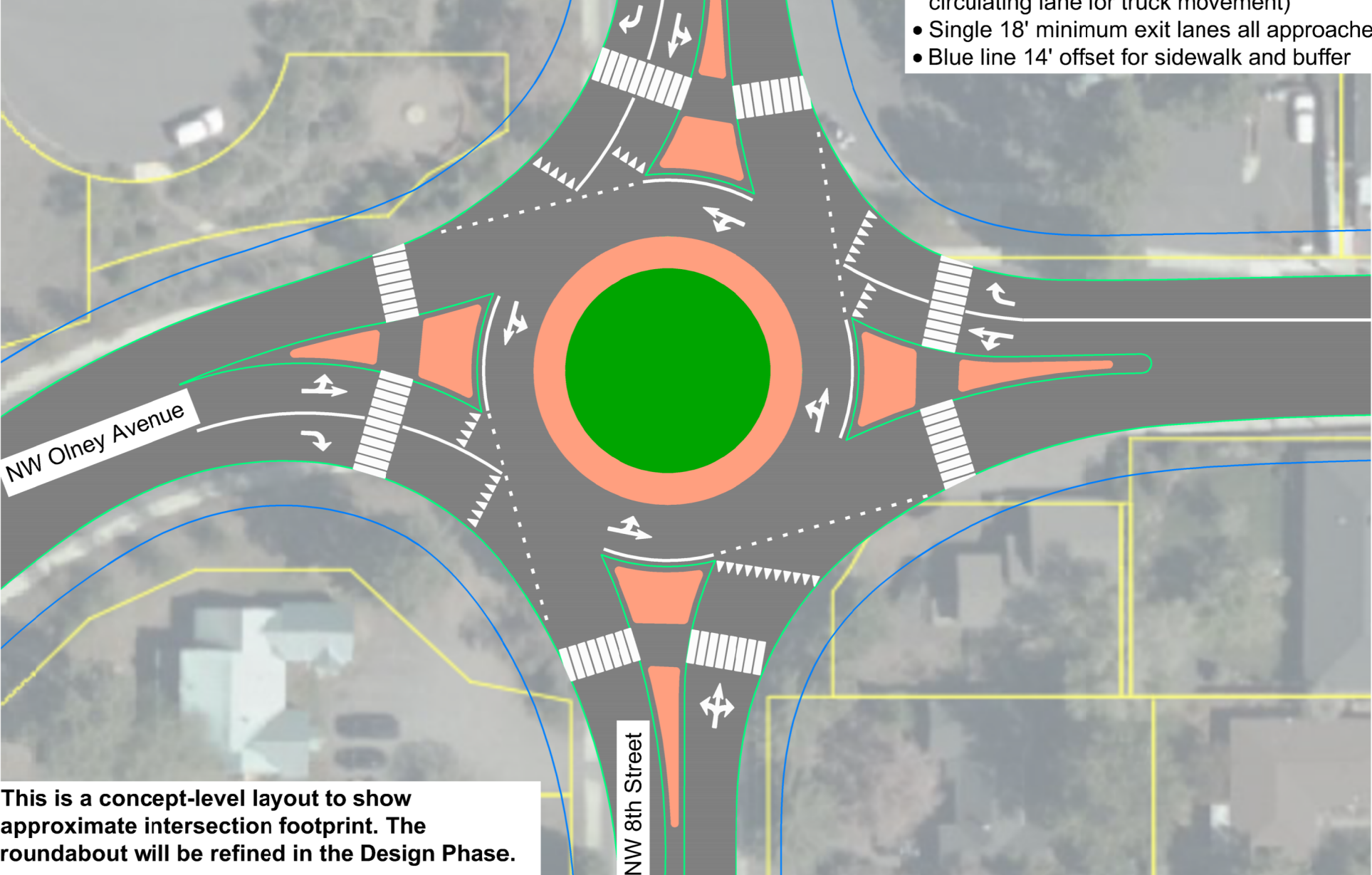
NW 8th Street and NW Revere Avenue Proposed Signal



This is a concept-level layout to show approximate intersection footprint.

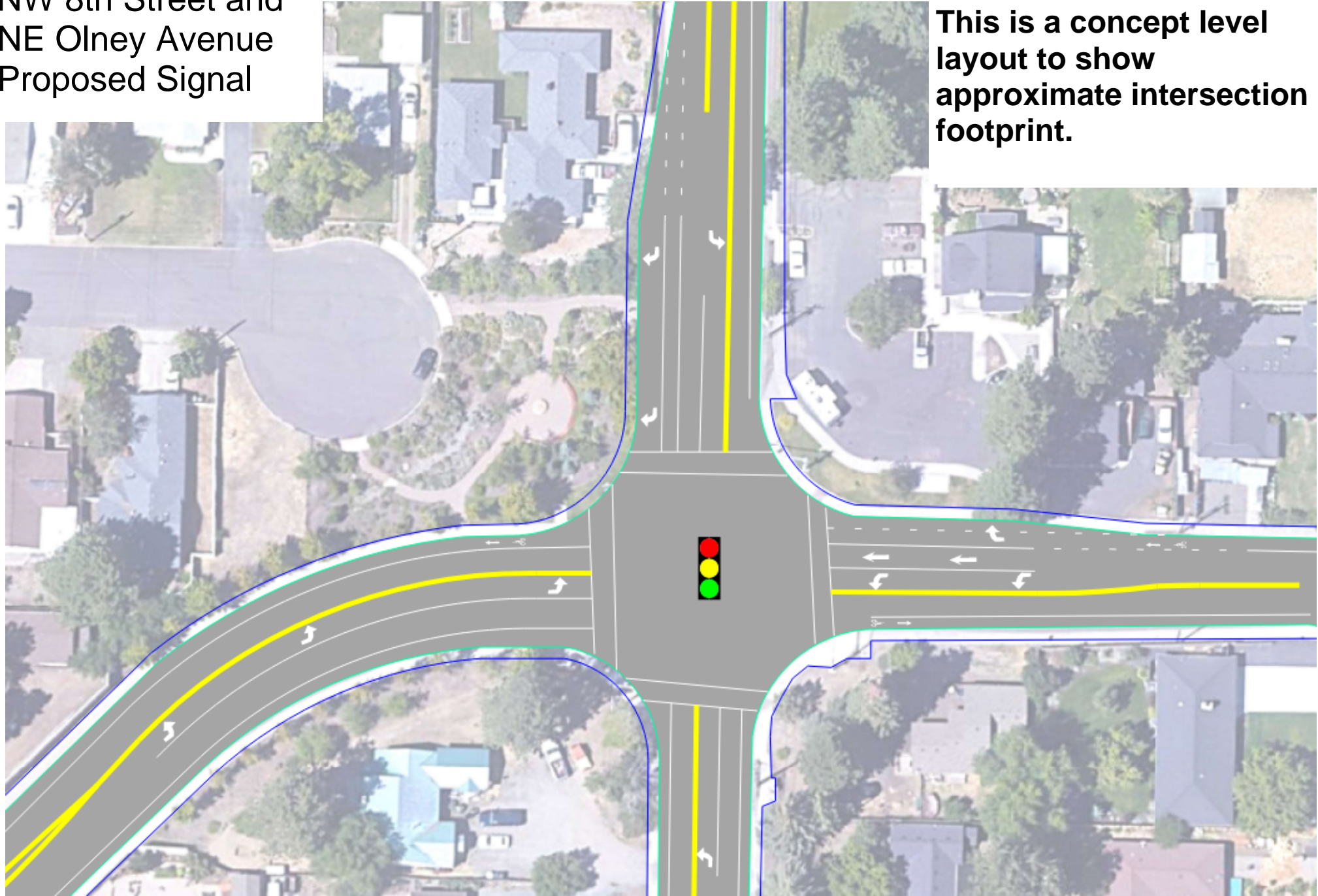
NW 8th Street and NW Olney Avenue Proposed Roundabout

- 150' Inscribed Circle Diameter
- Design Vehicle: WB-50
- Multilane entry on north, east, and west approach (TL+RT turn lanes)
- Single lane 18' entry on south leg (flares are circulating lane for truck movement)
- Single 18' minimum exit lanes all approaches
- Blue line 14' offset for sidewalk and buffer



This is a concept-level layout to show approximate intersection footprint. The roundabout will be refined in the Design Phase.

NW 8th Street and
NE Olney Avenue
Proposed Signal



**This is a concept level
layout to show
approximate intersection
footprint.**