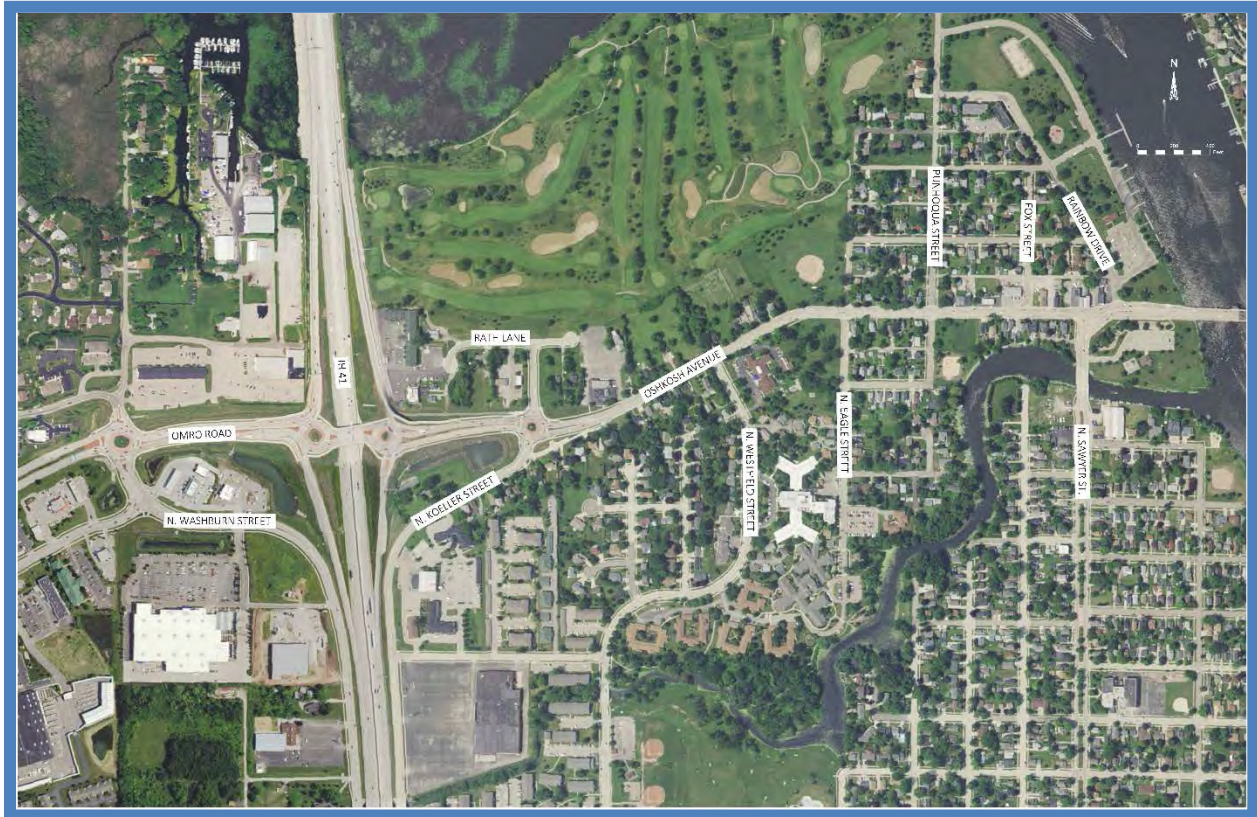


Oshkosh Avenue Area Traffic Impact Analysis

CITY OF OSHKOSH
WINNEBAGO COUNTY, WISCONSIN



DATE SUBMITTED: FEBRUARY 14, 2018

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CHAPTER 1 – INTRODUCTION

Part A – Purpose of Report and Study Objectives

The City of Oshkosh is expecting redevelopment of several properties on the north side of the Oshkosh Avenue (Wisconsin State Highway 21, or WIS 21) corridor between N. Koeller Street and N. Eagle Street. This includes a new Oshkosh Corporation Global Headquarters and other commercial development. This development is expected to impact traffic operations on the Oshkosh Avenue corridor and throughout the area.

As requested by the City of Oshkosh, KL Engineering has completed a Traffic Impact Analysis for the Oshkosh Avenue corridor between N. Washburn Street and the Fox River. This report documents the procedures, results, findings, and conclusions of the analysis. Alternative analysis is provided for the Oshkosh Avenue corridor between N. Koeller Street and the Fox River and three intersections along Oshkosh Avenue: N. Koeller Street, N. Westfield Street, and N. Sawyer Street; and the new intersection of N. Koeller Street & N. Westfield Street. Recommended improvements are provided based on analysis of existing roadway geometrics, current traffic volumes, and additional traffic expected to be generated by the proposed developments. Operational impacts to the I-41 interchange and WIS 21 (Omro Road) & N Washburn Street roundabouts are also included in this report.

Part B – Executive Summary

B1. Site Location and Proposed Development

The Oshkosh Corporation Global Headquarters is proposed to be located on the site of the existing Lakeshore Municipal Golf Course, north of Oshkosh Avenue in Oshkosh, Wisconsin. Additional commercial development is also expected along the north side of Oshkosh Avenue. The area affected by these developments and studied in this report is the Oshkosh Avenue Corridor between N. Washburn Street/Omro Road and the Fox River. A project location map is included in **Exhibit 1-1**.

The Oshkosh Corporation headquarters is expected to function as a general office building, with approximately 650 employees upon its opening in 2019, and an additional 250 employees (900 total employees) by the year 2025. The commercial development along Oshkosh Avenue is expected to include a mix of restaurant, office, retail, and service land uses.

These developments together are projected to generate approximately 12,370 daily vehicle trips on a typical weekday. Of these total trips, 1,005 trips (610 in and 400 out) are expected to occur during the AM peak hour and 1,000 trips (440 in and 560 out) are expected to occur during the PM peak hour.

B2. Analysis Findings

The existing transportation system was analyzed using methodology outlined in the 2010 edition of the Highway Capacity Manual (HCM 2010) methodology. Under existing traffic conditions, all movements operate at Level of service (LOS) C or better, except for two movements at the Oshkosh Avenue intersection with N. Sawyer Street.

The existing transportation system was also analyzed under future traffic conditions. Background traffic growth was projected using a forecast provided by the East Central Wisconsin Regional Planning Commission (ECWRPC). This background traffic growth alone is expected to result in undesirable operations at multiple locations in 2025 and failing operations at multiple locations by 2045. LOS F conditions are projected for several movements at the WIS 21 intersection with N. Washburn Street/Omro Road during peak hours in the year 2045. LOS F conditions are also projected for individual movements at the WIS 21 intersection with the I-41 northbound ramps.

Decline of traffic operations is expected with the addition of development traffic. With development traffic, the existing transportation system is expected to result in LOS F for several movements at the WIS 21 intersection with N. Washburn Street/Omro Road by the year 2025. Projected to the year 2045, the addition of development traffic is expected to contribute to LOS F conditions for additional movements at the WIS 21 intersection with the I-41 southbound ramps, as well as for one movement at the Oshkosh Avenue intersections with N. Koeller Street and with N. Sawyer Street.

To mitigate the projected undesirable traffic operations, several improvements have been recommended within the study area. These recommendations are outlined in more detail in section B3 of this summary.

At the three study intersections operated and maintained by the City of Oshkosh, (N. Koeller Street, N. Westfield Street, and N. Sawyer Street), all movements are expected to operate at LOS C or better through the year 2045 with these recommended improvements. No improvements are recommended within this report for study area intersections owned and maintained by the Wisconsin Department of Transportation (WIS 21 intersections with I-41 northbound and southbound ramps, and WIS 21 intersection with N. Washburn Street/Omro Road). Therefore, the operational deficiencies at these intersections are not expected to be mitigated by the recommended improvements.

B3. Recommendations

Several alternatives were analyzed and considered for improvements along the Oshkosh Avenue corridor. Alternatives were evaluated for the corridor's typical section, as well as intersection improvements at Oshkosh Avenue intersections with N. Sawyer Street, N. Westfield Street, and N. Koeller Street.

Oshkosh Avenue Corridor

For the Oshkosh Avenue corridor, the following alternatives were considered:

- Existing – Four-lane undivided typical section with no improvements
- Alternative 1 – Four-lane undivided typical section with roadside improvements
- Alternative 2 – Two-way left turn lane (TWLTL) with:
 - *Five-lane typical section from N. Koeller Street to N. Eagle Street*
 - *Three-lane typical section from N. Eagle Street to Fox River*
- Alternative 3 – Four-lane divided typical section with median
 - *N. Koeller Street to N. Eagle Street only*

Alternative 3 (*four-lane divided*) was selected as the preferred alternative for Oshkosh Avenue from N. Koeller Street to N. Eagle Street, and Alternative 1 (*four-lane undivided with improvements*) was selected as the preferred alternative from N. Eagle Street to the Fox River. These alternatives were selected because of improved safety and optimal capacity for through vehicles, low relative construction cost and right-of-way impacts east of N. Eagle Street, compatibility with adjoining roadway sections, and aesthetic features.

Overall, the existing Oshkosh Avenue corridor typical section will operate with acceptable capacity throughout the system with total traffic in the horizon year (2045) if left-turn lanes are provided at the N. Westfield Street intersection. Although the above corridor improvements are recommended, they are not required to provide needed corridor capacity.

City of Oshkosh Controlled Intersections

For the Oshkosh Avenue intersection with N. Sawyer Street, the following alternatives were considered:

- Existing – Multiple Traffic signals/Traffic Control Devices
- Alternative 1 – Single Traffic Signal
- Alternative 2 – Single Traffic Signal with Extension of N. Sawyer Street North of Oshkosh Avenue
 - *Alternative 2A – Extension of N. Sawyer Street to Graham Avenue*
 - *Alternative 2B – Extension of N. Sawyer Street to Alley*
 - *Alternative 2C – Extension of N. Sawyer Street to Rainbow Drive south of Graham Avenue*
- Alternative 3 – Roundabout containing Rainbow Drive/N. Sawyer Street extension

Alternative 2 (*single traffic signal with extension of N. Sawyer Street*) has been selected as the preferred alternative because it provides full connectivity north of Oshkosh Avenue and has lower cost and right-of-way impacts than a roundabout. Due to the close intersection spacing created in Alternative 2B, it is recommended to implement Alternative 2A or 2C depending on potential real estate acquisition.

At the Oshkosh Avenue intersection with N. Westfield Street, a fourth leg of the intersection is planned to be constructed to provide access to the Oshkosh Corporation headquarters development. Given that expectation, the following intersection alternatives were considered:

- Alternative 1 – Traffic Signal with Eastbound & Westbound Left-Turn Lanes
- Alternative 2 – Roundabout

Alternative 1 (*traffic signal*) has been selected as the preferred alternative at this location because the signal will create gaps in traffic downstream, provide better pedestrian accommodations, and provides a lower cost and fewer right-of-way impacts compared to the roundabout alternative.

For the Oshkosh Avenue intersection with N. Koeller Street, the following alternatives were considered:

- Existing Roundabout
- Alternative 1 – Roundabout with Improvements (additional southbound lane)

Due to capacity concerns with the existing configuration, Alternative 1 (*roundabout with improvements*) was selected as the preferred alternative.

WisDOT Controlled Intersections

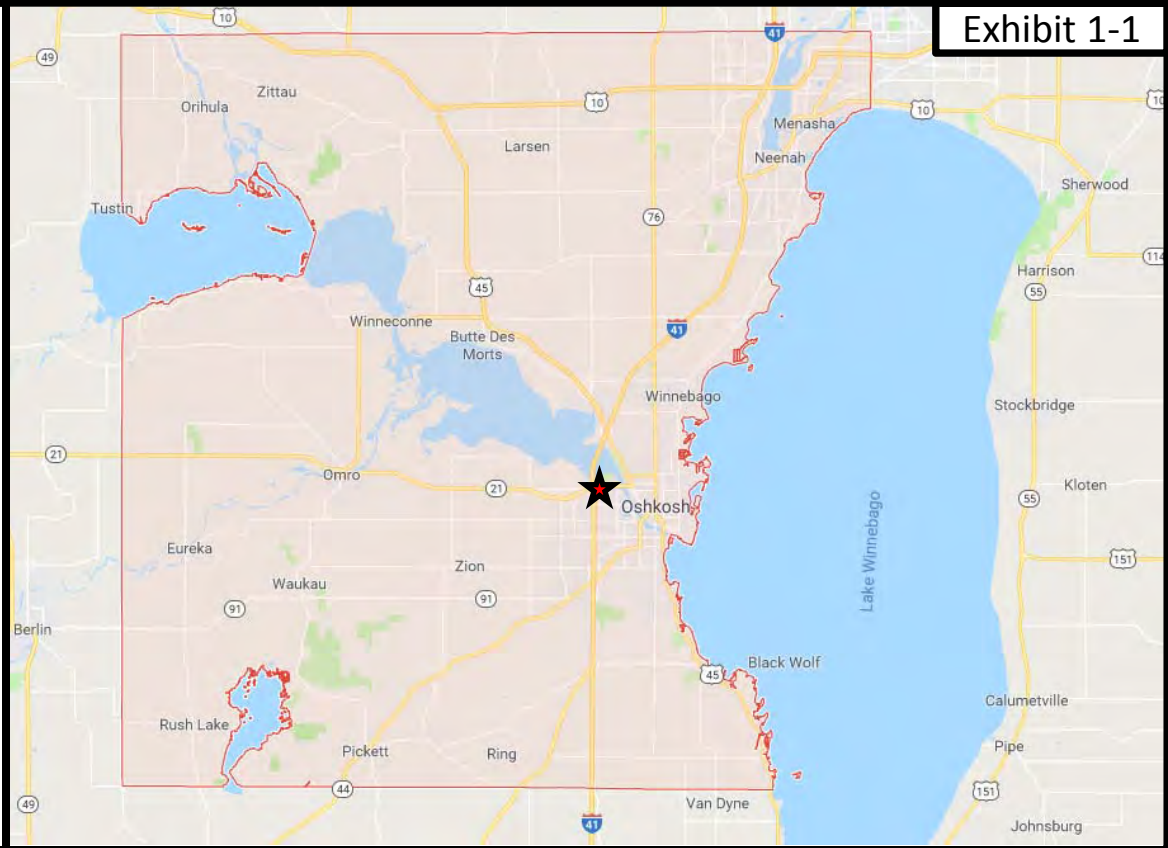
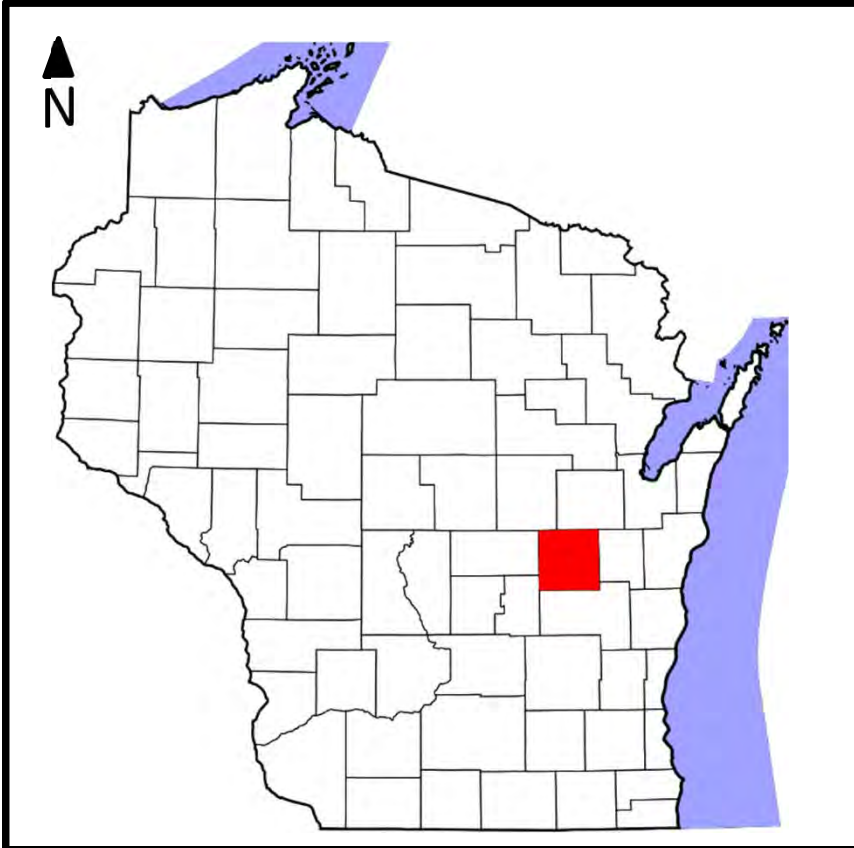
The roundabouts at the I-41 interchange with WIS 21 and at the WIS 21 intersection with N. Washburn Street/Omro Road have been evaluated to identify existing deficiencies and their potential causes.

Potential and identified issues at these study intersections include:

- Unbalanced lane utilization in the westbound lanes of WIS 21 through the roundabouts at the interchange with I-41. This issue could be the result of the following:
 - The downstream dedicated left turn lane at the N. Washburn Street roundabout, causing undesirable weaving maneuvers for WIS 21 westbound traffic.

- The majority of westbound to southbound left-turning traffic at the N. Washburn Street/Omro Road roundabout is in the center thru/left lane for easier access to Westowne Avenue developments.
- The lack of designated turn lanes on Oshkosh Avenue to the east of the interchange (four-lane undivided section) can create lane utilization imbalance because vehicles stopping to turn left delay through vehicles in the left lane.
- Southbound vehicles at the WIS 21 intersection with N. Washburn Street/Omro Road have been observed turning left from the right lane, which is designated as a thru/right lane. This behavior is likely due to high delays during peak hours, and potentially a result of close intersection spacing to the intersection with Brooks Lane.
- Intersection volumes are nearing capacity at these roundabouts. Traffic analysis indicates that an 18% volume increase during the AM peak or a 14% increase during the PM peak (compared with existing volumes), will result in intersection volumes exceeding capacity at the WIS 21 intersection with N. Washburn Street/Omro Road. The interchange intersections are both within 30 - 50% of capacity.
- Right turning vehicle queues on the northbound approach of N. Washburn Street at the WIS 21 intersection have the potential to extend 225 feet south into the Westowne Avenue intersection. This is most likely to occur during the PM peak hour, when over 470 vehicles make this right turn and the overall intersection is nearing capacity.

At the three study intersections not owned by the City of Oshkosh, no formal recommendations are included within this study. However, it is recommended to continue observation of these issues as local development and traffic growth continues. Coordination with WisDOT is also recommended to determine potential mitigation strategies.



CHAPTER 2 – PROPOSED DEVELOPMENT

Part A – On-Site Development

A1. Development Descriptions and Site Location

The developments analyzed in this study are expected to occur to the north of Oshkosh Avenue in Oshkosh, Wisconsin. Oshkosh Corporation is planning to construct a new corporate headquarters on the site of the existing Lakeshore Municipal Golf Course, to be accessed by extensions of existing public roads. This facility is expected to function as a general office building.

Additional commercial development is expected to occur along the north side of Oshkosh Avenue between I-41 and N. Eagle Street. These properties are expected to exhibit different traffic generation characteristics than those of the Oshkosh Corporation property, as described in Chapter 4 of this report.

A site location map is shown in **Exhibit 2-1**.

A2. Land Use and Intensity

The Oshkosh Corporation Global Headquarters is expected to function as general office building. Oshkosh Corporation expects the facility to contain approximately 650 employees upon its opening in 2019, with an additional 250 employees (900 total employees) by the year 2025.

Exact details regarding the land uses of the additional commercial development are not known, but general commercial land uses were included in the analysis for this study. The expected commercial development includes a mix of restaurant, office, retail, and service land uses.

A3. Proposed Site Plan

The proposed Oshkosh Corporation development includes access via extensions of N. Koeller Street and N. Westfield Street. A new intersection of these two extended roadways and the Oshkosh Corporation private driveway is proposed. No new driveway accesses are proposed along Oshkosh Avenue. Further detail of the preliminary Oshkosh Corporation/Commercial Development Site Plan and roadway extensions is shown in **Exhibit 2-2**.

A4. Development Phasing and Timing

The Oshkosh Corporation Corporate Headquarters is expected to open during the year 2019. Additional growth and changes to the property are expected throughout the following years until full completion by 2025.

Commercial development adjacent to Oshkosh Avenue is expected to occur throughout the next several years. For the purposes of this study, this commercial development is assumed to be fully built-out in the year 2025.

Part B – Study Area

B1. Influence Area

The influence area of the developments analyzed in this study includes the City of Oshkosh and portions of the surrounding communities. Some of the commuter traffic arriving at the Oshkosh Corporation site are expected to arrive from outlying areas via Interstate Highway 41.

B2. Area of Significant Traffic Impact

The area of significant traffic impact within this study includes all locations on Oshkosh Avenue (named WIS 21/Omro Road west of I-41 and WIS 21/Oshkosh Avenue east of N. Koeller Street) between N. Washburn Street and the Fox River. As part of this study, analysis was completed for

the following WisDOT operated and maintained intersections. Since these roundabouts are linked as a system, have operational challenges not created by development, and are under the control of WisDOT, recommendations are not provided for these intersections.

- WIS 21 & Omro Road/N. Washburn Street
- WIS 21 & I-41 southbound ramps
- WIS 21 & I-41 northbound ramps

Analyses were also completed and recommendations are provided for the following intersections which are under jurisdiction of the City of Oshkosh.

- WIS 21/Oshkosh Avenue & N. Koeller Street
- WIS 21/Oshkosh Avenue & N. Westfield Street
- WIS 21/Oshkosh Avenue & N. Sawyer Street

A corridor analysis was also completed along the City of Oshkosh section of WIS 21/Oshkosh Avenue from N. Koeller Street to the Fox River.

Part C – Off-Site Land Use and Development

The City of Oshkosh expects development to occur southwest of the I-41 interchange with WIS 21. The background traffic forecasts included in this study accounted for this anticipated development and other potential development in the area.

Part D – Site Accessibility

Oshkosh Avenue is a four-lane undivided principal urban arterial, with a posted speed limit of 30 miles per hour (mph) east of the I-41 interchange. No bicycle lanes are present and on-street parking is not permitted. Sidewalks are provided along both sides of Oshkosh Avenue, separated in most locations from the travel lanes by the curb with no terrace. Many homes and businesses access Oshkosh Avenue directly via private driveways.

Regional access to Oshkosh Avenue is provided via the I-41 interchange. Local access occurs mainly via N. Koeller Street, N. Westfield Street, N. Sawyer Street, Congress Avenue (east of the Fox River), and WIS 21 west of the I-41 interchange.

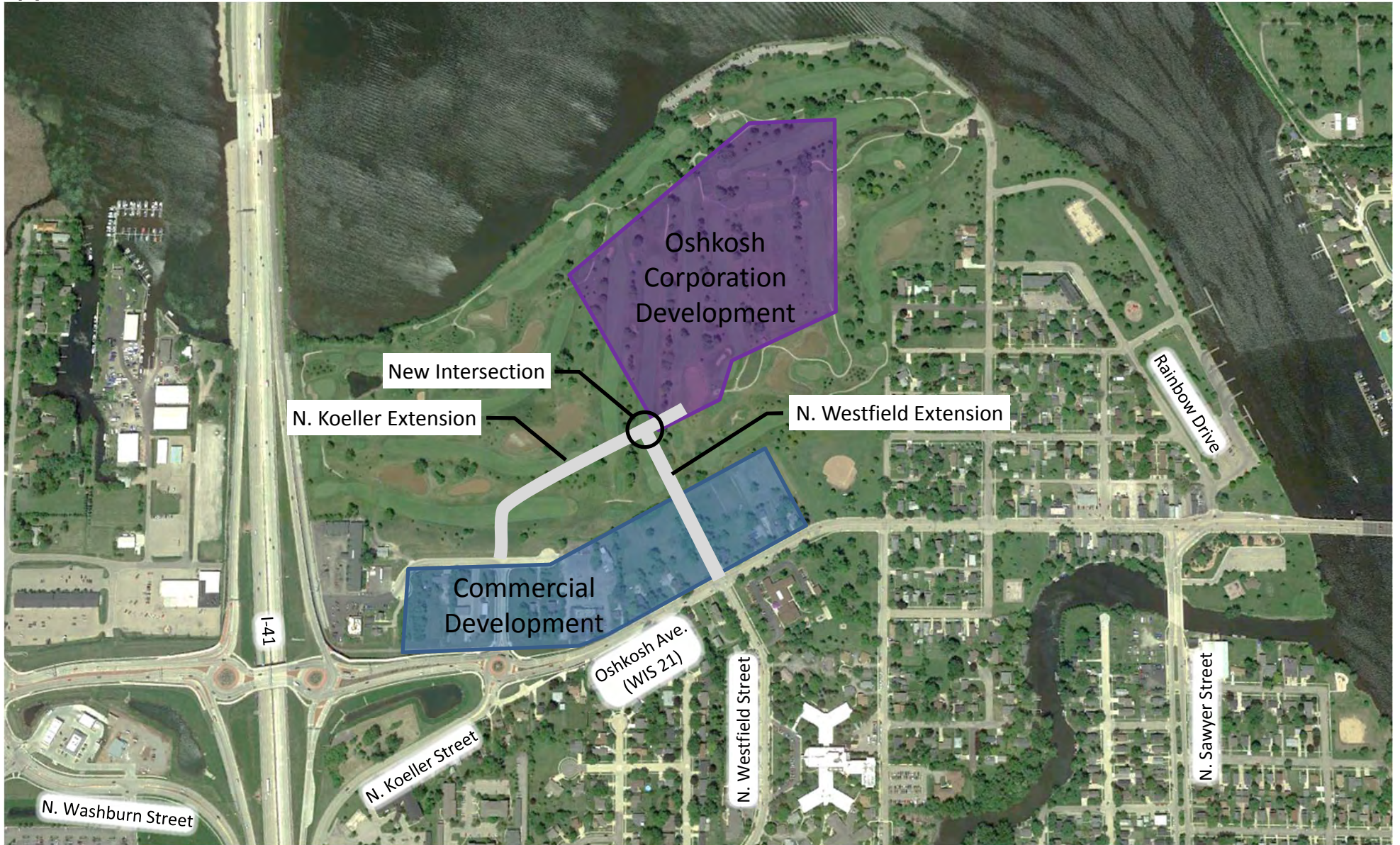
Signalized intersections on Oshkosh Avenue are located at the N. Westfield Street and N. Sawyer Street intersections. Roundabouts along WIS 21 (extension of Oshkosh Avenue) are located at intersections with N. Washburn Street, I-41 southbound ramps, I-41 northbound ramps, and N. Koeller Street.

Greater Oshkosh Transit (GO Transit) Bus Route 5 travels eastbound and westbound on Oshkosh Avenue, with stops at the following locations:

- 500 feet west of N. Westfield Street
- Immediately east of N. Westfield Street
- West of N. Sawyer Street.

GO Transit Route 7 travels westbound on the portion of Oshkosh Avenue west of N. Westfield Street, with a stop located 500 feet west of N. Westfield Street.





CHAPTER 3 – ANALYSIS OF EXISTING CONDITONS

Part A – Physical Characteristics

The lane configurations, traffic control, posted speed limits, and intersection spacing of the existing transportation system within the study area are shown in **Exhibit 3-1**. No improvements to network transportation facilities are included in the analysis other than those included in the recommendations of this report.

Part B – Traffic Volumes

Intersection turning movement traffic volumes were counted using video footage collected on Wednesday, December 6, 2017 at the six study intersections listed in *Chapter 2, Section B2*.

From the traffic counts collected, network morning (AM) and afternoon (PM) peak hours were identified. The AM peak hour was observed to be 7:00 – 8:00 AM, and the PM peak hour was observed to be 4:15 – 5:15 PM. A summary of peak hour volumes is provided in **Exhibit 3-2**. Raw traffic count data is included in **Appendix A**.

Based on a traffic count completed on Wednesday, December 6, 2017, the Annual Average Daily Traffic (AADT) is estimated at 15,900 vehicles per day (vpd).

Part C – Capacity and Level of Service

The study intersections were each analyzed using the methodology outlined in the 2010 edition of the Highway Capacity Manual (HCM 2010). This methodology applies a qualitative metric known as level of service (LOS) to all traffic movements at an intersection. LOS ratings range from LOS A (very good) to LOS F (very poor) based on the average control delay measured in seconds per vehicle. **Table 3-1** below represents the delay criteria used for determining the Level of Service at an intersection. Signalized LOS criteria was used for control delay at the roundabout intersections for comparison purposes for this study. The software program Synchro 9 was used to implement the HCM 2010 methodology at signalized intersections. Roundabout analysis was completed using the program Sidra Intersection 7.

Table 3-1. Level of Service Criteria

Level of Service	Average Control Delay (Sec/veh)
A	≤10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

The LOS criteria set by the City of Oshkosh for the Oshkosh Avenue corridor is no lower than LOS C in the design year 2045.

C1. Existing Year 2017 Background Traffic Operations

The existing year 2017 background traffic analysis is based on existing traffic volumes with existing intersection geometrics and traffic control. **Exhibit 3-3** shows the weekday morning and afternoon peak hour operating conditions for the existing 2017 background traffic scenario. The eastbound and westbound approaches are the WIS 21 approaches.

AM Peak

Exhibit 3-3

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	C	C	C	A	A	A	A	A	C	C	A	A	B
		Delay (s)	24	24	24	6	7	7	10	10	29	21	8	8	17
		V/C	0.76	0.76	0.76	0.29	0.37	0.37	0.12	0.12	0.71	0.66	0.15	0.15	--
		Queue (ft)	175	175	175	30	50	50	<25	<25	100	100	<25	<25	--
WIS 21 & I-41 SB Ramps	Roundabout	LOS	--	B	A	A	A	--	--	--	--	A	A	A	A
		Delay (s)	--	11	FREE	6	6	--	--	--	--	7	7	FREE	7
		V/C	--	0.53	0.18	0.31	0.31	--	--	--	--	0.18	0.18	0.42	--
		Queue (ft)	--	100	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & I-41 NB Ramps	Roundabout	LOS	A	A	--	--	B	A	B	B	A	--	--	--	A
		Delay (s)	7	7	--	--	14	9	16	16	7	--	--	--	10
		V/C	0.44	0.44	--	--	0.48	0.32	0.30	0.30	0.15	--	--	--	--
		Queue (ft)	<25	<25	--	--	50	25	25	25	<25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	A	A	A	A	A	A	
		Delay (s)	8	8	8	7	7	7	8	8	6	6	6	6	8
		V/C	0.47	0.47	0.47	0.34	0.34	0.34	0.27	0.22	0.08	0.04	0.04	0.04	--
		Queue (ft)	50	50	50	25	25	25	25	25	<25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	3	3	--	31	--	31	--	--	--	5
		V/C	--	0.31	0.31	0.30	0.31	--	0.28	--	0.15	--	--	--	--
		Queue (ft)	--	125	125	100	100	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	B	B	D	A	--	E	--	A	--	--	--	B
		Delay* (s)	--	18	17	40	5	--	59	--	0	--	--	--	19
		V/C*	--	0.48	0.48	0.38	0.21	--	0.54	--	0.12	--	--	--	--
		Queue** (ft)	--	200	200	100	100	--	200	--	25	--	--	--	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	B	B	B	A	A	A	A	A	C	B	B	B	B
		Delay (s)	17	17	17	10	10	10	9	9	29	19	13	13	15
		V/C	0.63	0.63	0.63	0.54	0.54	0.54	0.27	0.27	0.80	0.48	0.22	0.22	--
		Queue (ft)	100	100	100	75	75	75	25	25	175	50	25	25	--
WIS 21 & I-41 SB Ramps	Roundabout	LOS	--	A	A	A	A	--	--	--	--	A	A	A	A
		Delay (s)	--	9	FREE	7	7	--	--	--	--	9	9	FREE	5
		V/C	--	0.42	0.14	0.41	0.41	--	--	--	--	0.18	0.18	0.56	--
		Queue (ft)	--	50	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & I-41 NB Ramps	Roundabout	LOS	A	A	--	--	B	A	B	B	A	--	--	--	B
		Delay (s)	7	7	--	--	17	7	14	14	7	--	--	--	10
		V/C	0.38	0.38	--	--	0.60	0.22	0.30	0.30	0.13	--	--	--	--
		Queue (ft)	<25	<25	--	--	100	25	25	25	<25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	A	A	A	A	A	A	
		Delay (s)	7	7	7	8	8	8	9	9	6	7	7	7	7
		V/C	0.39	0.39	0.39	0.38	0.38	0.38	0.33	0.33	0.14	0.03	0.03	0.03	--
		Queue (ft)	50	50	50	50	50	50	25	25	<25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	4	4	--	31	--	31	--	--	--	5
		V/C	--	0.32	0.32	0.32	0.33	--	0.31	--	0.18	--	--	--	--
		Queue (ft)	--	150	150	125	125	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	C	C	C	A	--	D	--	A	--	--	--	B
		Delay* (s)	--	28	26	34	8	--	38	--	0	--	--	--	19
		V/C*	--	0.61	0.61	0.25	0.29	--	0.29	--	0.16	--	--	--	--
		Queue** (ft)	--	250	250	100	125	--	125	--	50	--	--	--	--

* Result from Synchro

** Result from SimTraffic



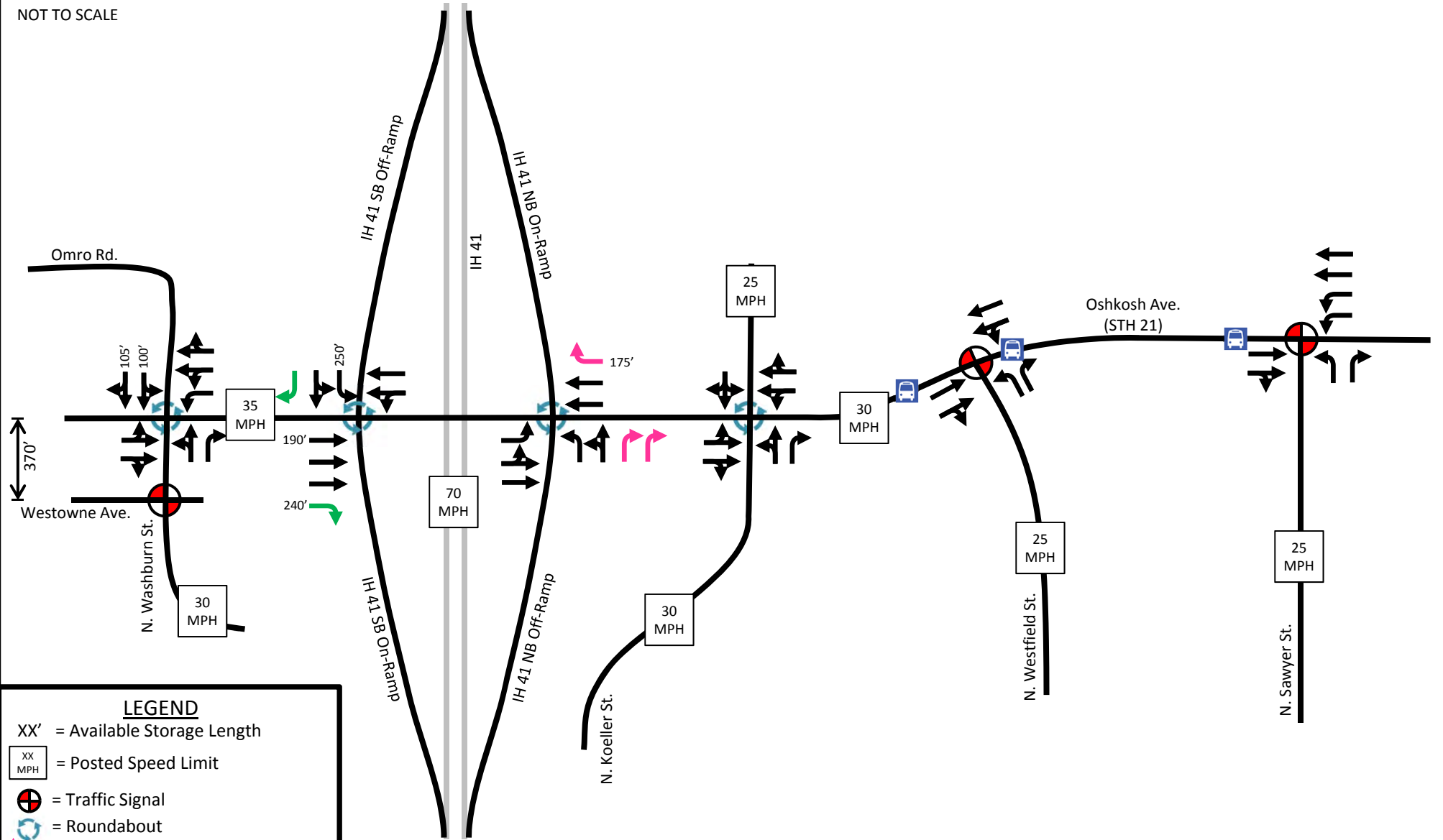
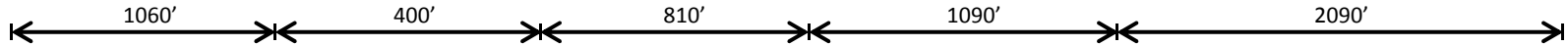
As shown in the tables, with the exception of two movements at the N. Sawyer Street intersection, all movements have been analyzed to operate at LOS C or better under the existing 2017 background traffic scenario. At the N. Sawyer Street intersection with Oshkosh Avenue, the westbound (Oshkosh Avenue to Sawyer Street) left turn operates at LOS D during the AM peak hour, and the northbound left turn (Sawyer Street to Oshkosh Avenue) operates at LOS E during the AM peak and LOS D during the PM peak. Traffic analysis output for the existing transportation system under the background traffic scenario is included in **Appendix B**.

Part D – Sources of Data

Traffic count data was collected by KL Engineering and East Central Wisconsin Regional Planning Commission (ECWRPC) during the week of December 3rd, 2017. On-site development information was provided by the City of Oshkosh and additional supporting traffic and safety data was compiled from information provided by the City of Oshkosh and WisDOT.



NOT TO SCALE



LEGEND

XX' = Available Storage Length

XX MPH = Posted Speed Limit

⊕ = Traffic Signal

⊕ = Roundabout

↶ = Partial Bypass

↷ = Full Bypass

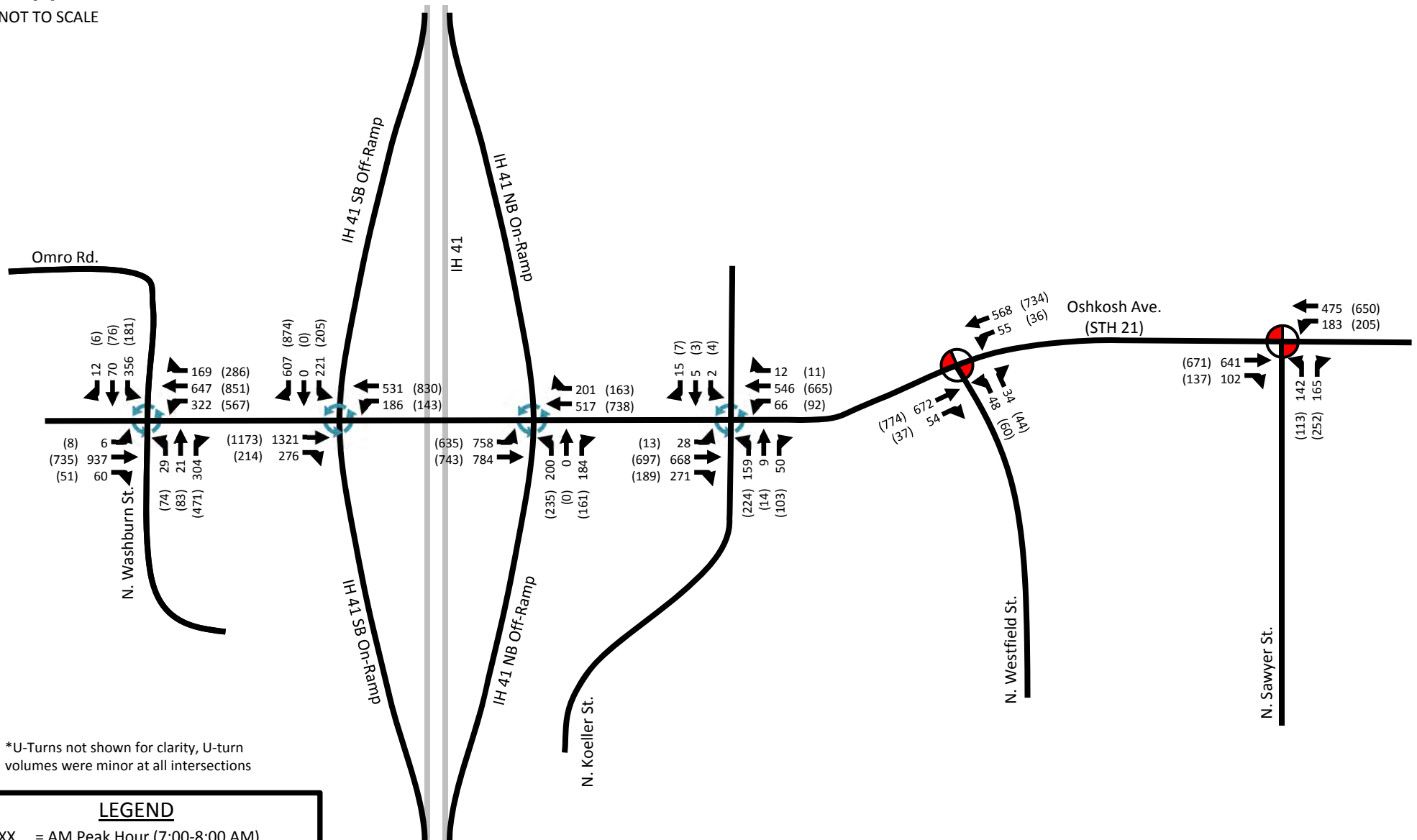
🚌 = Buss Stop



Existing Transportation System



NOT TO SCALE



*U-Turns not shown for clarity, U-turn volumes were minor at all intersections

LEGEND

- XX = AM Peak Hour (7:00-8:00 AM)
- (XX) = PM Peak Hour (4:15-5:15 PM)
- = Traffic Signal
- = Roundabout



Existing Traffic Volumes

CHAPTER 4 – PROJECTED TRAFFIC

Part A – Background Traffic Forecasting

The background traffic volumes represent traffic expected to be on the transportation network, without contributions from any of the proposed developments evaluated in this study. Background traffic projections were completed by ECWRPC for Build (Development Completion) Year 2025, as well as for the Horizon Year 2045. Off-site development expected to the southwest of the WIS 21 interchange with I-41 was known to ECWRPC prior to completion of the projections. Therefore, this off-site development traffic is considered part of the background conditions in the 2025 and 2045 projections.

Summaries of the 2025 and 2045 background traffic scenarios are shown in **Exhibit 4-1** and **Exhibit 4-2**, respectively. Traffic forecast information provided by ECWRPC is provided in **Appendix A**.

Part B – Site Traffic Forecasting

To address any potential future traffic impacts within the study area, it is necessary to identify the peak hourly volume of traffic generated by the proposed and future assumed developments. The expected traffic volumes generated by the proposed developments are based on the size and type of proposed land uses and the estimated distribution of this traffic is based on existing travel patterns and information provided by Oshkosh Corporation.

B1. Trip Generation

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* was used to estimate the number of trips expected to be generated by the proposed developments. The Oshkosh Corporation Global Headquarters has been assigned the ITE Land Use Code 710 (General Office Building), and the commercial development has been assigned various applicable commercial land uses based on estimated anticipated development in the area. This development includes a mix of restaurant, office, retail, and service land uses. Tables summarizing the proposed trip generation for Oshkosh Corporation and the Commercial Development is provided in **Exhibit 4-3**.

Using the ITE trip generation methodology, the proposed developments are expected to generate approximately 12,370 weekday daily trips. These developments are expected to generate approximately 1,005 trips (610 in and 400 out) during the AM peak hour and 1,000 trips (440 in and 560 out) during the PM peak hour.

B2. Mode Split

Based on the limited use of existing facilities and travel patterns of Oshkosh Corporation employees, it is expected that less than five percent of total trips will be made via pedestrian, bicycle, or transit modes. Therefore, all traffic assigned to the development is assumed to be motor vehicle traffic and no reduction was taken for multi-modal trips.

B3. Determination of Pass-by and Linked Trip Traffic

Linked trips are trips that occur between land uses within a development that do not result in the addition of trips to the outside roadway network. An example of a linked trip is an employee of Oshkosh Corporation patronizing a retail establishment within the proposed commercial development. For this study, linked trip reductions were applied to commercial land uses according to typical WisDOT and ITE Trip Generation Handbook guidance.

Pass-by trips are those trips that are already present on the surrounding roadway network, (Oshkosh Avenue) that are expected to stop at the proposed development before continuing along their original route. This type of trip reduction is expected to apply only to the proposed commercial developments. For this study, pass-by trip reductions were applied to commercial land uses according to typical WisDOT and ITE *Trip Generation Handbook* guidance.

B4. Trip Distribution

Trip distribution for the Oshkosh Corporation development was based on expected travel patterns of its employees based on the demographic location information provided by Oshkosh Corporation. Trips to and from the commercial development on Oshkosh Avenue were distributed according to current and future street geometrics, observed existing travel patterns, and engineering judgement. The proposed trip distribution patterns are show in **Exhibit 4-4A** (*Oshkosh Corporation*) and **Exhibit 4.4B** (*Commercial Development*) and summarized below.

Oshkosh Corporation:

- 10% to/from the west via WIS 21
- 2.5% to/from the west via Omro Road
- 55% to/from the north via I-41
- 10% to/from the south via I-41
- 2.5% to/from the south via N. Koeller Street
- 2.5% to/from the south via N. Westfield Street
- 2.5% to/from the south via N. Sawyer Street
- 15% to/from the east via Oshkosh Avenue (Congress Avenue)

Oshkosh Avenue Commercial Development:

- 15% to/from the west via WIS 21
- 5% to/from the west via Omro Road
- 25% to/from the north via I-41
- 5% to/from the south via N. Washburn Street
- 15% to/from the south via I-41
- 5% to/from the south via N. Koeller Street
- 5% to/from the south via N. Westfield Street
- 5% to/from the south via N. Sawyer Street
- 20% to/from the east via Oshkosh Avenue (Congress Avenue)

B5. Trip Assignment

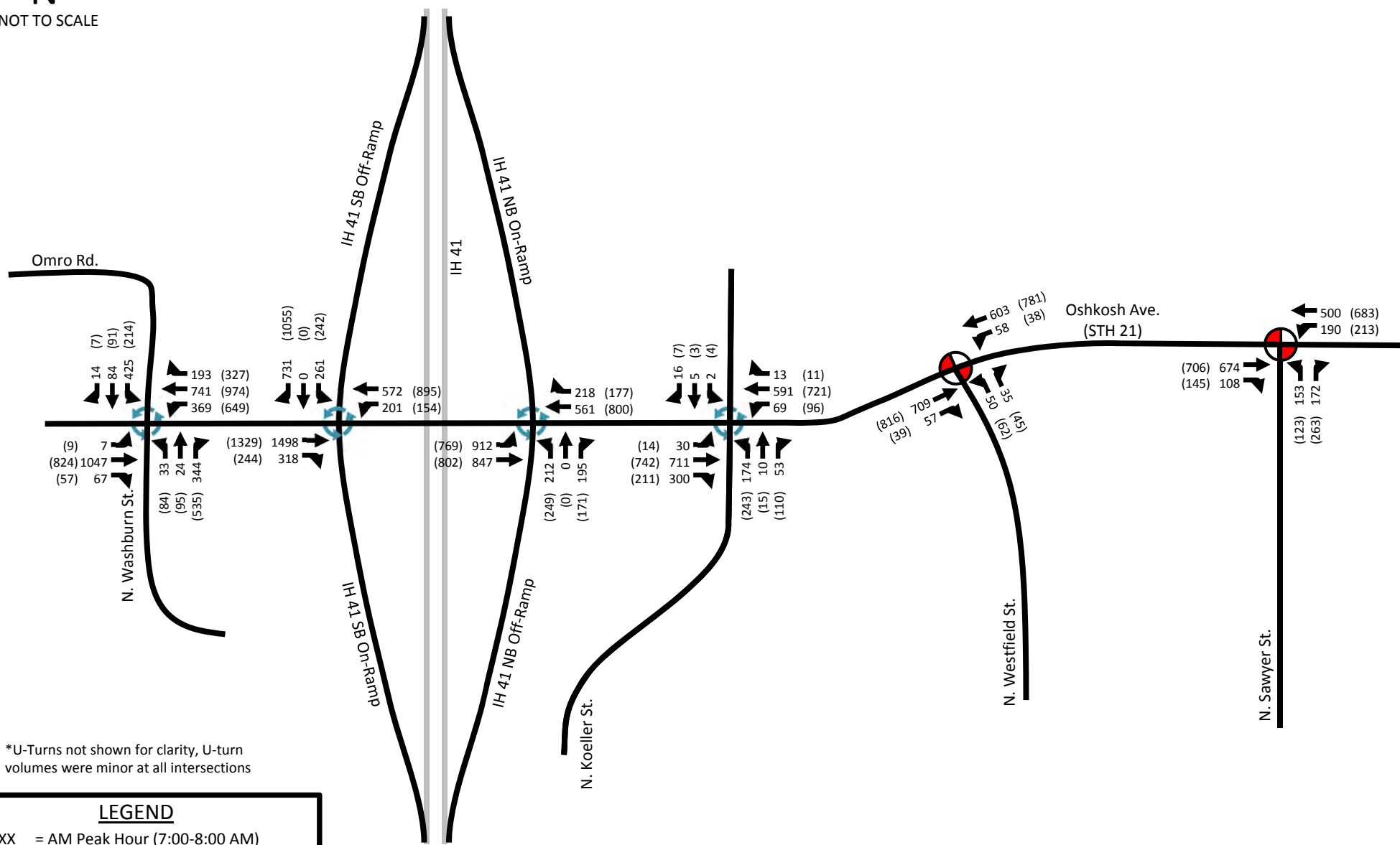
The projected development trips were assigned to the transportation network according to the trip generation and distribution parameters described above. Trips were assigned to the nearest logical access point at each proposed development location. Exhibit 4-5 contains a summary of build year 2025 on-site development traffic assignment volumes, including new trips (**Exhibit 4-5A1** – *Oshkosh Corporation*, **Exhibit 4-5A2** – *Commercial Development*, and **Exhibit 4-5A3** – *Total*), pass-by trips (**Exhibit 4-5B**), and total driveway trips (**Exhibit 4-5C**).

Part C – Build and Total Traffic

The build (development completion) year 2025 traffic volumes were added to the year 2025 background traffic volumes (**Exhibit 4-1**), resulting in the year 2025 total traffic volumes. This volume scenario is shown in **Exhibit 4-6**. Accounting for traffic growth projections, the horizon year 2045 total traffic volume scenario was also created, as shown in **Exhibit 4-7**.



NOT TO SCALE



*U-Turns not shown for clarity, U-turn volumes were minor at all intersections

LEGEND

- XX = AM Peak Hour (7:00-8:00 AM)
- (XX) = PM Peak Hour (4:15-5:15 PM)
- = Traffic Signal
- = Roundabout

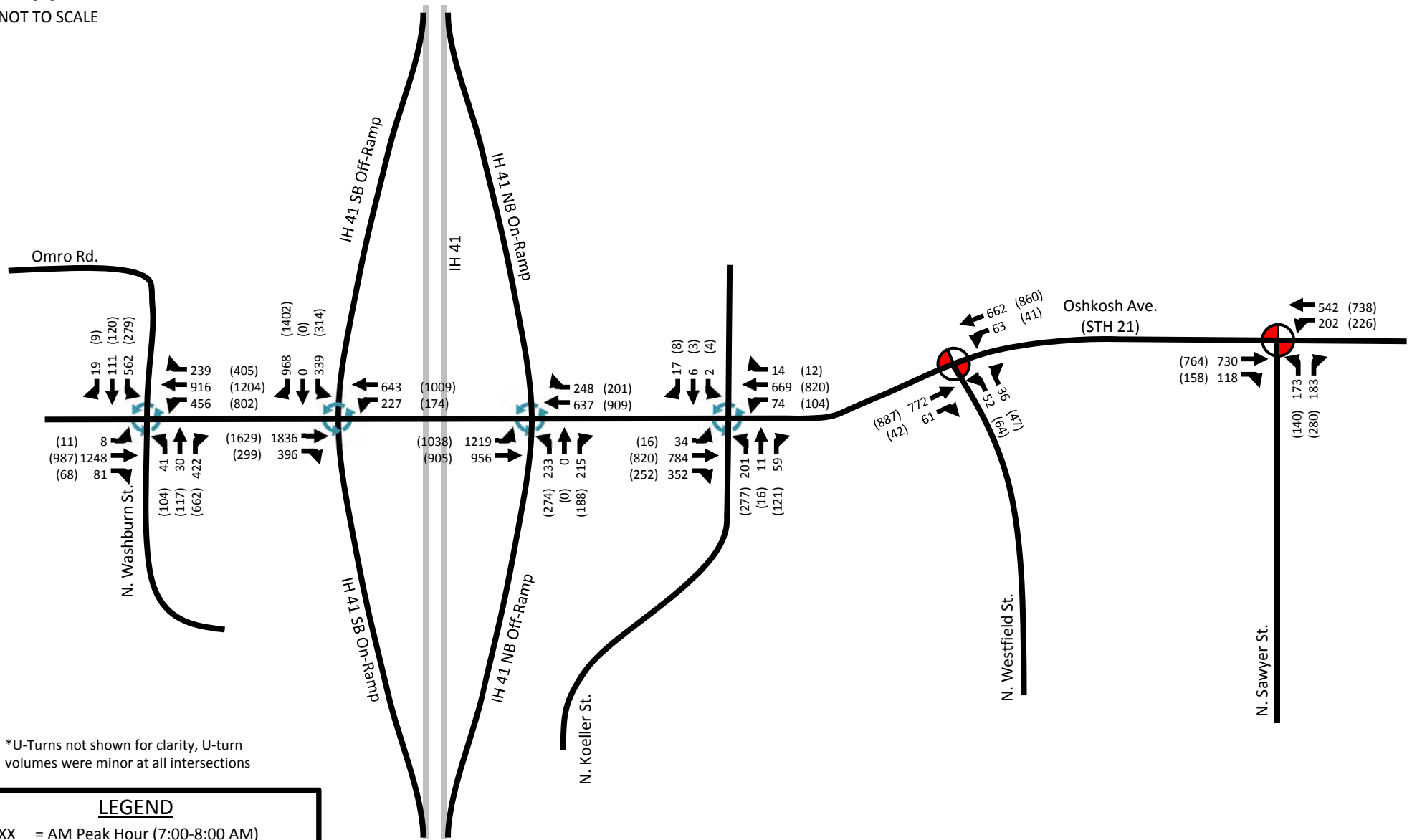
Note: Background growth information provided by East Central Wisconsin Regional Planning Commission (ECWRPC)



Build Year 2025 - Background Traffic Volumes



NOT TO SCALE



*U-Turns not shown for clarity, U-turn volumes were minor at all intersections

LEGEND

- XX = AM Peak Hour (7:00-8:00 AM)
- (XX) = PM Peak Hour (4:15-5:15 PM)
- = Traffic Signal
- = Roundabout

Note: Background growth information provided by East Central Wisconsin Regional Planning Commission (ECWRPC)



Horizon Year 2045 - Background Traffic Volumes

Commercial Development

Facility	Anticipated Development Year	ITE Land Use	ITE Land Use Code	Size	Weekday Daily Trips (rate)	AM Peak			PM Peak		
						In (%)	Out (%)	Total (rate)	In (%)	Out (%)	Total (rate)
Commercial Development	2019-2020	Various	Various	West of Koeller to Mary Jewell Park (~15.25 Acres)	12,166	511	454	962	481	440	920
Total Trips:					12,166	511	454	962	481	440	920
Linked Trips:					1,017	37	36	73	36	33	71
Driveway Trips:					11,149	474	418	889	445	407	849
Pass-by Trips:					1,623	60	60	120	60	60	120
Total Generated Trips:					9,526	414	358	769	385	347	729

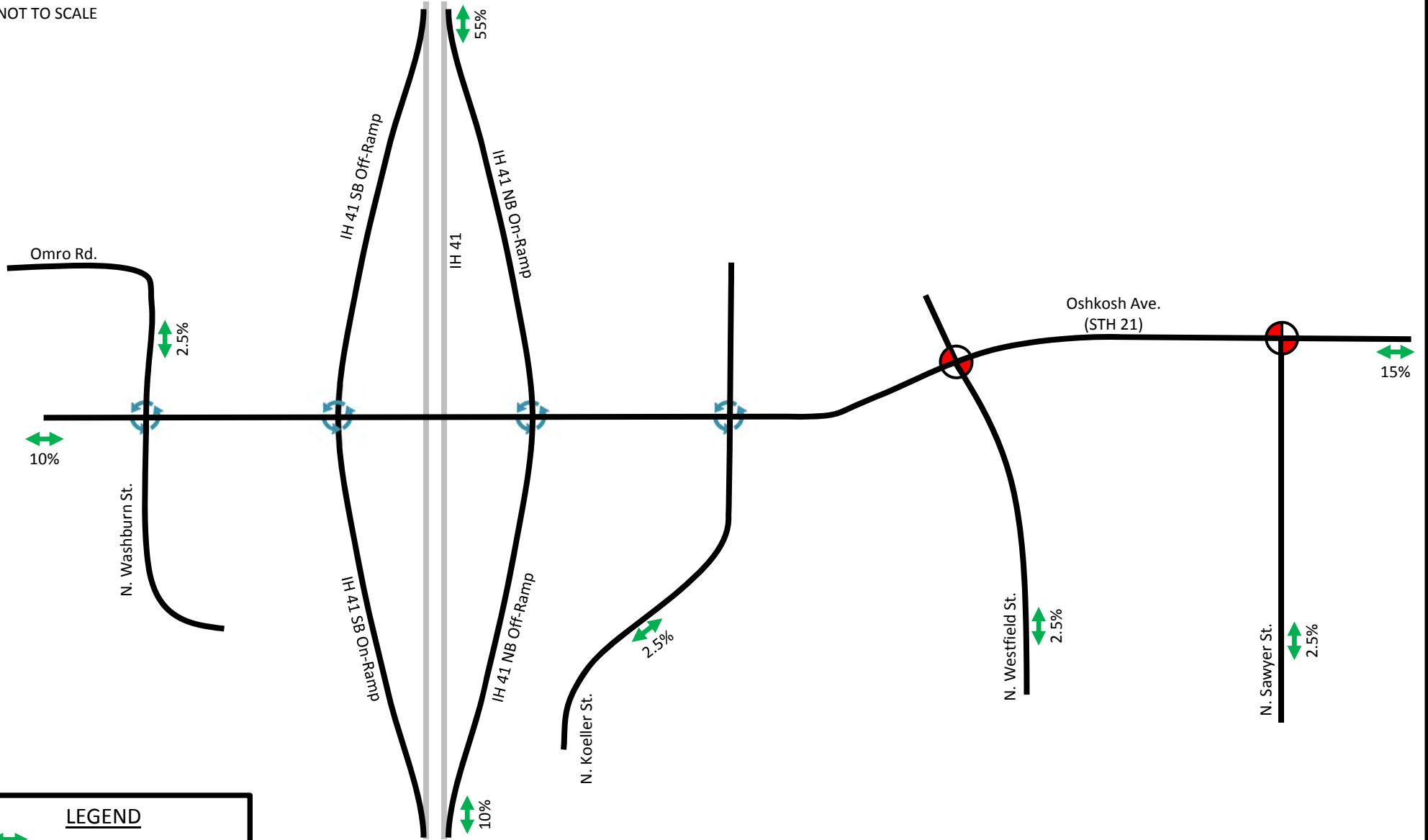
Oshkosh Corp

Facility	Anticipated Development Year	ITE Land Use	ITE Land Use Code	Size	Weekday Daily Trips (rate)	AM Peak			PM Peak		
						In (%)	Out (%)	Total (rate)	In (%)	Out (%)	Total (rate)
Oshkosh Corp Office	2019	General Office	710	650 Employees	2,190 (3.37)	154 (83%)	32 (17%)	186 (0.29)	40 (20%)	159 (80%)	199 (0.31)
Oshkosh Corp Office with Expansion	~2025	General Office	710	+250 Employees	651 (2.60)	41 (83%)	8 (17%)	49 (0.20)	14 (20%)	54 (80%)	68 (0.27)
Total Generated Trips:					2,841	195	40	235	54	213	267

Total Trips	Weekday Daily Trips	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Total Trips:	15,007	706	494	1197	535	653	1187
Linked Trips:	1,017	37	36	73	36	33	71
Driveway Trips:	13,990	669	458	1124	499	620	1116
Pass-by Trips:	1,623	60	60	120	60	60	120
Total Generated Trips:	12,367	609	398	1004	439	560	996



NOT TO SCALE



LEGEND

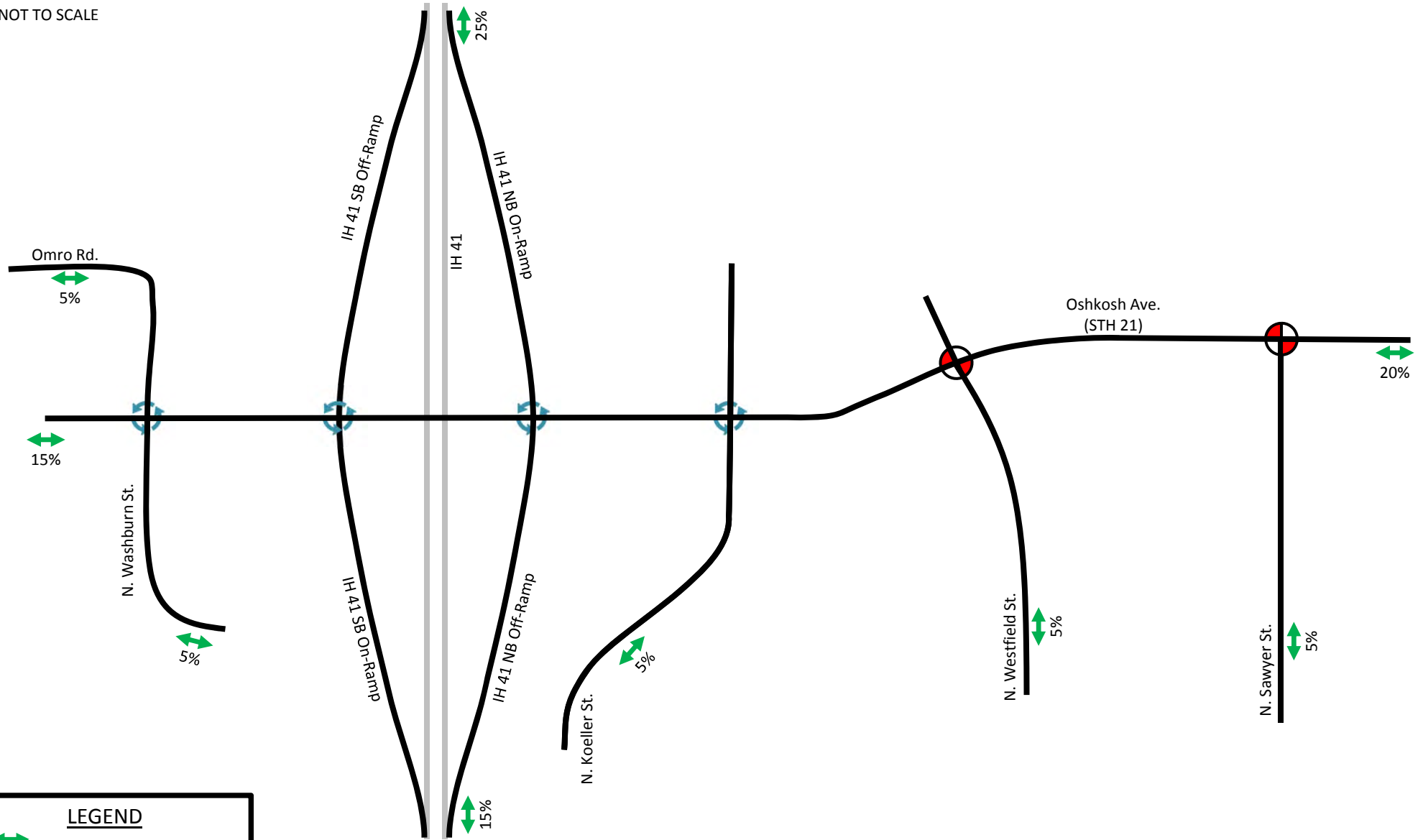
- XX% = Percent of Trips In/Out
- = Traffic Signal
- = Roundabout



Trip Distribution - Oshkosh Corporation



NOT TO SCALE



LEGEND

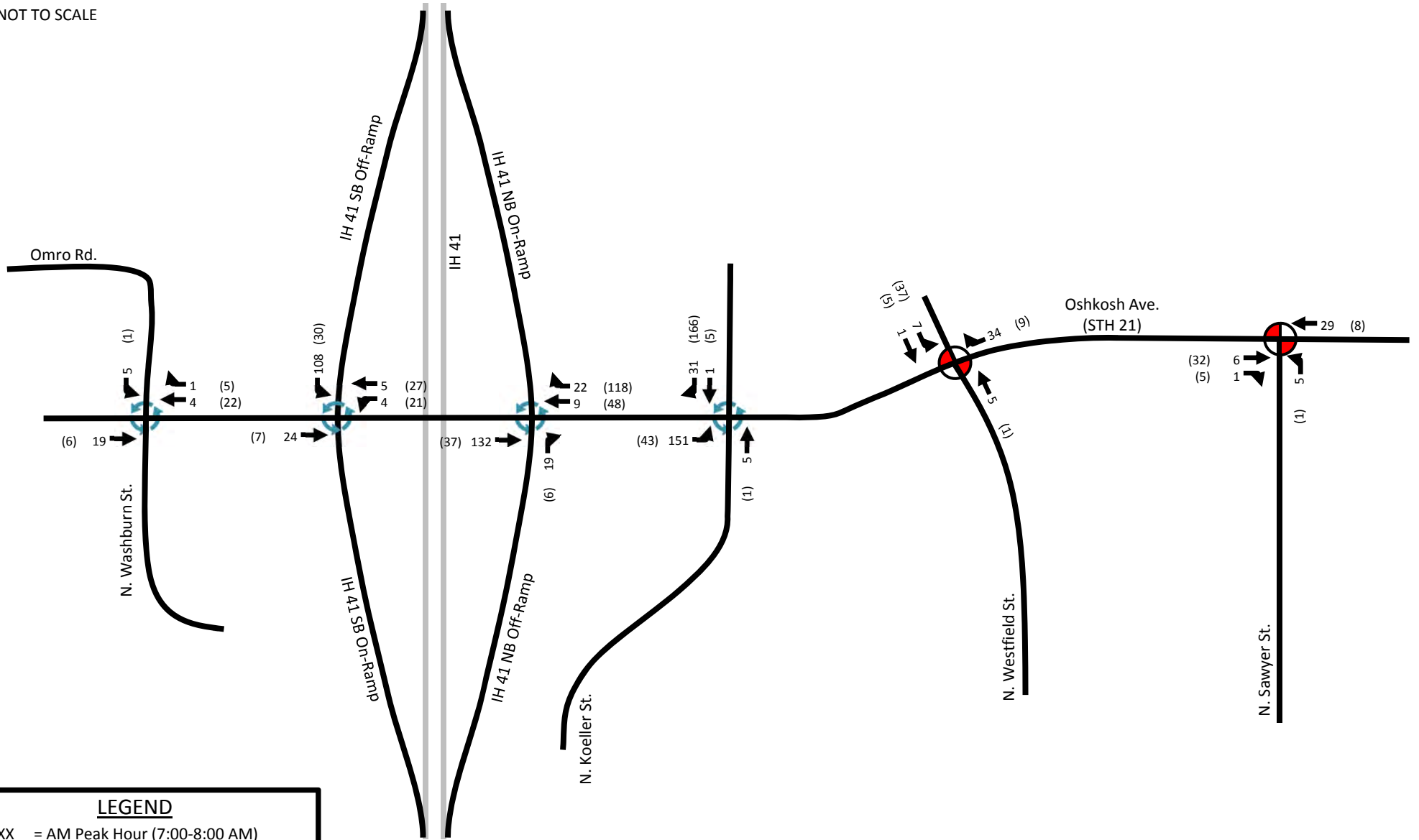
- XX% = Percent of Trips In/Out
- = Traffic Signal
- = Roundabout



Trip Distribution - Oshkosh Avenue Commercial Development



NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

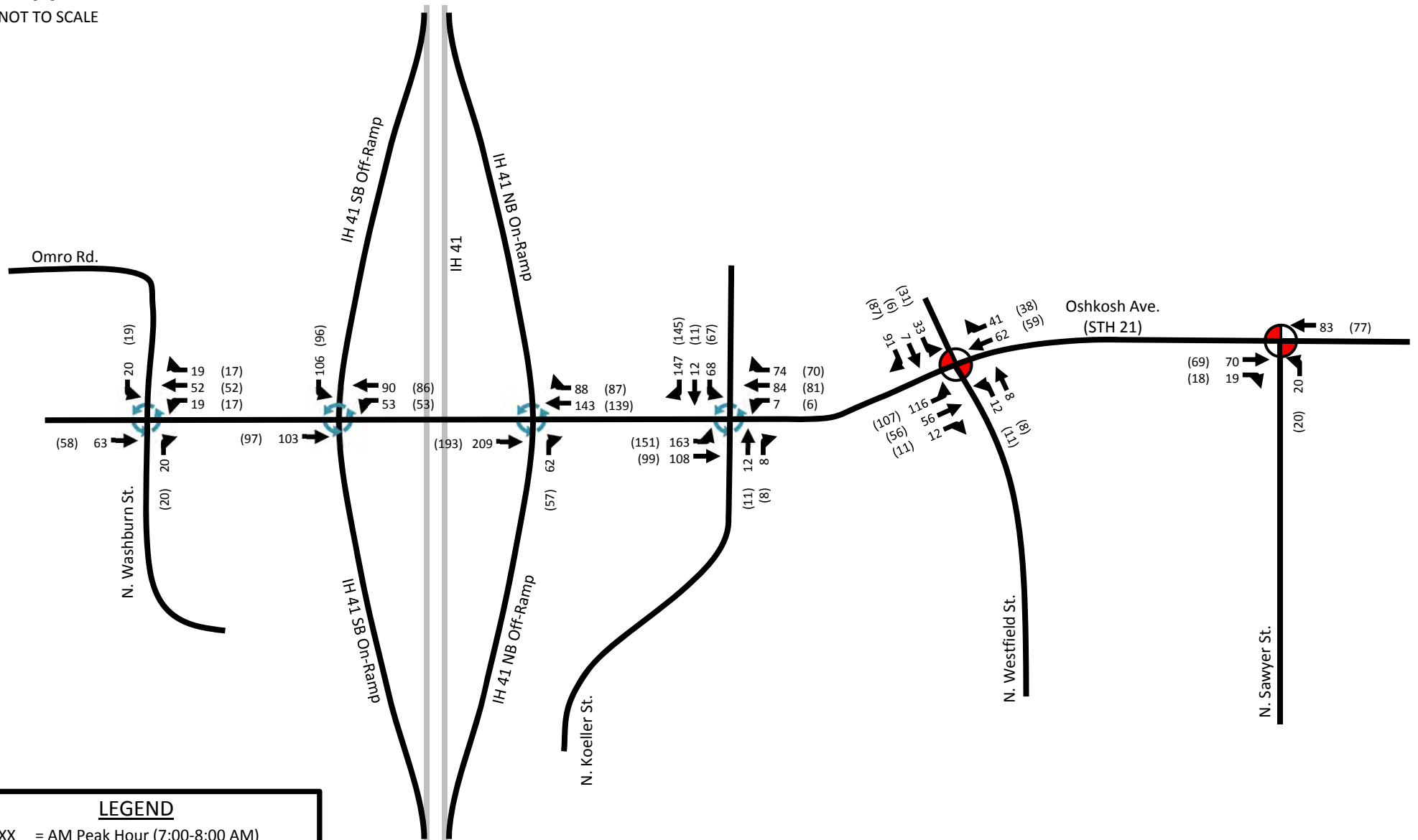
= Roundabout



New Trips - Oshkosh Corporation



NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

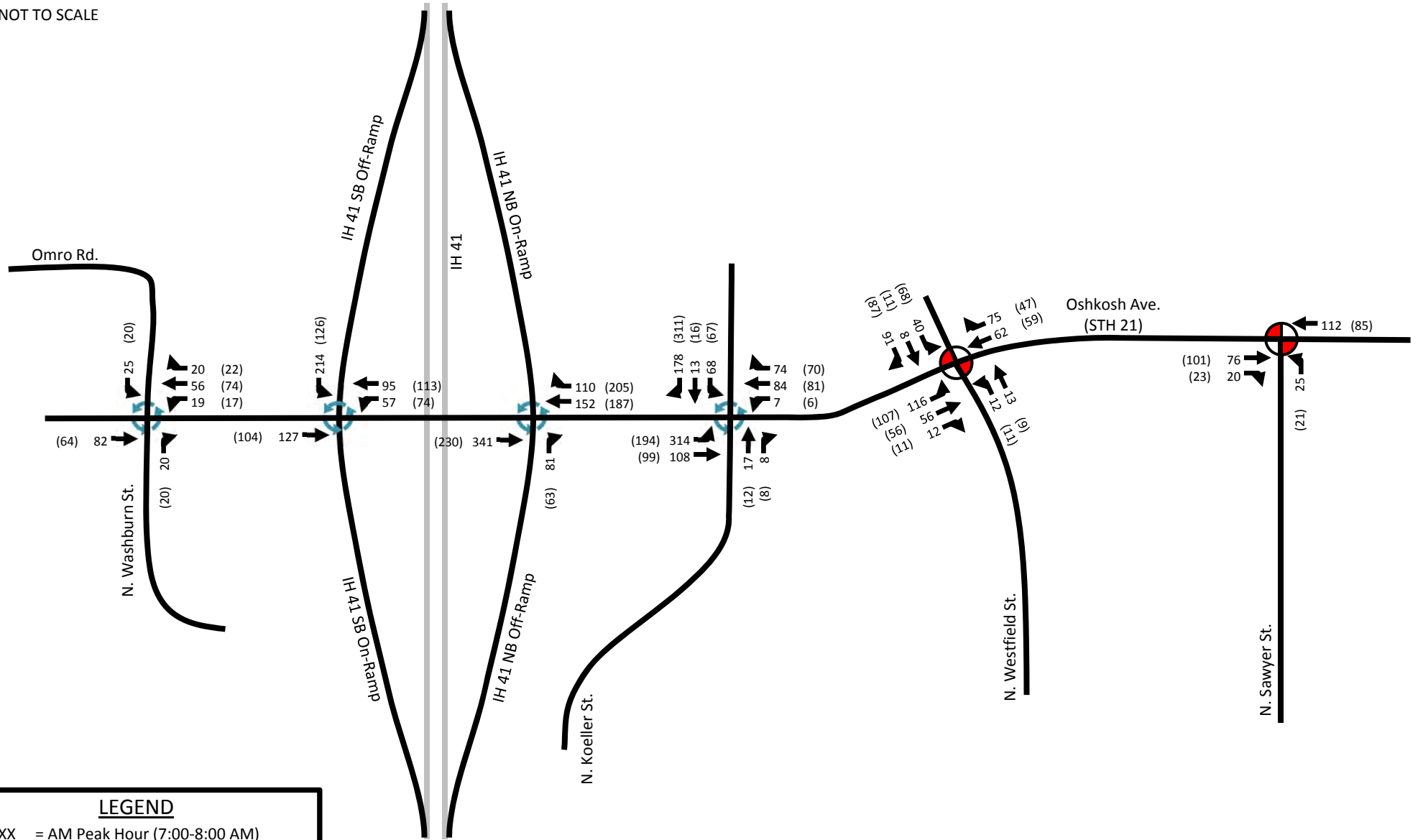
(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

= Roundabout



NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

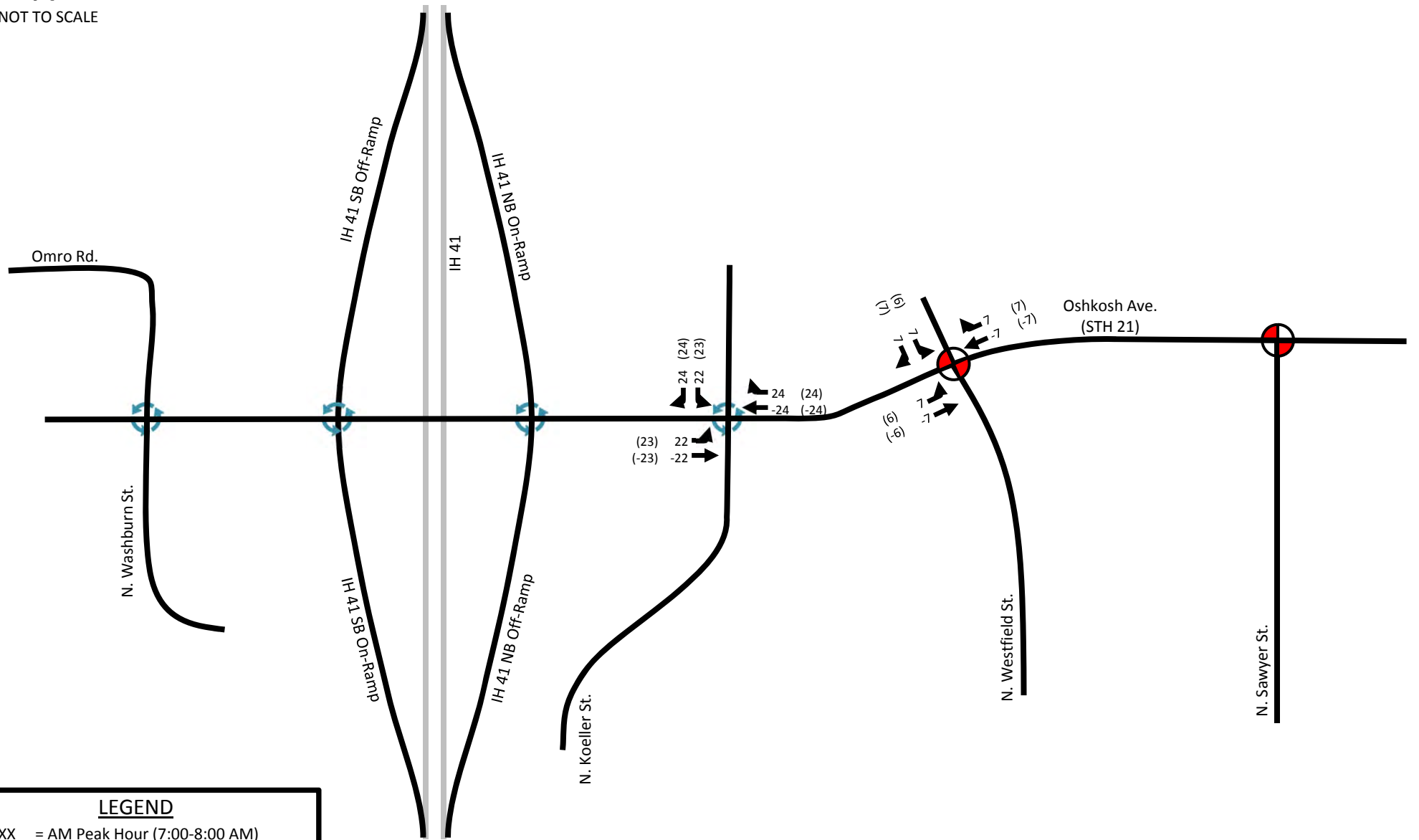
(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

= Roundabout



NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

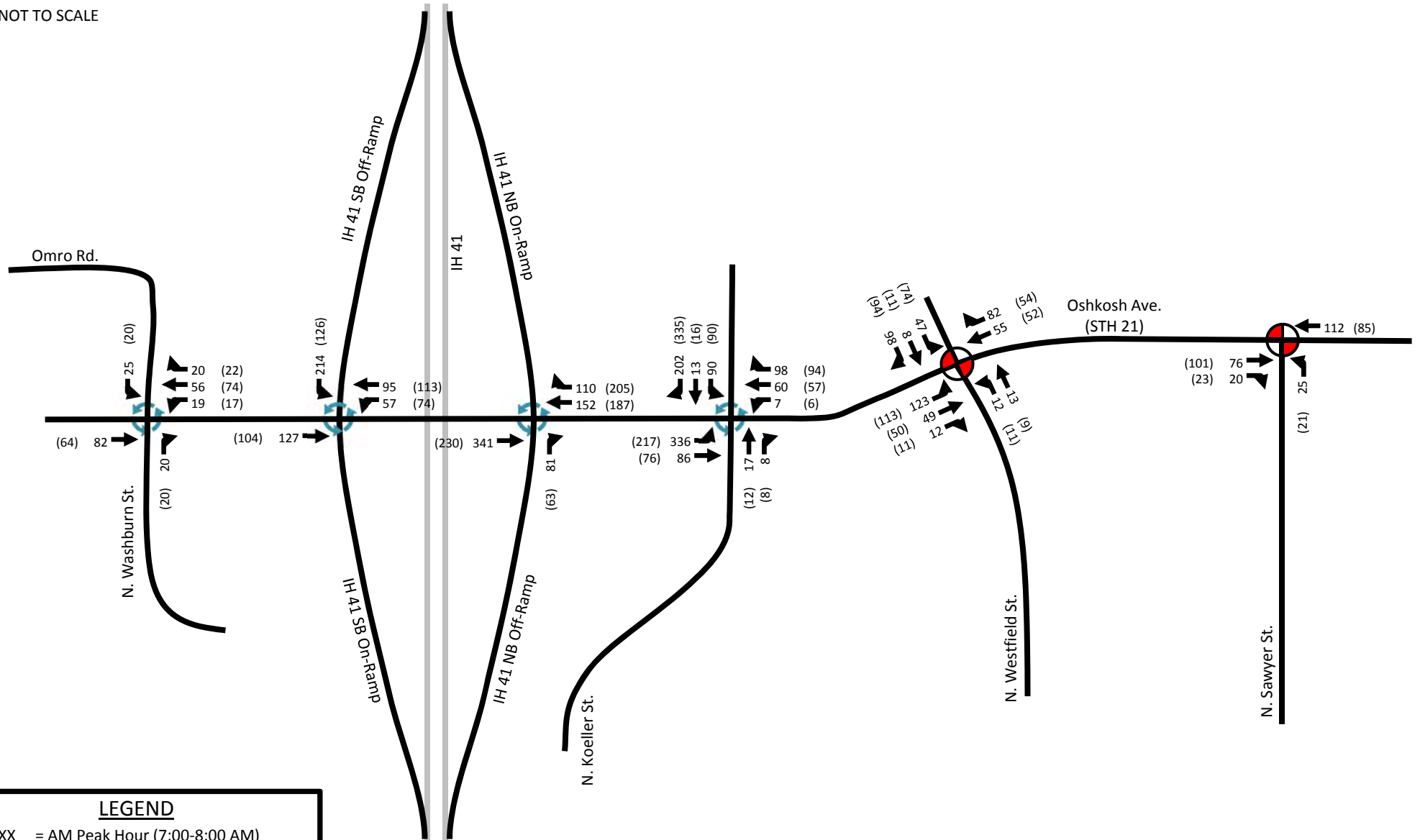
= Roundabout



Pass-by Trips - Oshkosh Avenue Commercial Development



NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

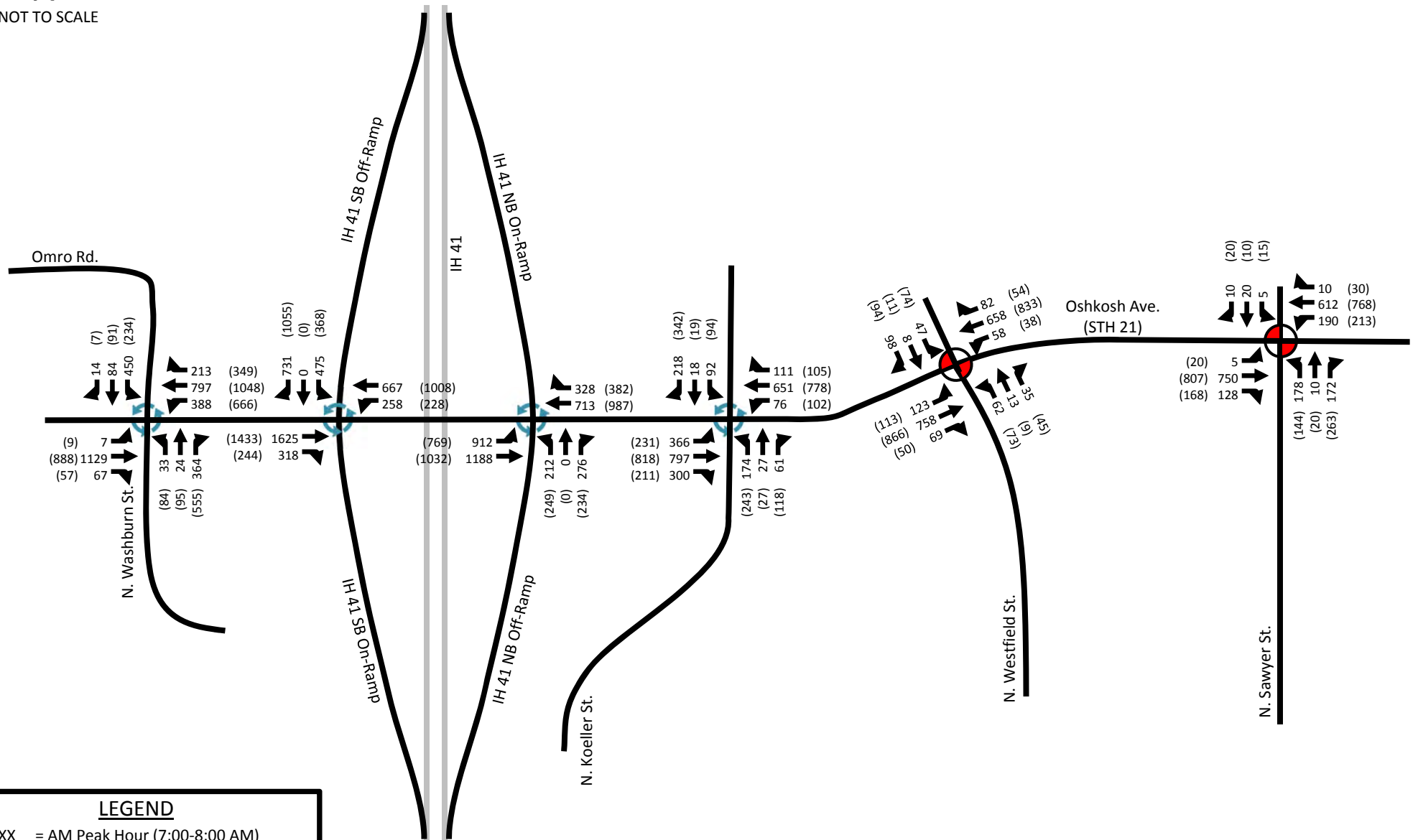
(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

= Roundabout

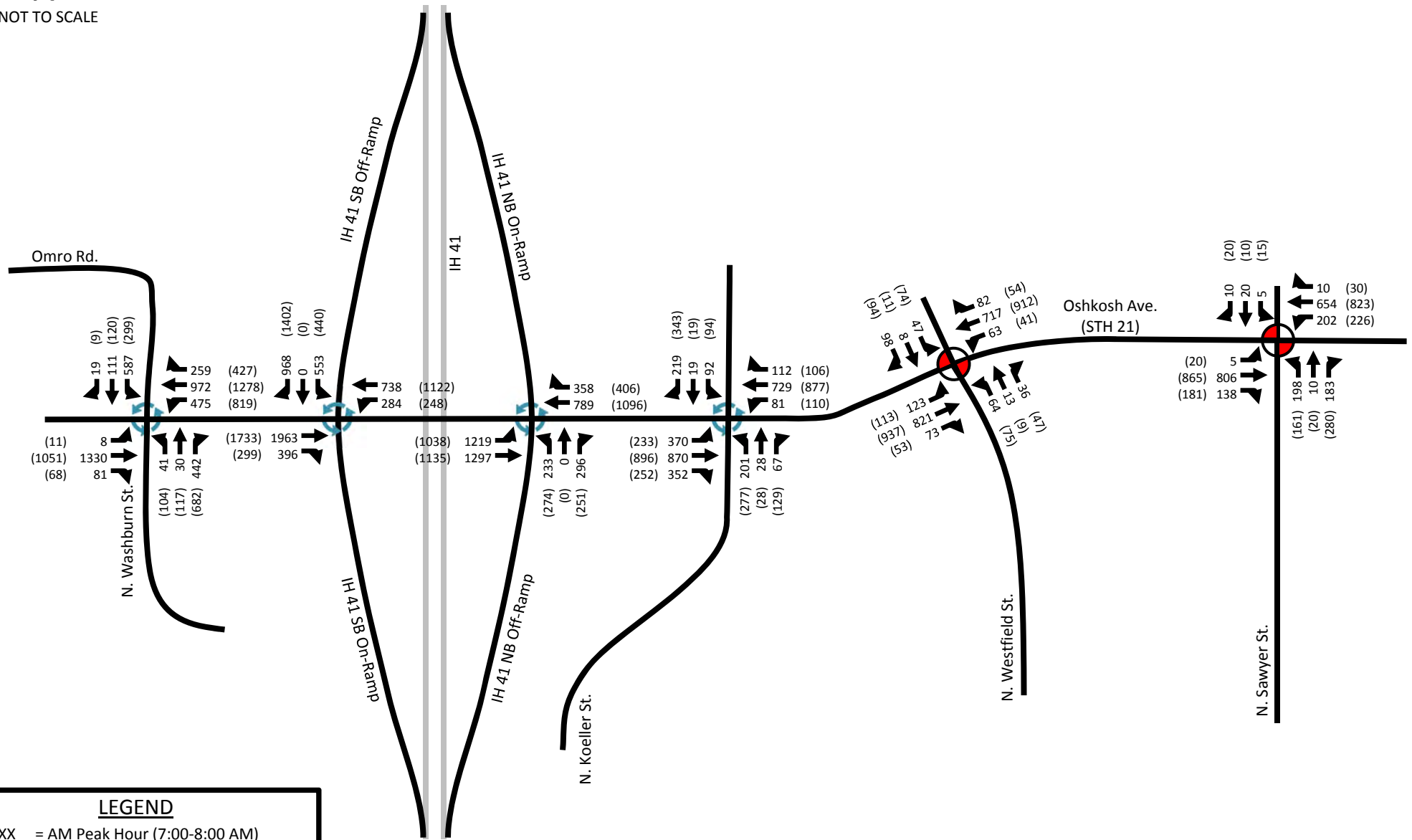


NOT TO SCALE





NOT TO SCALE



LEGEND

XX = AM Peak Hour (7:00-8:00 AM)

(XX) = PM Peak Hour (4:15-5:15 PM)

= Traffic Signal

= Roundabout



Horizon Year 2045 - Total Traffic Volumes

CHAPTER 5 – ALTERNATIVE ANALYSIS

After existing conditions were examined and expected traffic patterns of future development were analyzed, a series of alternatives was considered for future implementation throughout the study area transportation network. These alternatives focused on the Oshkosh Avenue corridor typical section, and intersection improvements at the non-WisDOT study intersections. At the roundabouts controlled by WisDOT (I-41 ramp terminals and N. Washburn Street), observations and considerations were made in relation to existing deficiencies, but no formal recommendations have been made.

City of Oshkosh Involvement

Several meetings were conducted between KL Engineering and City staff to discuss corridor and intersection alternatives. In addition, a joint workshop of the City of Oshkosh Common Council, Plan Commission, and Traffic Review Advisory Board members took place on Tuesday, January 30, 2018. The purpose of the workshop was to discuss the Traffic Impact Analysis for Oshkosh Avenue and review corridor and intersection alternatives. This workshop provided an opportunity for input from the City of Oshkosh citizen boards and Council. Their feedback along with input from City staff was considered when determining the recommended alternatives.

Part A – Corridor Alternatives

The existing Oshkosh Avenue corridor consists of a four-lane undivided urban roadway. Each travel direction includes a 12-foot travel inside lane and a 14-foot outside travel lane. A 6-foot sidewalk is provided on both sides of the road, separated from the travel lanes by only the 6-inch curb.

Four alternatives for the Oshkosh Avenue typical section were considered and evaluated. The list of potential corridor alternatives is as follows:

- Existing – Four-lane undivided typical section with no improvements
- Alternative 1 – Four-lane undivided typical section with roadside improvements
- Alternative 2 – Two-way left turn lane (TWLTL) with:
 - *Five-lane typical section from N. Koeller Street to N. Eagle Street*
 - *Three-lane typical section from N. Eagle Street to Fox River*
- Alternative 3 – Four-lane divided typical section with median
 - *N. Koeller Street to N. Eagle Street only*

Detailed depictions of each Oshkosh Avenue corridor alternative, as well as advantages and disadvantages of each, are provided in **Appendix C**.

A1. Corridor Recommendations

Based on the expected safety and operating conditions of the four alternatives, along with input from local officials and City staff, two preferred alternatives were selected. Alternative 3 (*four-lane divided*) was selected as the preferred alternative for Oshkosh Avenue from N. Koeller Street to N. Eagle Street, and Alternative 1 (*four-lane undivided with improvements*) was selected as the preferred alternative from N. Eagle Street to the Fox River. Specific benefits of this recommendation include:

- Opportunities for aesthetic improvements that allows Oshkosh Avenue to be a “gateway” to the City.
- Increased safety along Oshkosh Avenue for the four-lane divided section
- Optimal capacity for through vehicles

- Moderate improvement costs for the four-lane undivided section
- Minimal right-of-way impacts for the four-lane undivided section
- Sufficient pedestrian accommodations at all locations
- Logical transition between existing and proposed roadway sections

Overall, any of the three alternatives considered for Oshkosh Avenue will provide acceptable operations for the horizon year (2045) with projected development growth. The existing typical section also would provide acceptable operations with the addition of left-turn lanes on Oshkosh Avenue at N Westfield Street. The typical sections provided in **Appendix C** provide suggested widths of roadway features including lanes, curb & gutter, terraces, and sidewalk. With the limitations on the south side of Oshkosh Avenue and potential high reconstruction costs, modifications can be made to these typical sections to reduce impacts. Some examples of this would be utilizing a 1 ½ foot curb and gutter section instead of a 2 ½ foot section or eliminating the proposed terrace on the south side of the roadway. Although these modifications would not meet desired design criteria, minimum design requirements would still be met and operations along the corridor would be at acceptable levels.

Part B – Intersection Alternatives

Improvement concepts were considered at the study area intersections which are operated and maintained by the City of Oshkosh. Multiple concepts were evaluated, and a recommendation has been made for each intersection. The potential alternatives are summarized in the following sections, and the recommended alternatives are identified.

Detailed depictions and further descriptions of the alternatives, as well as advantages and disadvantages of each intersection alternative are provided in **Appendix D**. Operational analysis of the recommended alternatives is included in Chapter 6 of this report.

B1. Oshkosh Avenue and N. Sawyer Street Intersection

For the purpose of this study, discussion of the Oshkosh Avenue intersection with N. Sawyer Street also includes Rainbow Drive, which intersects Oshkosh Avenue from the north just east of the N. Sawyer Street intersection. The existing N. Sawyer Street intersection consists of multiple traffic signals and traffic control devices for turning movements at three separate locations, which control conflicting traffic flows on Oshkosh Avenue and N. Sawyer Street. Traffic on Rainbow Drive is controlled by a stop sign, and the only movements permitted are right turns onto and off of westbound Oshkosh Avenue from and to the north on Rainbow Drive. No direct connectivity is provided to Rainbow Drive from N. Sawyer Street or eastbound Oshkosh Avenue.

Several alternatives for the Oshkosh Avenue intersection with N. Sawyer Street were compared and evaluated, and are summarized below:

- Existing – Multiple Traffic signals/Traffic Control Devices
- Alternative 1 – Single Traffic Signal
- Alternative 2 – Extension of N. Sawyer Street North of Oshkosh Avenue
 - *Alternative 2A – Extension of N. Sawyer Street to Graham Avenue*
 - *Alternative 2B – Extension of N. Sawyer Street to Alley*
 - *Alternative 2C – Extension of N. Sawyer Street to Rainbow Drive south of Graham Avenue*
- Alternative 3 – Roundabout containing Rainbow Drive/N. Sawyer Street extension

Maintaining existing conditions and Alternative 1 were removed from consideration because they do not provide direct access to Rainbow Drive from N. Sawyer Street or eastbound Oshkosh Avenue, which is one of the City of Oshkosh goals. Alternative 3 was removed from consideration because of its high expected cost, incompatibility with lift bridge operations across the Fox River east of the intersection, and design challenges south of the intersection with the Sawyer Creek bridge crossing and the existing monument near the Abe Rochlin Park entrance.

Therefore, Alternative 2 (*Extension of N. Sawyer Street*) has been selected as the recommended alternative. Due to the close intersection spacing created in Alternative 2B, it is recommended to implement Alternative 2A or 2C, depending on potential real estate acquisition. Detailed operational analysis for this alternative is provided in Chapter 6 of this report.

B2. Oshkosh Avenue and N. Westfield Street Intersection

The existing Oshkosh Avenue intersection with N. Westfield Street is a three-legged signalized intersection. Two lanes are provided on each Oshkosh Avenue approach, although no turn lanes are designated. The N. Westfield Street approach contains one left turn lane and one right turn lane. Signalized crosswalks are provided across all three approaches.

The proposed site plan for the Oshkosh Corporation Global Headquarters and commercial development includes the extension of N. Westfield Street north of Oshkosh Avenue. Therefore, the alternatives evaluated in this study each contain four approaches, to be compatible with access plans for the Oshkosh Corporation development.

The two alternatives considered for this intersection were:

- Alternative 1 – Traffic Signal with Eastbound & Westbound Left-Turn Lanes
- Alternative 2 – Roundabout

The roundabout alternative is expected to have a high construction cost, significant right-of-way impacts north of the intersection, and less friendly multimodal accommodations. In addition, the traffic signal will create gaps in traffic downstream, allowing for easier access to Oshkosh Avenue from stop controlled intersections. Therefore, Alternative 1 (*Traffic Signal with left-turn lanes*) is the recommended alternative at this intersection. Detailed operational analysis for this alternative is provided in Chapter 6 of this report.

B3. Oshkosh Avenue and N. Koeller Street Intersection

The existing Oshkosh Avenue intersection with N. Koeller Street consists of a four-leg roundabout. The southbound approach on N. Koeller Street contains a single lane, while all other approaches contain two lanes. Through movements are permitted from both lanes on the Oshkosh Avenue approaches, while the northbound approach on N. Koeller Street consists of a right turn lane and a shared through/left lane.

Potential intersection recommendations at the Oshkosh Avenue intersection with N. Koeller Street consist of two alternatives:

- Existing
- Alternative 1 – Roundabout with Improvements

Traffic analysis indicates that future traffic growth will result in unacceptable operations on the existing single-lane southbound approach. Therefore, it is recommended to implement Alternative 1 (*Roundabout with SB Lane Improvements*) to mitigate this future capacity restriction. Detailed operational analysis for this alternative is provided in Chapter 6 of this report.

B4. New N. Koeller Street and N. Westfield Street Intersection

A new connection will be created from the extensions of N. Koeller Street, N. Westfield Street, and the Oshkosh Corporation Private driveway.

Potential configuration recommendations for the new connections consist of two alternatives:

- Alternative 1 – Continuous connection between N. Koeller Street & N. Westfield Street with stop control for the Oshkosh Corporation Driveway
- Alternative 2 – T-intersection between N. Koeller Street/Oshkosh Corporation Driveway & N. Westfield Street with stop control on N. Westfield Street.

Both of the alternatives will provide acceptable operations. Alternative 1 (*Continuous connection of public streets with stop control for Driveway*) provides optimal operations to the public roadways and allows for a better distinction between the private and public roadways, which will create less confusion for non-Oshkosh Corporation roadway users. Alternative 2 (*T-intersection with stop control on N. Westfield Street only*) allows for a future north leg expansion and creates better operations to Oshkosh Corporation Driveway, which is the heaviest movement at this intersection. An all-way stop could also be considered for Alternative 2 to help differentiate between public and private roadways.

Overall, both of these intersection alternatives will be acceptable. Alternative selection should be based on future lane use plans of open space on the existing golf course and the needs of the City of Oshkosh, the future commercial development, and Oshkosh Corporation.

Part C – Interchange and Washburn Street Roundabouts

The roundabouts at the I-41 interchange with WIS 21 and at the WIS 21 intersection with N. Washburn Street/Omro Road have been evaluated to identify existing deficiencies and their potential causes. No formal recommendations are included within this study; however, it is recommended to continue observation of these issues as local development and traffic growth continues. Coordination with WisDOT is also recommended to determine potential mitigation strategies in the future.

C1. Lane Utilization and Geometry

City of Oshkosh staff/officials have expressed concern that unbalanced lane utilization exists in the westbound lanes on WIS 21 at the intersection with the I-41 northbound ramps. Multiple factors could logically contribute to this type of occurrence:

- Westbound through lane becomes an exclusive left-turn lane at the N. Washburn Street/Omro Road intersection.
 - *This lane configuration could result in undesirable weaving maneuvers for vehicles destined for WIS 21 to the west.*
 - *The weaving maneuver can be avoided by selecting the outside lane through the interchange, potentially resulting in unbalanced lane utilization.*
- Majority of westbound left-turning traffic at the N. Washburn Street/Omro Road roundabout is in the center thru/left lane for easier access to Westowne Avenue developments.
- Lack of designated turn lanes on Oshkosh Avenue to the east of the interchange (four-lane undivided section) can create lane utilization imbalance because vehicles in the inside lane will usually experience delay if they are behind a vehicle waiting to turn left.

At the WIS 21 intersection with N. Washburn Street/Omro Road, observation indicate that some vehicles on the southbound approach utilize the right lane, which is designated as a thru/right

lane, to make left turn movements. Potential contributing factors to this behavior include drivers attempting to avoid high delays during peak hours, as well as irregular geometry and close proximity to the Omro Road intersection with Brooks Lane.

C2. Capacity and Traffic Operations

Although these roundabouts were constructed fairly recently (2012), recent traffic counts indicate that some movements are nearing capacity, specifically at the WIS 21 intersection with N. Washburn Street/Omro Road. For example, volumes observed for the northbound, southbound, and some westbound movements during counts conducted by KL Engineering in December 2017 already met or exceeded the year 2035 projected volumes estimated prior to the construction of the roundabouts. Additionally, traffic analysis indicates that an 18% volume increase during the AM Peak, or a 14% increase during the PM Peak, will result in intersection volumes exceeding capacity at the WIS 21 intersection with N. Washburn Street/Omro Road.

Finally, observations at the WIS 21 intersection with N. Washburn Street/Omro Road indicate that queuing of right turning vehicles on the northbound approach has the potential to extend into the Westowne Avenue intersection (approximately 225 feet to the south). This is most likely to occur during the PM peak hour, when counts indicate that over 470 vehicles make this maneuver, while other traffic volumes throughout the intersection are nearing capacity.

CHAPTER 6 – TRAFFIC AND IMPROVEMENT ANALYSIS

Part A – Site Access

As indicated on the site plan (**Exhibit 2-2**), access to the proposed Oshkosh Corporation development will occur via new roadway extensions of N. Koeller Street north of the roundabout and a north leg of the N. Westfield Street intersection. Similarly, no direct driveway access to Oshkosh Avenue is expected for the future Oshkosh Avenue commercial development. Access to these properties is also expected to occur via the existing intersections and new north roadway extensions of N. Koeller Street and N. Westfield Street.

Part B – Capacity and Level of Service Analysis

The year 2025 and 2045 background and total traffic scenarios were analyzed based on the HCM 2010 methodology utilizing Syncho/SimTraffic software for the signalized intersections and Sidra for the Roundabouts as described for existing conditions in Chapter 3 above.

B1. Background Traffic Operational Analysis – Existing Transportation System

The expected operations of the existing transportation system under the build year 2025 background traffic scenario are outlined in **Exhibit 6-1**. Expected operations of the existing transportation system under the horizon year 2045 background traffic scenario are outlined in **Exhibit 6-2**.

WIS 21 with I-41 and N. Washburn Street Roundabouts

As shown in the exhibits, background traffic growth alone is expected to result in undesirable operations at two of the roundabouts in 2025; and failing operations for multiple movements by 2045. LOS F conditions are projected for all eastbound movements, northbound right turns, and southbound left turns at the WIS 21 intersection with N. Washburn Street/Omro Road during peak hours in the year 2045. LOS F conditions are also projected for westbound through movements at the WIS 21 intersection with the I-41 northbound ramps during the PM peak hour.

Oshkosh Avenue Intersections

All movements have been analyzed to operate at LOS C or better for 2025 and 2045 background traffic scenario, except for two movements at the Oshkosh Avenue intersection with N. Sawyer Street. At this intersection, the westbound left turn operates at LOS D during the AM peak hour, and the northbound left turn operates at LOS E during the AM peak and LOS D during the PM peak hour.

Traffic analysis output for the existing transportation system under the background traffic scenarios is included in **Appendix E**.

AM Peak

Exhibit 6-1

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	D	D	D	A	A	A	B	B	E	D	B	B	C
		Delay (s)	49	49	49	6	8	8	12	12	62	46	10	10	32
		V/C	0.94	0.94	0.94	0.34	0.43	0.43	0.15	0.15	0.93	0.89	0.21	0.21	--
		Queue (ft)	400	400	400	25	50	50	<25	<25	225	225	25	25	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	B	A	A	A	--	--	--	--	A	A	A	A
		Delay (s)	--	14	FREE	6	6	--	--	--	--	8	8	FREE	8
		V/C	--	0.63	0.21	0.34	0.34	--	--	--	--	0.22	0.22	0.50	--
		Queue (ft)	--	125	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	A	A	--	--	C	B	C	C	A	--	--	--	B
		Delay (s)	8	8	--	--	20	12	21	21	8	--	--	--	12
		V/C	0.51	0.51	--	--	0.60	0.39	0.38	0.38	0.17	--	--	--	--
		Queue (ft)	<25	<25	--	--	75	50	25	25	25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
		Delay (s)	9	9	9	7	7	7	9	9	6	6	6	6	8
		V/C	0.50	0.50	0.50	0.37	0.37	0.37	0.31	0.31	0.09	0.04	0.04	0.04	--
		Queue (ft)	75	75	75	50	50	50	25	25	<25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	3	4	--	31	--	30	--	--	--	5
		V/C	--	0.32	0.32	0.32	0.33	--	0.29	--	0.13	--	--	--	--
		Queue (ft)	--	150	150	100	125	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	A	A	D	A	--	E	--	A	--	--	--	B
		Delay* (s)	--	19	18	40	5	--	64.2	--	0	--	--	--	19
		V/C*	--	0.51	0.51	0.39	0.22	--	0.64	--	0.12	--	--	--	--
		Queue** (ft)	--	225	225	100	100	--	225	--	25	--	--	--	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	C	C	C	B	B	B	B	B	E	C	B	B	C
		Delay (s)	28	28	28	12	12	12	11	11	63	33	17	17	24
		V/C	0.78	0.78	0.78	0.63	0.63	0.63	0.33	0.33	0.99	0.66	0.30	0.30	--
		Queue (ft)	175	175	175	150	150	150	25	25	450	75	25	25	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	B	A	A	A	--	--	--	--	A	A	A	A
		Delay (s)	--	10	FREE	7	7	--	--	--	--	10	10	FREE	6
		V/C	--	0.50	0.16	0.44	0.44	--	--	--	--	0.23	0.23	0.68	--
		Queue (ft)	--	75	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	A	A	--	--	C	A	B	B	A	--	--	--	B
		Delay (s)	7	7	--	--	25	8	18	18	7	--	--	--	13
		V/C	0.43	0.43	--	--	0.73	0.26	0.37	0.37	0.14	--	--	--	--
		Queue (ft)	<25	<25	--	--	125	25	25	25	<25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
		Delay (s)	8	8	8	8	8	8	10	10	7	7	7	7	8
		V/C	0.43	0.43	0.43	0.42	0.42	0.42	0.37	0.37	0.16	0.03	0.03	0.03	--
		Queue (ft)	50	50	50	50	50	50	25	25	<25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	4	4	--	31	--	30	--	--	--	5
		V/C	--	0.33	0.33	0.34	0.35	--	0.32	--	0.16	--	--	--	--
		Queue (ft)	--	150	150	150	150	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	C	C	C	A	--	D	--	A	--	--	--	B
		Delay* (s)	--	28	27	34	8	--	38.5	--	0	--	--	--	20
		V/C*	--	0.64	0.64	0.26	0.30	--	0.31	--	0.17	--	--	--	--
		Queue** (ft)	--	250	250	75	125	--	125	--	75	--	--	--	--

* Result from Synchro

** Result from SimTraffic



AM Peak

Exhibit 6-2

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	F	F	F	A	A	A	B	B	F	F	B	B	F
		Delay (s)	127	127	127	8	9	9	12	12	107	248	15	15	90
		V/C	1.19	1.19	1.19	0.42	0.54	0.54	0.19	0.19	1.10	1.46	0.34	0.34	--
		Queue (ft)	1250	1250	1250	50	75	75	25	25	575	1700	25	25	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	C	A	A	A	--	--	--	--	B	B	A	B
		Delay (s)	--	28	FREE	7	7	--	--	--	--	10	10	FREE	14
		V/C	--	0.84	0.26	0.38	0.38	--	--	--	--	0.31	0.31	0.67	--
		Queue (ft)	--	300	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	B	B	--	--	D	C	D	D	A	--	--	--	C
		Delay (s)	11	11	--	--	53	20	41	41	9	--	--	--	21
		V/C	0.62	0.62	--	--	0.88	0.57	0.59	0.59	0.20	--	--	--	--
		Queue (ft)	<25	<25	--	--	175	75	50	50	25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	B	B	A	A	A	A	A
		Delay (s)	10	10	10	8	8	8	11	11	7	7	7	7	9
		V/C	0.59	0.59	0.59	0.43	0.43	0.43	0.38	0.38	0.11	0.05	0.05	0.05	--
		Queue (ft)	75	75	75	50	50	50	50	50	<25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	3	4	--	31	--	30	--	--	--	5
		V/C	--	0.35	0.35	0.35	0.37	--	0.30	--	0.14	--	--	--	--
		Queue (ft)	--	175	175	125	150	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	B	B	D	A	--	E	--	A	--	--	--	B
		Delay* (s)	--	19	19	41	5	--	73.4	--	0	--	--	--	21
		V/C*	--	0.55	0.55	0.42	0.24	--	0.66	--	0.13	--	--	--	--
		Queue** (ft)	--	225	225	100	100	--	300	--	25	--	--	--	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	F	F	F	C	C	C	B	B	F	F	C	C	E
		Delay (s)	94	94	94	21	21	21	15	15	187	157	34	34	68
		V/C	1.09	1.09	1.09	0.81	0.81	0.81	0.45	0.45	1.33	1.18	0.55	0.55	--
		Queue (ft)	675	675	675	500	500	500	50	50	1625	525	50	50	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	B	A	A	A	--	--	--	--	B	B	A	A
		Delay (s)	--	15	FREE	8	8	--	--	--	--	13	13	FREE	8
		V/C	--	0.66	0.19	0.50	0.50	--	--	--	--	0.33	0.33	0.90	--
		Queue (ft)	--	150	<25	<25	<25	--	--	--	--	25	25	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	A	A	--	--	F	B	C	C	A	--	--	--	C
		Delay (s)	9	9	--	--	84	12	31	31	8	--	--	--	30
		V/C	0.54	0.54	--	--	1.04	0.37	0.53	0.53	0.17	--	--	--	--
		Queue (ft)	<25	<25	--	--	475	25	50	50	<25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	A	A	A	A	A	A	B	B	A	A	A	A	A
		Delay (s)	8	8	8	10	10	10	12	12	8	8	8	8	9
		V/C	0.48	0.48	0.48	0.49	0.49	0.49	0.45	0.45	0.18	0.03	0.03	0.03	--
		Queue (ft)	75	75	75	75	75	75	50	50	25	<25	<25	<25	--
WIS 21 & N Westfield St.	Signal	LOS	--	A	A	A	A	--	C	--	C	--	--	--	A
		Delay (s)	--	4	4	4	4	--	31	--	30	--	--	--	5
		V/C	--	0.36	0.36	0.37	0.39	--	0.32	--	0.16	--	--	--	--
		Queue (ft)	--	175	175	150	150	--	50	--	25	--	--	--	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	C	C	C	A	--	D	--	A	--	--	--	B
		Delay* (s)	--	30	29	34	8	--	39	--	0	--	--	--	20
		V/C*	--	0.70	0.70	0.28	0.31	--	0.35	--	0.18	--	--	--	--
		Queue** (ft)	--	275	275	75	150	--	150	--	75	--	--	--	--

* Result from Synchro
 ** Result from SimTraffic



B2. Total Traffic Operational Analysis – Existing Transportation System

Operations projected for the existing transportation system under the build (development completion) year 2025 total traffic scenario are summarized in **Exhibit 6-3**, and operations projected for the existing transportation system under the horizon year 2045 total traffic scenario are summarized in **Exhibit 6-4**.

WIS 21 with I-41 and N. Washburn Street Roundabouts

As expected, the addition of development traffic is projected to cause further deterioration of roundabout traffic operations in the year 2025 and 2045 scenarios. In addition to the undesirable operations described for the 2025 background traffic scenario, the introduction of development traffic to the existing transportation system is expected to result in LOS F for several movements at the WIS 21 intersection with N. Washburn Street/Omro Road by the year 2025.

In addition to the failing operations described for the 2045 background scenario, the development traffic is expected to result in LOS F conditions for eastbound through movements during the AM peak at the WIS 21 intersection with the I-41 southbound ramps

Oshkosh Avenue Intersections

Operations at the three project intersections along Oshkosh Avenue will start to deteriorate by the horizon year 2045. The southbound movements at the Oshkosh Avenue intersection with N. Koeller Street will operate at LOS D in 2025 and is anticipated to deteriorate to LOS F by 2045 during the PM peak. In addition to the unacceptable operations described for the background scenario, the development traffic is expected to contribute to a LOS F for the northbound left turn movement by 2045 at the Oshkosh Avenue intersection with N. Sawyer Street.

Traffic analysis output for the existing transportation system under the total traffic scenarios is included in **Appendix F**.

AM Peak

Exhibit 6-3

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	F	F	F	A	A	A	B	B	F	F	B	B	D
		Delay (s)	76	76	76	7	8	8	12	12	87	72	11	11	47
		V/C	1.05	1.05	1.05	0.36	0.46	0.46	0.16	0.16	1.03	1.00	0.22	0.22	--
		Queue (ft)	675	675	675	50	50	50	<25	<25	375	400	25	25	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	C	A	A	A	--	--	--	--	B	B	A	B
		Delay (s)	--	32	FREE	7	7	--	--	--	--	14	14	FREE	16
		V/C	--	0.85	0.21	0.40	0.40	--	--	--	--	0.45	0.45	0.50	--
		Queue (ft)	--	275	<25	<25	<25	--	--	--	--	50	50	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	B	B	--	--	C	B	C	C	B	--	--	--	B
		Delay (s)	10	10	--	--	30	17	33	33	13	--	--	--	16
		V/C	0.60	0.60	--	--	0.76	0.59	0.50	0.50	0.31	--	--	--	--
		Queue (ft)	<25	<25	--	--	125	75	50	50	25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	B	B	C	C	C	B	
		Delay (s)	18	18	18	16	16	16	19	19	11	21	21	21	18
		V/C	0.78	0.78	0.78	0.64	0.64	0.64	0.52	0.52	0.16	0.65	0.65	0.65	--
		Queue (ft)	425	425	425	125	125	125	50	50	<25	100	100	100	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	7	7	6	4	4	4	31	31	30	30	30	31	8
		V/C	0.51	0.51	0.50	0.39	0.39	0.40	0.30	0.30	0.12	0.21	0.21	0.33	--
		Queue (ft)	225	250	250	150	175	175	75	75	25	50	50	50	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	B	B	D	A	--	E	--	A	--	--	--	C
		Delay* (s)	--	20	19	40	5	--	75.6	--	0	--	--	--	21
		V/C*	--	0.57	0.57	0.39	0.28	--	0.68	--	0.12	--	--	--	--
		Queue** (ft)	--	225	225	100	75	--	375	--	50	--	--	--	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Washburn/Omro Rd.	Roundabout	LOS	D	D	D	B	B	B	B	B	F	D	B	B	C
		Delay (s)	37	37	37	13	14	14	12	12	97	46	19	19	32
		V/C	0.86	0.86	0.86	0.65	0.68	0.68	0.36	0.36	1.10	0.78	0.33	0.33	--
		Queue (ft)	225	225	225	175	225	225	25	25	750	100	25	25	--
WIS 21 & IH 41 SB Ramps	Roundabout	LOS	--	B	A	A	A	--	--	--	--	B	B	A	A
		Delay (s)	--	15	FREE	9	9	--	--	--	--	15	15	FREE	9
		V/C	--	0.63	0.16	0.52	0.52	--	--	--	--	0.41	0.41	0.68	--
		Queue (ft)	--	125	<25	<25	<25	--	--	--	--	50	50	<25	--
WIS 21 & IH 41 NB Ramps	Roundabout	LOS	A	A	--	--	D	B	C	C	A	--	--	--	B
		Delay (s)	8	8	--	--	44	15	23	23	10	--	--	--	20
		V/C	0.50	0.50	--	--	0.90	0.57	0.44	0.44	0.23	--	--	--	--
		Queue (ft)	<25	<25	--	--	275	75	25	25	25	--	--	--	--
WIS 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	B	A	D	D	D	B	
		Delay (s)	12	12	12	13	13	13	16	16	10	46	46	46	18
		V/C	0.61	0.61	0.61	0.60	0.60	0.60	0.52	0.52	0.23	0.90	0.90	0.90	--
		Queue (ft)	125	125	125	125	125	125	50	50	25	250	250	250	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	6	6	6	4	4	4	31	31	30	31	31	31	8
		V/C	0.49	0.49	0.49	0.38	0.38	0.39	0.29	0.29	0.14	0.30	0.30	0.29	--
		Queue (ft)	200	250	250	175	175	175	75	75	25	75	75	50	--
WIS 21 & N Sawyer St.	Signal	LOS*	--	C	C	C	A	--	D	--	A	--	--	--	B
		Delay* (s)	--	31	30	34	8	--	40	--	0	--	--	--	21
		V/C*	--	0.74	0.74	0.26	0.34	--	0.36	--	0.17	--	--	--	--
		Queue** (ft)	--	275	275	100	150	--	150	--	75	--	--	--	--

* Result from Synchro
 ** Result from SimTraffic



AM Peak

Exhibit 6-4

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
STH 21 & N Washburn/Omro Rd.	Roundabout	LOS	F	F	F	A	B	B	B	B	F	F	B	B	F
		Delay (s)	155	155	155	8	10	10	12	12	120	318	17	17	110
		V/C	1.27	1.27	1.27	0.44	0.57	0.57	0.18	0.18	1.14	1.62	0.36	0.36	--
		Queue (ft)	1550	1550	1550	50	75	75	25	25	700	2075	25	25	--
STH 21 & IH 41 SB Ramps	Roundabout	LOS	--	F	A	A	A	--	--	--	--	B	B	A	D
		Delay (s)	--	99	FREE	7	7	--	--	--	--	18	18	FREE	43
		V/C	--	1.12	0.26	0.44	0.44	--	--	--	--	0.57	0.57	0.67	--
		Queue (ft)	--	1000	<25	<25	<25	--	--	--	--	75	75	<25	--
STH 21 & IH 41 NB Ramps	Roundabout	LOS	B	B	--	--	F	D	E	E	B	--	--	--	D
		Delay (s)	14	14	--	--	105	38	75	75	15	--	--	--	36
		V/C	0.72	0.72	--	--	1.09	0.82	0.77	0.77	0.37	--	--	--	--
		Queue (ft)	<25	<25	--	--	525	150	75	75	25	--	--	--	--
STH 21 & N Koeller St.	Roundabout	LOS	C	C	C	C	C	C	C	C	B	C	C	C	C
		Delay (s)	24	24	24	20	20	20	26	26	12	26	26	26	23
		V/C	0.86	0.86	0.86	0.72	0.72	0.72	0.63	0.63	0.19	0.72	0.72	0.72	--
		Queue (ft)	675	675	675	175	175	175	75	75	25	125	125	125	--
STH 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	8	7	7	4	4	5	31	31	30	30	30	31	8
		V/C	0.56	0.56	0.54	0.44	0.44	0.44	0.30	0.30	0.12	0.21	0.21	0.33	--
		Queue (ft)	250	275	275	175	200	200	75	75	25	50	50	50	--
STH 21 & N Sawyer St.	Signal	LOS*	--	C	C	D	A	--	F	--	A	--	--	--	B
		Delay* (s)	--	21	20	41	5	--	88.6	--	0	--	--	--	23
		V/C*	--	0.61	0.61	0.42	0.29	--	0.76	--	0.13	--	--	--	--
		Queue** (ft)	--	250	250	75	100	--	600	--	50	--	--	--	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
STH 21 & N Washburn/Omro Rd.	Roundabout	LOS	F	F	F	C	C	C	B	B	F	F	D	D	F
		Delay (s)	117	117	117	22	25	25	14	14	197	228	39	39	81
		V/C	1.15	1.15	1.15	0.83	0.86	0.86	0.44	0.44	1.36	1.36	0.59	0.59	--
		Queue (ft)	925	925	925	550	650	650	50	50	1750	800	50	50	--
STH 21 & IH 41 SB Ramps	Roundabout	LOS	--	C	A	A	A	--	--	--	--	C	C	A	B
		Delay (s)	--	27	FREE	10	10	--	--	--	--	21	21	FREE	13
		V/C	--	0.82	0.19	0.58	0.58	--	--	--	--	0.54	0.54	0.90	--
		Queue (ft)	--	250	<25	<25	<25	--	--	--	--	50	50	<25	--
STH 21 & IH 41 NB Ramps	Roundabout	LOS	B	B	--	--	F	C	D	D	B	--	--	--	D
		Delay (s)	10	10	--	--	159	26	44	44	11	--	--	--	53
		V/C	0.60	0.60	--	--	1.26	0.74	0.64	0.64	0.26	--	--	--	--
		Queue (ft)	<25	<25	--	--	1150	125	60	60	25	--	--	--	--
STH 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	C	C	B	F	F	F	C
		Delay (s)	14	14	14	17	17	17	21	21	11	72	72	72	23
		V/C	0.67	0.67	0.67	0.68	0.68	0.68	0.62	0.62	0.26	1.00	1.00	1.00	--
		Queue (ft)	225	225	225	175	175	175	75	75	25	400	400	400	--
STH 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	5	5	5	3	3	4	33	33	31	33	33	33	7
		V/C	0.50	0.50	0.51	0.40	0.40	0.41	0.36	0.36	0.20	0.36	0.36	0.41	--
		Queue (ft)	175	225	225	150	175	175	75	75	25	75	75	50	--
STH 21 & N Sawyer St.	Signal	LOS*	--	C	C	C	A	--	D	--	A	--	--	--	B
		Delay* (s)	--	34	33	34	8	--	41	--	0	--	--	--	24
		V/C*	--	0.79	0.79	0.28	0.36	--	0.41	--	0.18	--	--	--	--
		Queue** (ft)	--	275	275	100	150	--	175	--	75	--	--	--	--

* Result from Synchro

** Result from SimTraffic



B3. Total Traffic Operational Analysis – Improved Transportation System

For the purpose of this report, the improved transportation system refers to incorporation of the recommendations outlined in Chapter 5 into the study area transportation system. The traffic operations of the improved transportation system under year 2025 and 2045 total traffic scenarios were also analyzed using HCM 2010 methodology. Operations projected for the improved transportation system under the build (development completion) year 2025 total traffic scenario are summarized in **Exhibit 6-5**, and operations projected for the improved transportation system under the horizon year 2045 total traffic scenario are summarized in **Exhibit 6-6**.

At the three study intersections where improvements have been recommended in this report (N. Koeller Street, N. Westfield Street, and N. Sawyer Street), all movements are expected to operate at LOS C or better with these recommended improvements. Because no improvements have been recommended for the intersections to the east of N. Koeller Street, the operations in these scenarios are unchanged from those outlined in **Exhibit 6-3** and **Exhibit 6-4**.

Traffic analysis output for the improved transportation system under the total traffic scenarios is included in **Appendix G**.

AM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	B	B	B	A	A	B	B
		Delay (s)	18	18	18	16	16	16	19	19	11	9	9	13	17
		V/C	0.78	0.78	0.78	0.64	0.64	0.64	0.52	0.52	0.16	0.22	0.22	0.43	--
		Queue (ft)	425	425	425	125	125	125	50	50	<25	25	25	50	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	9	6	6	8	5	5	21	21	20	21	21	21	7
		V/C	0.30	0.41	0.41	0.15	0.37	0.37	0.23	0.23	0.09	0.16	0.16	0.25	--
		Queue (ft)	50	175	175	25	150	150	50	50	25	50	50	50	--
WIS 21 & N Sawyer St.	Signal	LOS	A	B	B	A	A	A	C	B	B	B	B	B	B
		Delay (s)	9	13	13	10	5	5	23	19	16	19	19	19	11
		V/C	0.01	0.62	0.62	0.50	0.31	0.31	0.52	0.03	0.27	0.07	0.07	0.02	--
		Queue (ft)	<25	250	250	75	100	125	150	<25	75	25	25	<25	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	B	B	A	B	B	C	B
		Delay (s)	12	12	12	13	13	13	16	16	10	10	10	24	14
		V/C	0.61	0.61	0.61	0.60	0.60	0.60	0.52	0.52	0.23	0.22	0.22	0.68	--
		Queue (ft)	125	125	125	125	125	125	50	50	25	25	25	100	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	C	A
		Delay (s)	9	6	6	8	5	5	22	22	21	22	22	21	8
		V/C	0.27	0.41	0.41	0.09	0.40	0.40	0.22	0.22	0.10	0.23	0.23	0.22	--
		Queue (ft)	50	175	175	25	150	175	50	50	25	50	50	50	--
WIS 21 & N Sawyer St.	Signal	LOS	A	B	B	A	A	A	C	B	B	B	B	B	B
		Delay (s)	8	12	12	9	5	5	22	20	18	20	20	20	10
		V/C	0.05	0.61	0.61	0.49	0.35	0.35	0.39	0.06	0.39	0.07	0.07	0.03	--
		Queue (ft)	<25	250	250	75	125	125	100	<25	100	25	25	<25	--

AM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Koeller St.	Roundabout	LOS	C	C	C	C	C	C	C	C	B	B	B	B	C
		Delay (s)	24	24	24	20	20	20	26	26	12	10	10	15	22
		V/C	0.86	0.86	0.86	0.72	0.72	0.72	0.63	0.63	0.19	0.24	0.24	0.48	--
		Queue (ft)	675	675	675	175	175	175	75	75	25	25	25	50	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	A	
		Delay (s)	9	5	5	8	5	5	23	23	22	23	23	23	7
		V/C	0.31	0.43	0.43	0.18	0.39	0.39	0.25	0.25	0.09	0.17	0.17	0.27	--
		Queue (ft)	75	175	200	25	150	175	50	50	25	50	50	50	--
WIS 21 & N Sawyer St.	Signal	LOS	A	B	B	B	A	A	C	B	B	C	B	B	B
		Delay (s)	9	14	14	11	5	5	25	20	17	20	20	20	13
		V/C	0.01	0.67	0.67	0.57	0.33	0.33	0.56	0.03	0.27	0.07	0.07	0.02	--
		Queue (ft)	<25	300	300	100	125	150	175	<25	75	25	25	<25	--

PM Peak

Intersection	Traffic Control	Measure of Effectiveness	Intersection Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
WIS 21 & N Koeller St.	Roundabout	LOS	B	B	B	B	B	B	C	C	B	B	B	C	B
		Delay (s)	14	14	14	17	17	17	21	21	11	12	12	32	17
		V/C	0.67	0.67	0.67	0.68	0.68	0.68	0.62	0.62	0.26	0.25	0.25	0.75	--
		Queue (ft)	225	225	225	175	175	175	25	25	125	75	75	25	--
WIS 21 & N Westfield St.	Signal	LOS	A	A	A	A	A	A	C	C	C	C	C	A	
		Delay (s)	9	5	5	8	5	5	24	24	23	24	24	23	8
		V/C	0.28	0.43	0.43	0.10	0.42	0.42	0.24	0.24	0.12	0.25	0.25	0.24	--
		Queue (ft)	50	175	200	25	175	200	50	50	25	75	75	50	--
WIS 21 & N Sawyer St.	Signal	LOS	A	B	B	A	A	A	C	C	B	C	C	C	B
		Delay (s)	8	12	12	10	5	5	24	21	19	21	21	21	11
		V/C	0.05	0.64	0.64	0.54	0.36	0.36	0.45	0.06	0.42	0.08	0.08	0.03	--
		Queue (ft)	<25	275	275	75	150	150	125	<25	125	25	25	<25	--

Part C – Queuing Analysis

Analysis of the proposed development's impact on queuing was also performed. The highest expected 95th percentile queue lengths were calculated using HCM 2010 methodology for each vehicle movement within the transportation network.

For the improved transportation network, projected queue lengths under total traffic scenarios for the build year 2025 and horizon year 2045 are shown in **Exhibits 6-5 and 6-6**, respectively.

Overall, queuing on Oshkosh Avenue at N. Koeller Street, N. Westfield Street, and N. Sawyer Street will be 300 feet or less except for the eastbound approach at the N. Koeller Street roundabout. This queue could extend to I-41 northbound ramps roundabout during the AM peak in the horizon year 2045. The queuing concerns at this intersection are the result of the high volume of traffic coming from the west, including I-41.

Part D – Multi-Modal Considerations

Although most traffic analyzed in this study is assumed to be motor vehicle traffic, it should be noted that the recommended improvements also improve pedestrian facilities throughout the Oshkosh Avenue corridor. The addition of terraces and concrete gutters is expected to improve pedestrian conditions due to increased separation from the travel lanes. Bicycles will be able to utilize the trail system within the park to connect to and from the Heritage Trail that runs along I-41. Transit routes will continue to make stops along Oshkosh Avenue to service the new Oshkosh Corporation and commercial development.

CHAPTER 7 – CONCLUSIONS AND RECOMMENDATIONS

Part A – Conclusions

Under existing traffic conditions, all movements operate at LOS C or better, except for two movements at the Oshkosh Avenue intersection with N. Sawyer Street. At this intersection, the westbound left turn operates at LOS D during the AM peak hour, and the northbound left turn operates at LOS E during the AM peak and LOS D during the PM peak.

The planned development near the Oshkosh Avenue corridor, consisting of the Oshkosh Corporation Global Headquarters and other expected commercial development, is projected to generate approximately 12,370 daily vehicle trips on a typical weekday.

The addition of traffic generated by the proposed developments, when combined with expected background growth, is expected to result in undesirable operations at several locations if improvements are not made to the transportation system. Without any capacity-related improvements, peak hour failing operations are expected for at least one movement at each study intersection except for the Oshkosh Avenue intersection with N. Westfield Street. It should be noted, however, that much of the expected deterioration of traffic operations would also be expected with only background traffic growth through the year 2045.

With implementation of the recommendations outlined in this report, all movements are expected to operate at LOS C or better at the Oshkosh Avenue intersections with N. Koeller Street, N. Westfield Street, and N. Sawyer Street through the year 2045. At the other study intersections, failing operations are projected during peak hours for several movements by the year 2045. Failing operations are projected at the WIS 21 intersection with N. Washburn Street/Omro Road by the year 2025.

Part B – Recommendations

The recommended improvements for the Oshkosh Avenue corridor, based on the analysis and findings of this study, are as follows:

Oshkosh Avenue Corridor

- Implement Alternative 3 (four-lane divided typical section) from N. Koeller Street to N. Eagle Street
- Implement Alternative 1 (four-lane undivided typical section with roadside improvements) from N. Eagle Street to the Fox River.

The existing Oshkosh Avenue corridor typical section will operate with acceptable capacity throughout the system with total traffic in the horizon year (2045), if left-turn lanes are provided at the N. Westfield Street intersection. Although the above corridor improvements are recommended, they are not required to provide needed corridor capacity.

Study Area Intersections

- Implement Alternative 2A or 2C (*traffic signal with extension of N. Sawyer Street*) at the Oshkosh Avenue intersection with N. Sawyer Street
- Implement Alternative 1 (*traffic signal with the addition of eastbound and westbound left turn lanes*) at the Oshkosh Avenue intersection with N. Westfield Street
- Implement Alternative 1 (*roundabout with SB Lane Improvements*) at the Oshkosh Avenue intersection with N. Koeller Street
- Implement Alternative 1 or 2 at the new intersection of N. Koeller Street & N. Westfield Street with Oshkosh Corporation Driveway

Interchange and Washburn Street Roundabouts

- Continue to monitor and analyze observed scenarios regarding lane utilization and traffic operations
- Coordinate with WisDOT regarding mitigation strategies to accommodate future traffic growth

APPENDIX A

Traffic

Intersection Peak Hour Factor and Heavy Vehicle Percentage

Intersection	Peak	TIME	PHF	Truck Percentage			
				SB	WB	NB	EB
STH 21 & N. Washburn St./Omro Rd.	AM	07:00	0.95	2%	6%	4%	3%
	PM	16:15	0.96	1%*	3%	1%*	3%
STH 21 & IH 41 SB Ramps	AM	07:00	0.93	7%	4%		3%
	PM	16:15	0.96	3%	4%		2%
STH 21 & IH 41 NB Ramps	AM	07:00	0.93		3%	5%	3%
	PM	16:15	0.92		2%	8%	2%
STH 21 & N. Koeller St.	AM	07:00	0.88	5%	3%	2%	2%
	PM	16:15	0.98	7%	2%	0%*	2%
STH 21 & N. Westfield St.	AM	07:00	0.88		2%	4%	1%*
	PM	16:15	0.97		1%*	2%	1%*
STH 21 & N. Sawyer St.	AM	07:00	0.88	--%*	3%	3%	2%
	PM	16:15	0.98	0%*	2%	2%	3%

*2% Truck Percentage used in modelling

Intersection Traffic Volume Report

Count Basics		Version 2011.J2		Page 1 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday			
Total Number of Hours Counted:	6	Non-Holiday		No Special Events	

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries



Intersection of: **Omro Rd and STH 21**

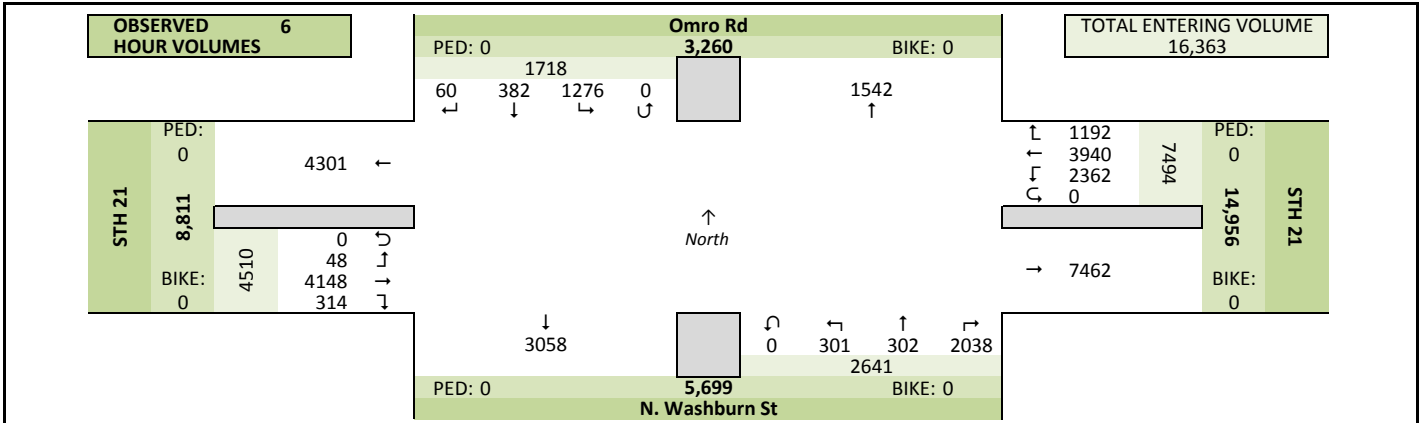
Site Information

Municipality	Oshkosh
County	Winnebago
WisDOT Region	NE
Traffic Control	Roundabout
Roadway Names	North Direction ↑
North Leg	Omro Rd
East Leg	STH 21
South Leg	N. Washburn St
West Leg	STH 21
Special Considerations	
Schools	
Holidays	
Special Events	
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

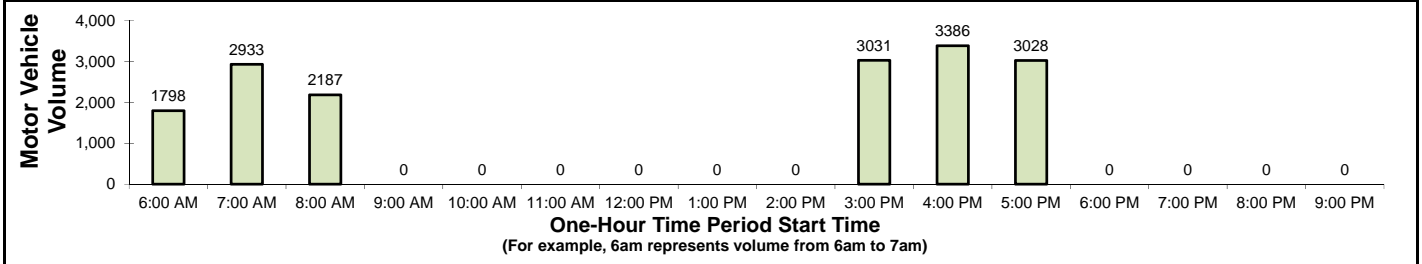
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM				
Count Dates	Weather				
AM Peak Period	Wednesday, December 06, 2017				
Midday Peak Period					
PM Peak Period	Wednesday, December 06, 2017				
Calculated Peak Hours					
AM	7:00-8:00am	MD		PM	4:15-5:15pm
Peak Hours Selected for Analysis					
AM	7:00-8:00am	MD		PM	4:15-5:15pm
Daily/Seasonal Adjustment Group					
Count Expansion Group					
Daily/Seasonal Adjustment Factor	Count Expansion Factor				
Company Name					Manual Adj. 1.000
Observers	AM Peak Period	NDG			
	Midday Peak Period				
	PM Peak Period	NDG			
Comments					

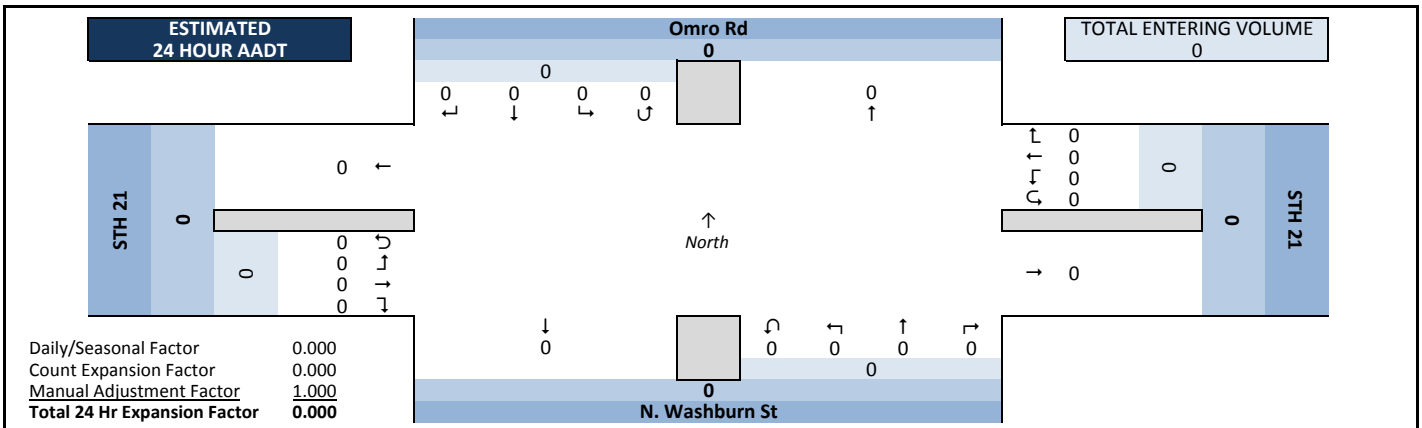
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT



Intersection Traffic Volume Report

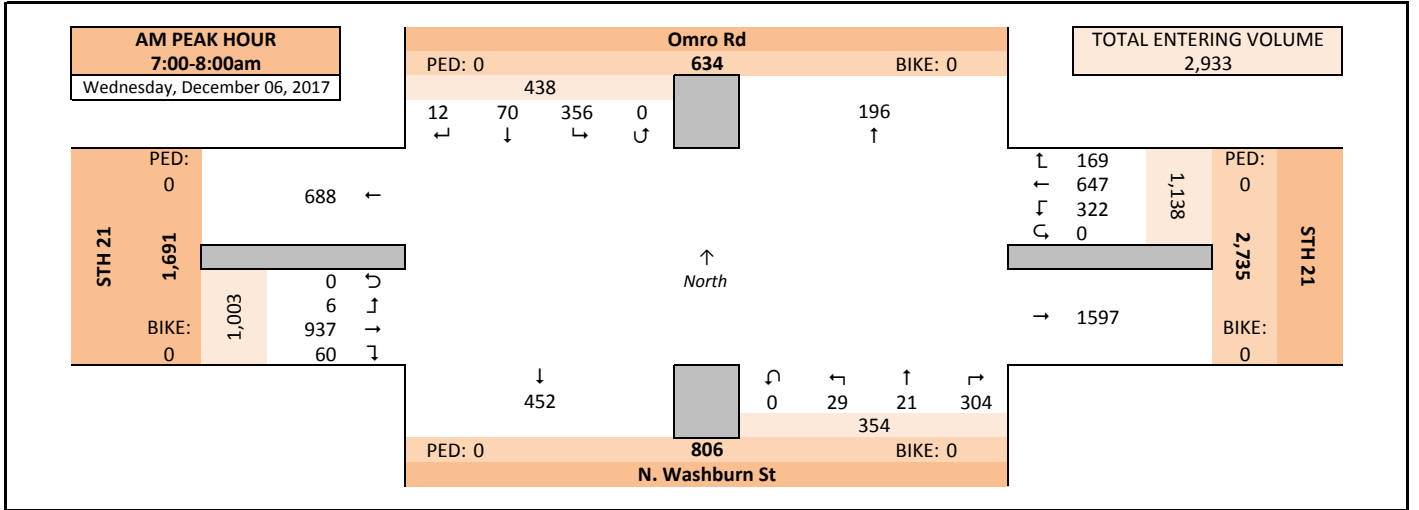
Count Basics		Page 2 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

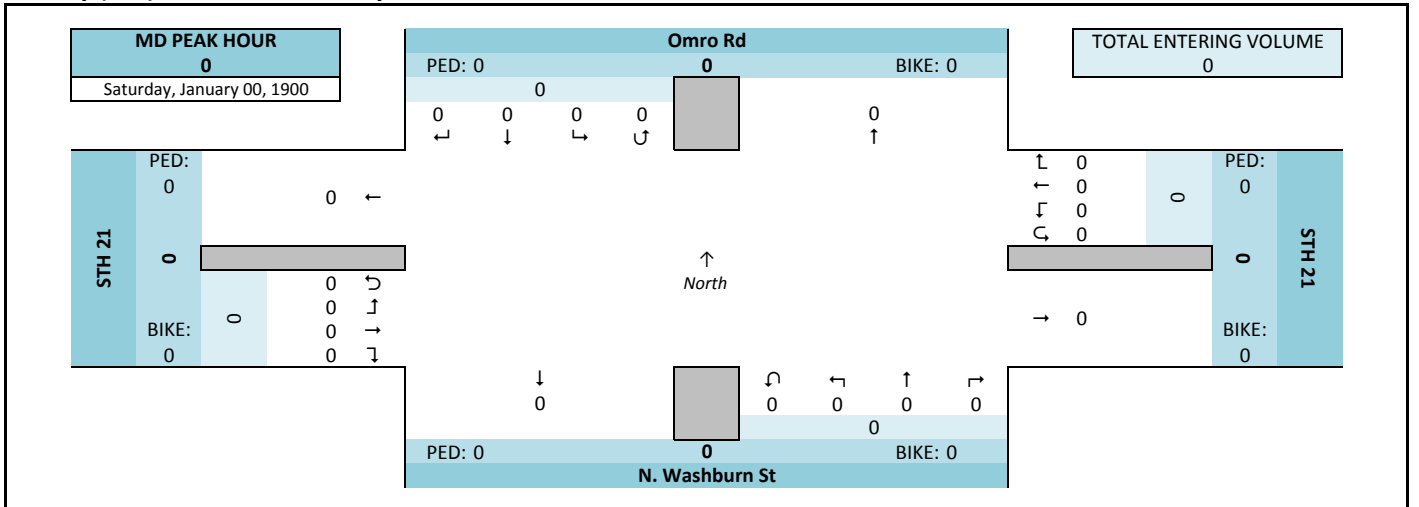
Omro Rd and STH 21



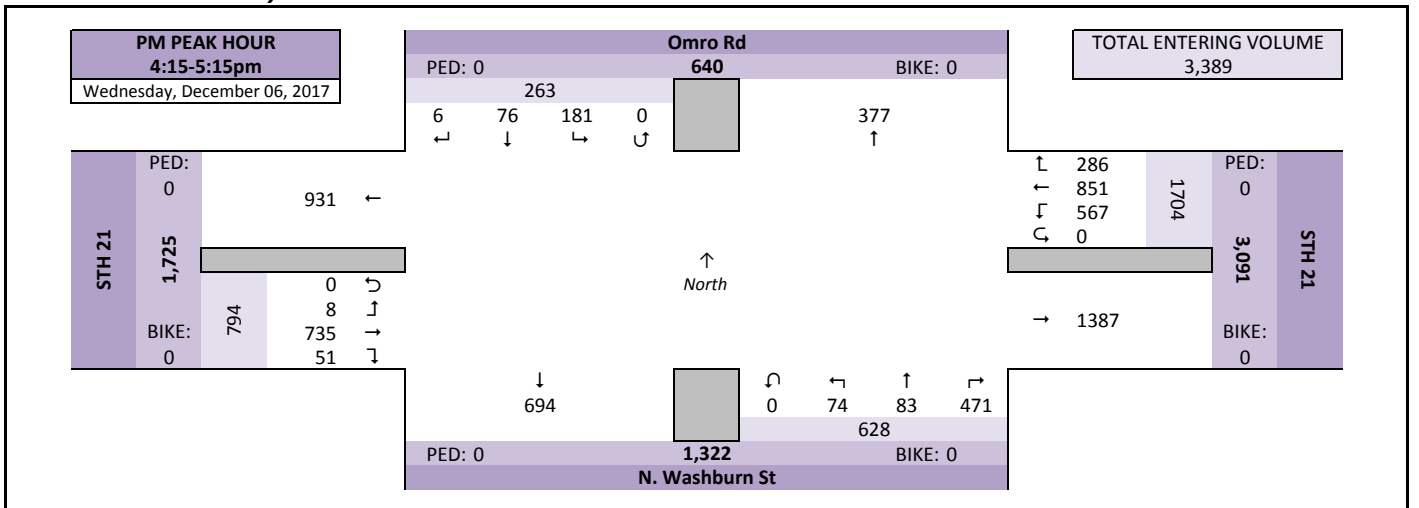
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

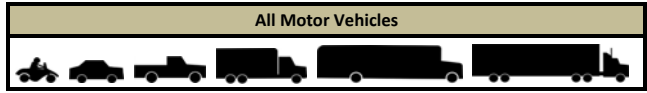


Intersection Traffic Volume Report

Count Basics		<i>Page 4 of 11</i>
Start Date:	Wednesday, December 06, 2017	Weekday
Total Number of Hours Counted:	6	Non-Holiday No Special Events

Hourly Volume Summary - Motor Vehicle Data

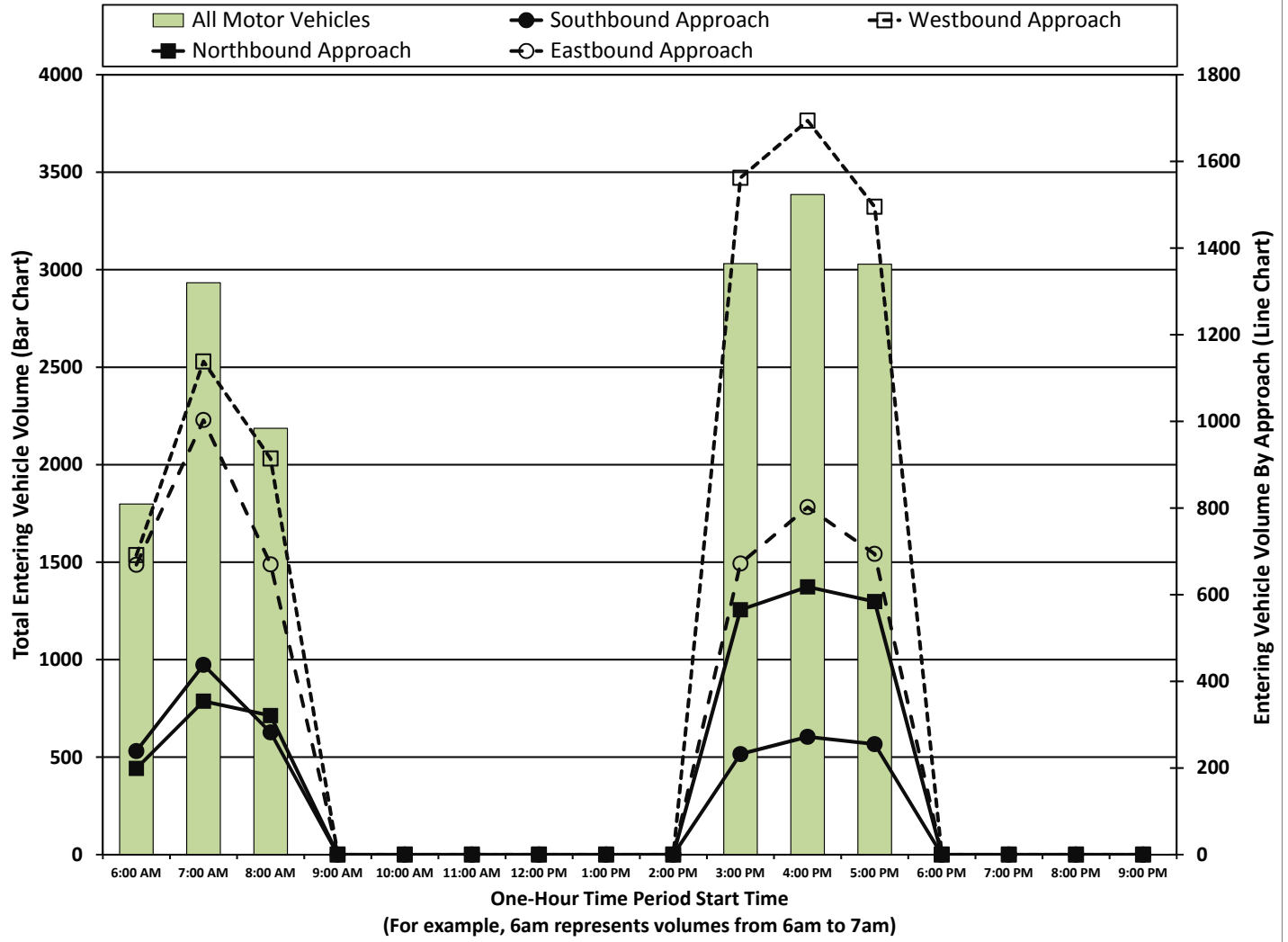
Omro Rd and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North Omro Rd					From East STH 21					From South N. Washburn St					From West STH 21					Total Vehicle Volume	Directional Volume Totals		
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S	
	Start Time																							
AM	6:00 AM	13	38	188	0	239	88	408	195	0	691	161	15	23	0	199	57	609	3	0	669	1798	1360	438
	7:00 AM	12	70	356	0	438	169	647	322	0	1138	304	21	29	0	354	60	937	6	0	1003	2933	2141	792
	8:00 AM	14	49	219	0	282	138	479	297	0	914	245	44	32	0	321	49	610	11	0	670	2187	1584	603
MD	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	11	70	151	0	232	274	815	473	0	1562	420	73	72	0	565	56	604	12	0	672	3031	2234	797
	4:00 PM	8	77	187	0	272	291	839	564	0	1694	477	73	68	0	618	47	742	13	0	802	3386	2496	890
	5:00 PM	2	78	175	0	255	232	752	511	0	1495	431	76	77	0	584	45	646	3	0	694	3028	2189	839
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	60	382	1276	0	1718	1192	3940	2362	0	7494	2038	302	301	0	2641	314	4148	48	0	4510	16363	12004	4359	

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

Count Basics			Page 9 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Omro Rd and STH 21



15-Minute Heavy Vehicle Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	Omro Rd					STH 21					N. Washburn St					STH 21						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
6:00 AM	1	1	3	0	5	0	4	0	0	4	2	0	0	0	2	2	7	0	0	9	20	
6:15 AM	1	1	8	0	10	2	8	3	0	13	3	1	0	0	4	2	8	0	0	8	35	
6:30 AM	0	0	3	0	3	0	9	4	0	13	0	0	0	0	0	0	10	0	0	10	26	
6:45 AM	0	0	8	0	8	2	8	1	0	11	6	0	0	0	6	0	9	0	0	9	34	
7:00 AM	0	0	2	0	2	0	15	3	0	18	2	0	0	0	2	0	6	0	0	6	28	
7:15 AM	0	1	1	0	2	0	6	5	0	11	3	0	0	0	3	0	5	0	0	5	21	
7:30 AM	0	0	1	0	1	1	13	3	0	17	4	0	2	0	6	0	8	0	0	8	32	
7:45 AM	0	0	2	0	2	4	11	2	0	17	4	0	0	0	4	0	8	0	0	8	31	
8:00 AM	0	0	3	0	3	7	15	3	0	25	1	2	1	0	4	0	7	0	0	7	39	
8:15 AM	0	0	3	0	3	10	9	3	0	22	6	0	0	0	6	0	10	0	0	10	41	
8:30 AM	0	2	3	0	5	4	7	0	0	11	2	2	0	0	4	0	8	1	0	9	29	
8:45 AM	0	0	0	0	0	1	9	2	0	12	6	1	1	0	8	0	8	0	0	8	28	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	1	1	0	3	2	12	3	0	17	3	0	2	0	5	1	11	0	0	12	37	
3:15 PM	0	1	3	0	4	1	14	2	0	17	3	0	0	0	3	0	8	0	0	8	32	
3:30 PM	0	1	1	0	2	6	8	0	0	14	2	1	1	0	4	0	8	0	0	8	28	
3:45 PM	0	0	2	0	2	3	9	2	0	14	1	0	0	0	1	0	5	0	0	5	22	
4:00 PM	0	0	2	0	2	1	11	2	0	14	1	0	0	0	1	0	4	0	0	4	21	
4:15 PM	0	0	1	0	1	14	8	0	0	22	2	1	0	0	3	0	7	0	0	7	33	
4:30 PM	0	0	2	0	2	3	6	2	0	11	2	0	0	0	2	0	3	0	0	3	18	
4:45 PM	0	0	0	0	0	1	9	5	0	15	2	0	0	0	2	0	6	0	0	6	23	
5:00 PM	0	0	0	0	0	0	7	2	0	9	2	0	0	0	2	0	5	0	0	5	16	
5:15 PM	0	0	0	0	0	0	2	2	0	4	2	0	0	0	2	0	3	0	0	3	9	
5:30 PM	0	0	0	0	0	0	8	0	0	8	1	0	0	0	1	0	5	0	0	5	14	
5:45 PM	0	0	0	0	0	0	6	1	0	7	1	0	2	0	3	0	4	0	0	4	14	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	3	8	49	0	60	62	214	50	0	326	61	8	9	0	78	3	163	1	0	167	631	

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume
	Omro Rd					STH 21					N. Washburn St					STH 21					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:00 AM	0	1	6	0	7	5	45	13	0	63	13	0	2	0	15	0	27	0	0	27	112
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	0	0	3	0	3	18	30	9	0	57	8	1	0	0	9	0	21	0	0	21	90

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

Omro Rd and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	Omro Rd			STH 21			N. Washburn St			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2011.J2		Page 1 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday			
Total Number of Hours Counted:	6	Non-Holiday		No Special Events	

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries



Intersection of: **IH 41 SB Ramps and STH 21**

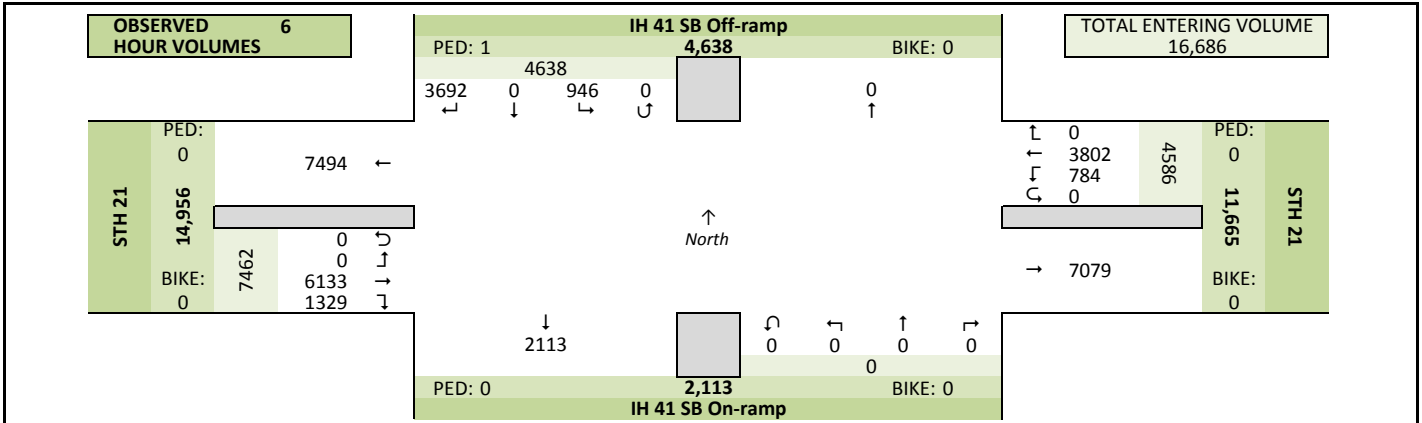
Site Information

Municipality	Oshkosh		
County	Winnebago	WisDOT Region	NE
Traffic Control	Roundabout		
Roadway Names		North Direction	↑
North Leg	IH 41 SB Off-ramp		
East Leg	STH 21		
South Leg	IH 41 SB On-ramp		
West Leg	STH 21		
Special Considerations			
Schools			
Holidays			
Special Events			
Special Pedestrians Observed			
	Pre-school children	None	
	Elementary school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe)	None	None

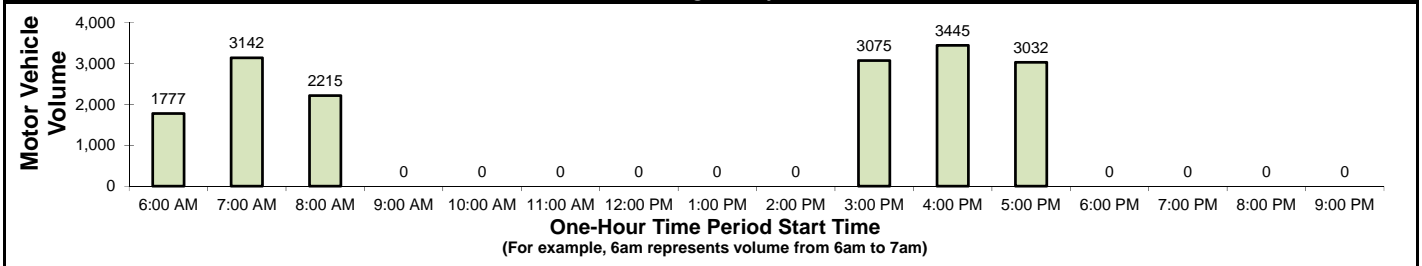
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM		
Count Dates	Wednesday, December 06, 2017		Weather
AM Peak Period	Wednesday, December 06, 2017		
Midday Peak Period			
PM Peak Period	Wednesday, December 06, 2017		
Calculated Peak Hours			
	AM	7:00-8:00am	MD
			PM
			4:00-5:00pm
Peak Hours Selected for Analysis			
	AM	7:00-8:00am	MD
			PM
			4:15-5:15pm
Daily/Seasonal Adjustment Group			
Count Expansion Group			
Daily/Seasonal Adjustment Factor	Count Expansion Factor		
Company Name			Manual Adj. 1.000
Observers	AM Peak Period	NDG	
	Midday Peak Period		
	PM Peak Period	NDG	
Comments			

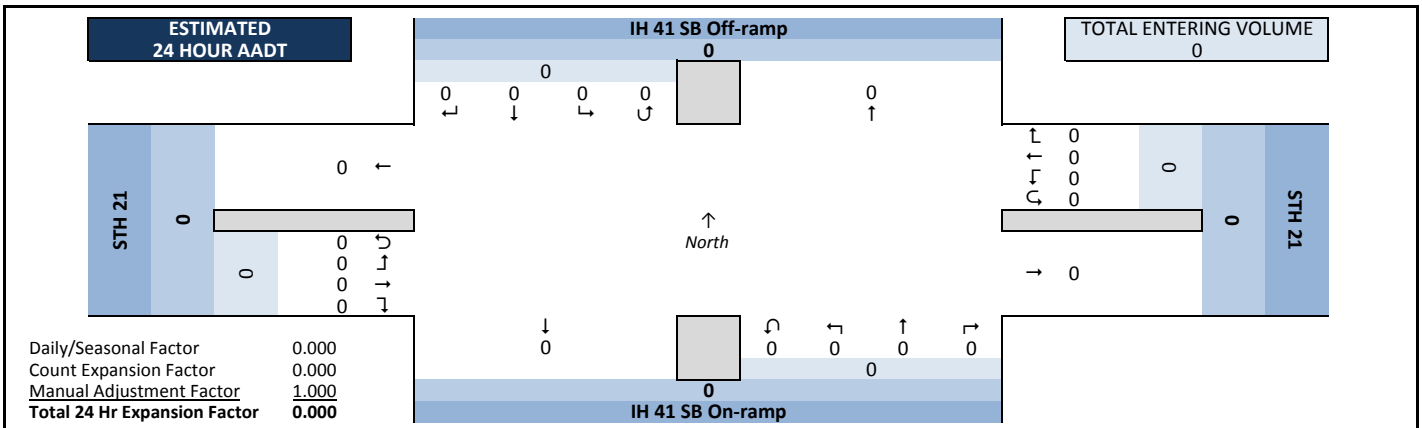
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

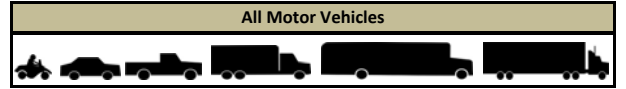


Intersection Traffic Volume Report

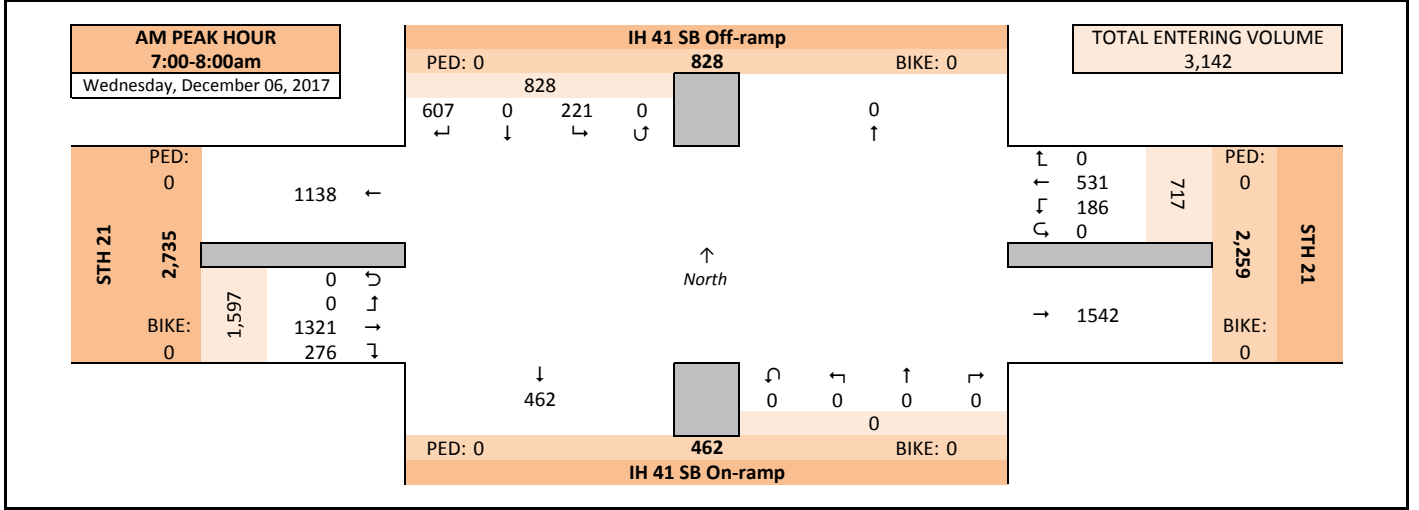
Count Basics			Page 2 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

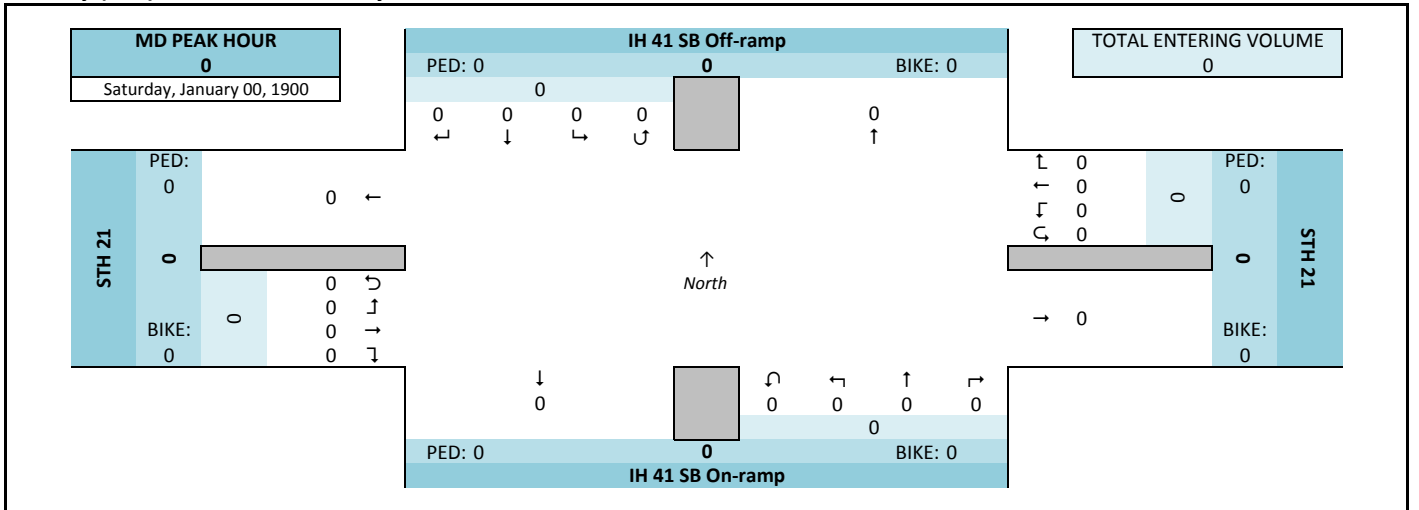
IH 41 SB Ramps and STH 21



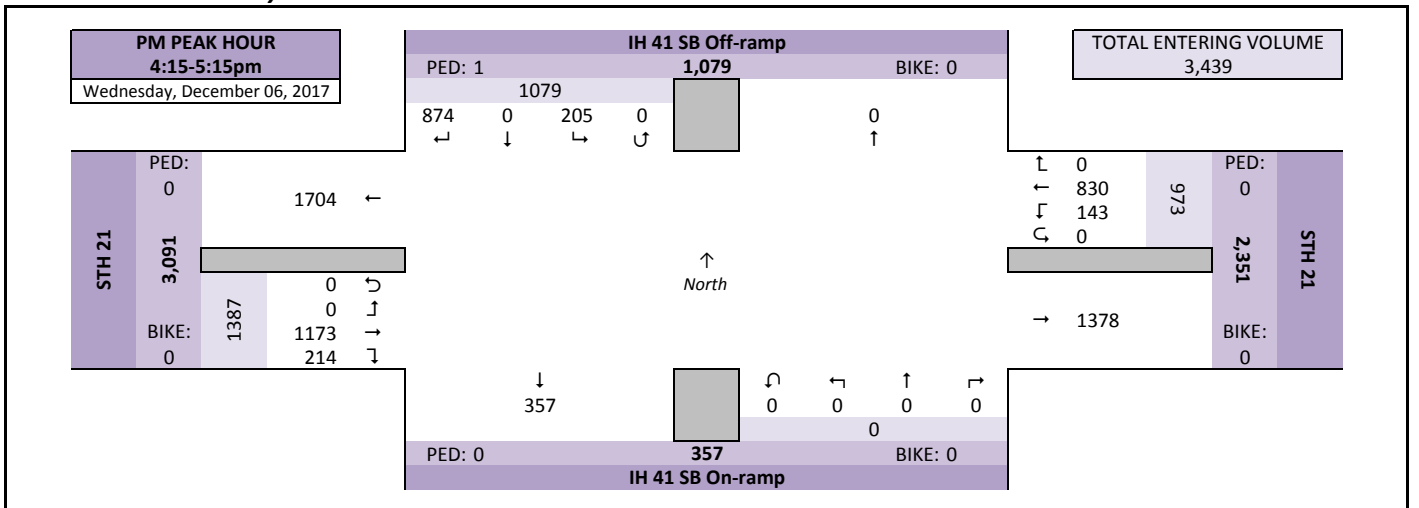
AM Peak Hour Summary



Middy (MD) Peak Hour Summary



PM Peak Hour Summary

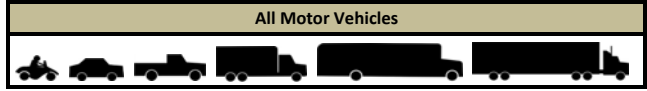


Intersection Traffic Volume Report

Count Basics		<i>Page 4 of 11</i>
Start Date:	Wednesday, December 06, 2017	Weekday
Total Number of Hours Counted:	6	Non-Holiday No Special Events

Hourly Volume Summary - Motor Vehicle Data

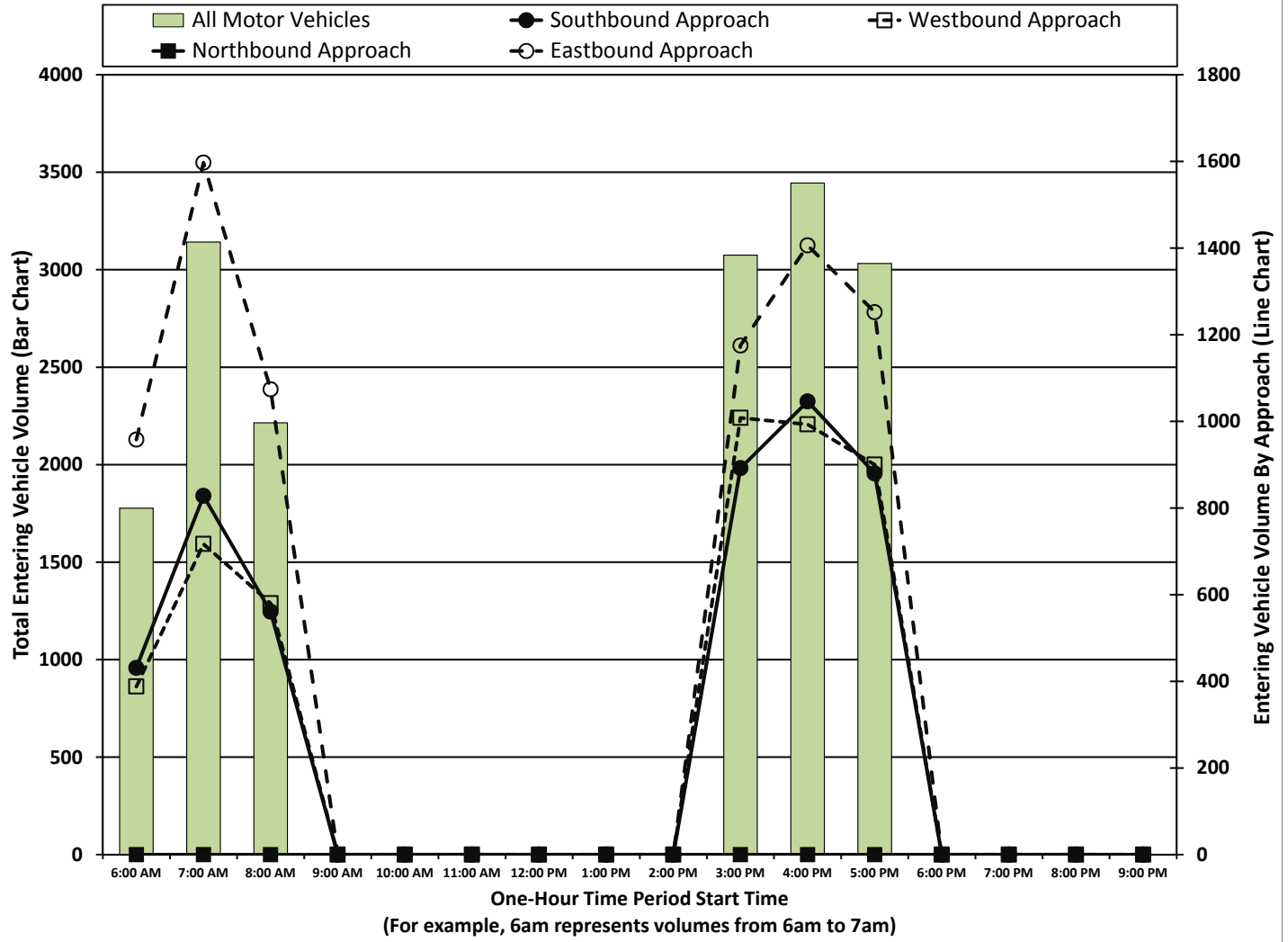
IH 41 SB Ramps and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
	IH 41 SB Off-ramp					STH 21					IH 41 SB On-ramp					STH 21						E/W	N/S
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
6:00 AM	404	0	27	0	431	0	287	101	0	388	0	0	0	0	0	201	757	0	0	958	1777	1346	431
7:00 AM	607	0	221	0	828	0	531	186	0	717	0	0	0	0	0	276	1321	0	0	1597	3142	2314	828
8:00 AM	418	0	143	0	561	0	496	84	0	580	0	0	0	0	0	191	883	0	0	1074	2215	1654	561
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	695	0	197	0	892	0	867	141	0	1008	0	0	0	0	0	211	964	0	0	1175	3075	2183	892
4:00 PM	861	0	185	0	1046	0	833	160	0	993	0	0	0	0	0	222	1184	0	0	1406	3445	2399	1046
5:00 PM	707	0	173	0	880	0	788	112	0	900	0	0	0	0	0	228	1024	0	0	1252	3032	2152	880
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	3692	0	946	0	4638	0	3802	784	0	4586	0	0	0	0	0	1329	6133	0	0	7462	16686	12048	4638

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

IH 41 SB Ramps and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	IH 41 SB Off-ramp			STH 21			IH 41 SB On-ramp			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	1	0	0	0	0	0	0	0	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	0	1	0	0	0	0	0	0	0	0	0	1	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2011.J2		Page 1 of 11
Start Date:	Wednesday, December 06, 2017	Weekday		
Total Number of Hours Counted:	6	Non-Holiday		No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries



Intersection of: **IH 41 NB Ramps and STH 21**

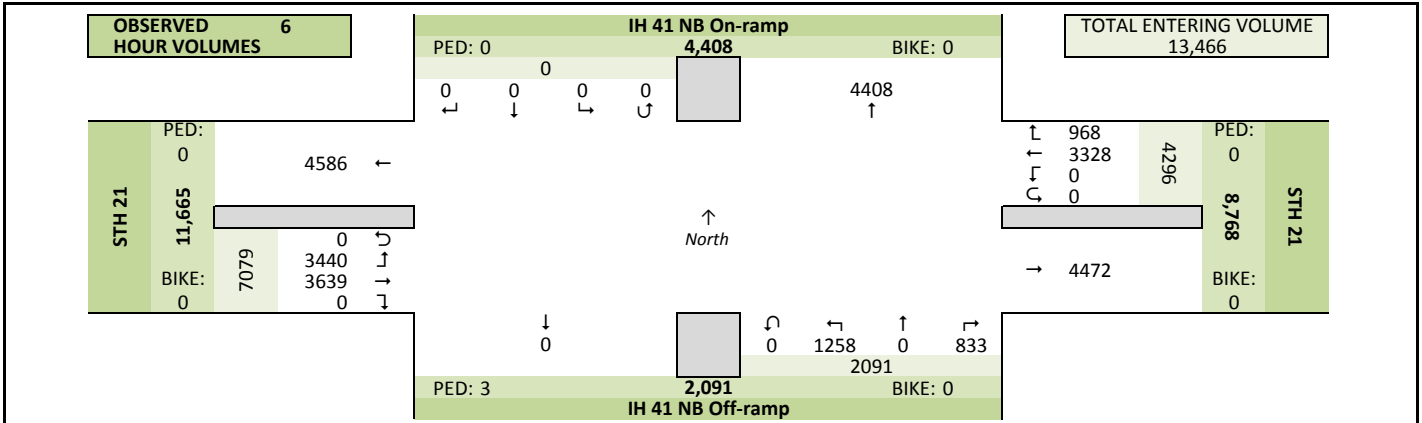
Site Information

Municipality	Oshkosh		
County	Winnebago	WisDOT Region	NE
Traffic Control	Roundabout		
Roadway Names	North Direction		↑
North Leg	IH 41 NB On-ramp		
East Leg	STH 21		
South Leg	IH 41 NB Off-ramp		
West Leg	STH 21		
Special Considerations			
Schools			
Holidays			
Special Events			
Special Pedestrians Observed			
	Pre-school children	None	
	Elementary school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe)	None	None

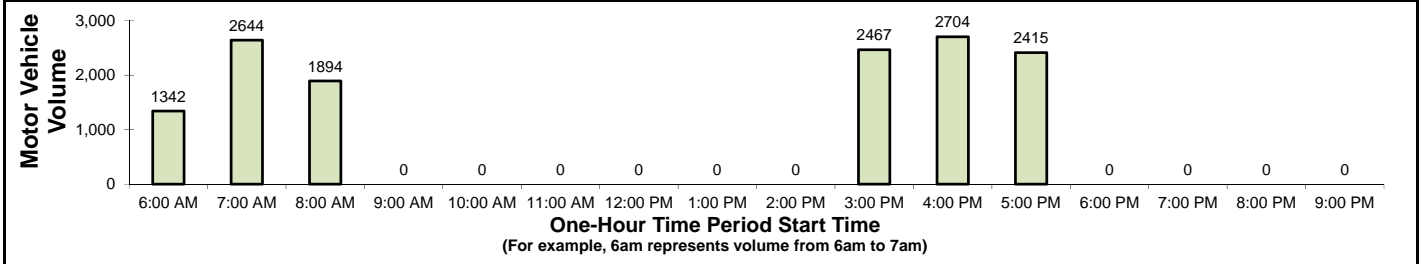
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM		
Count Dates	Wednesday, December 06, 2017		Weather
AM Peak Period	Wednesday, December 06, 2017		
Midday Peak Period			
PM Peak Period	Wednesday, December 06, 2017		
Calculated Peak Hours			
	AM	7:00-8:00am	MD
			PM
			3:30-4:30pm
Peak Hours Selected for Analysis			
	AM	7:00-8:00am	MD
			PM
			4:15-5:15pm
Daily/Seasonal Adjustment Group			
Count Expansion Group			
Daily/Seasonal Adjustment Factor	Count Expansion Factor		
Company Name			Manual Adj. 1.000
Observers	AM Peak Period	NDG	
	Midday Peak Period		
	PM Peak Period	NDG	
Comments			

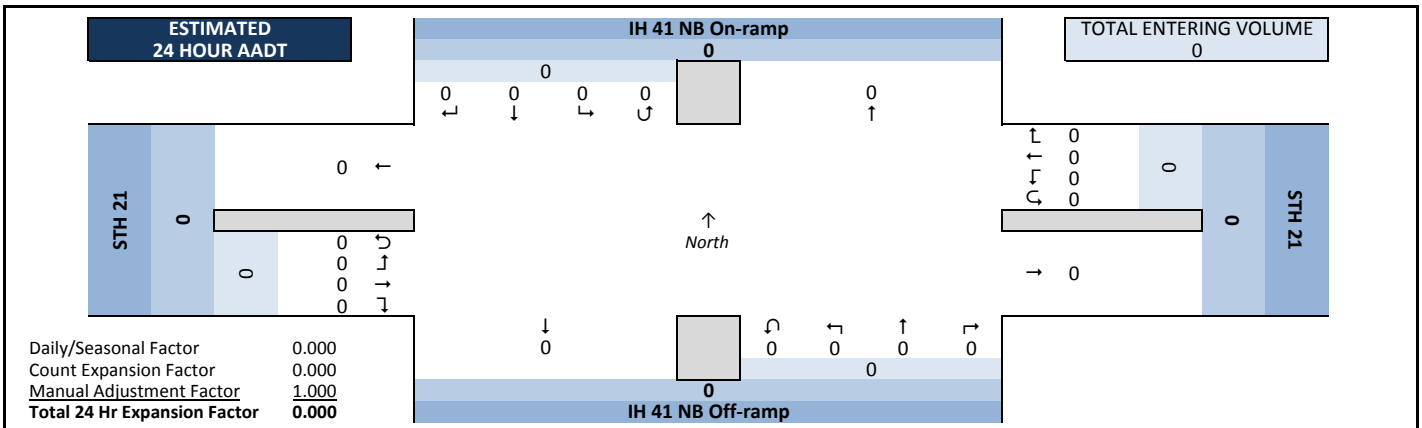
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

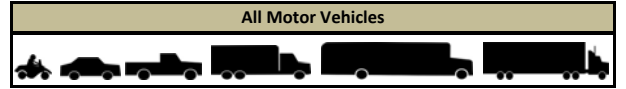


Intersection Traffic Volume Report

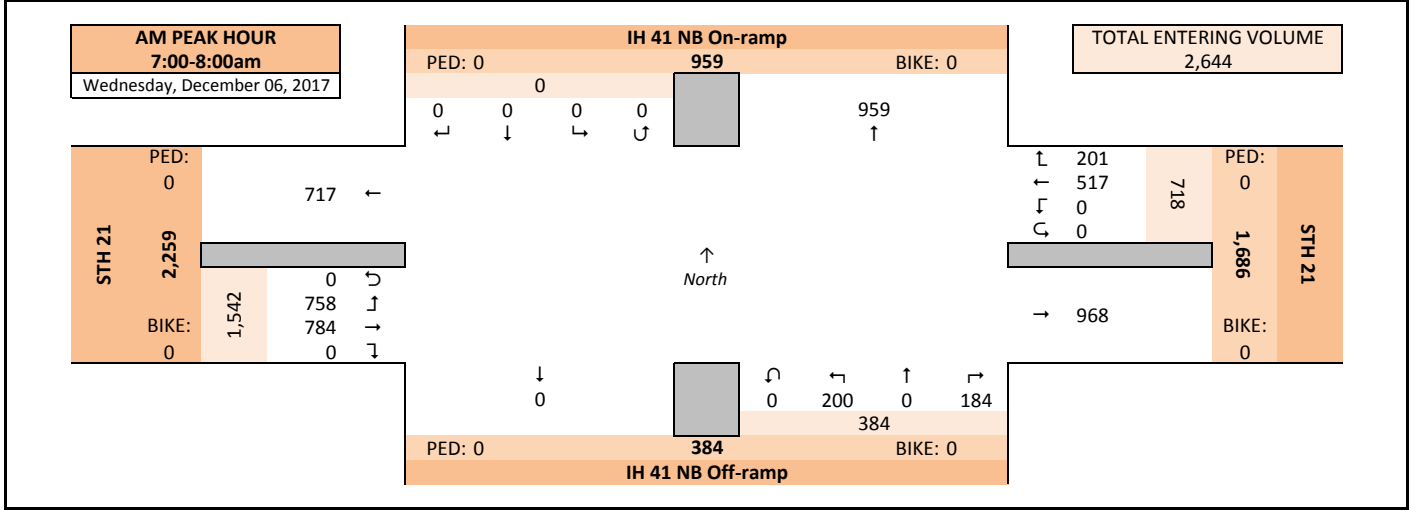
Count Basics		Page 2 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

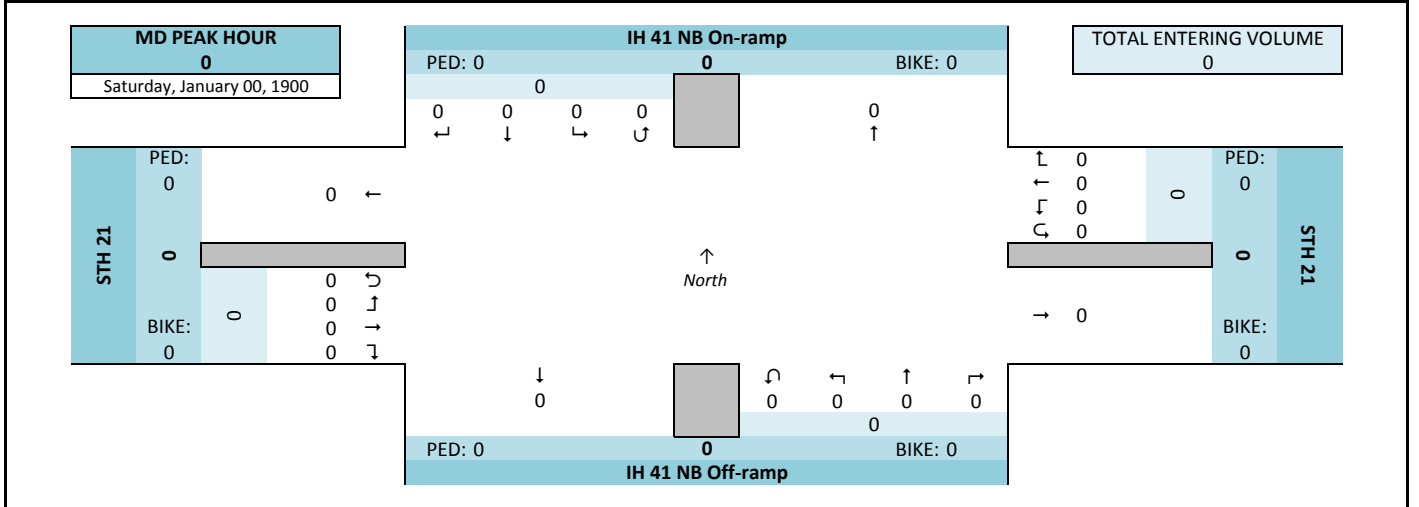
IH 41 NB Ramps and STH 21



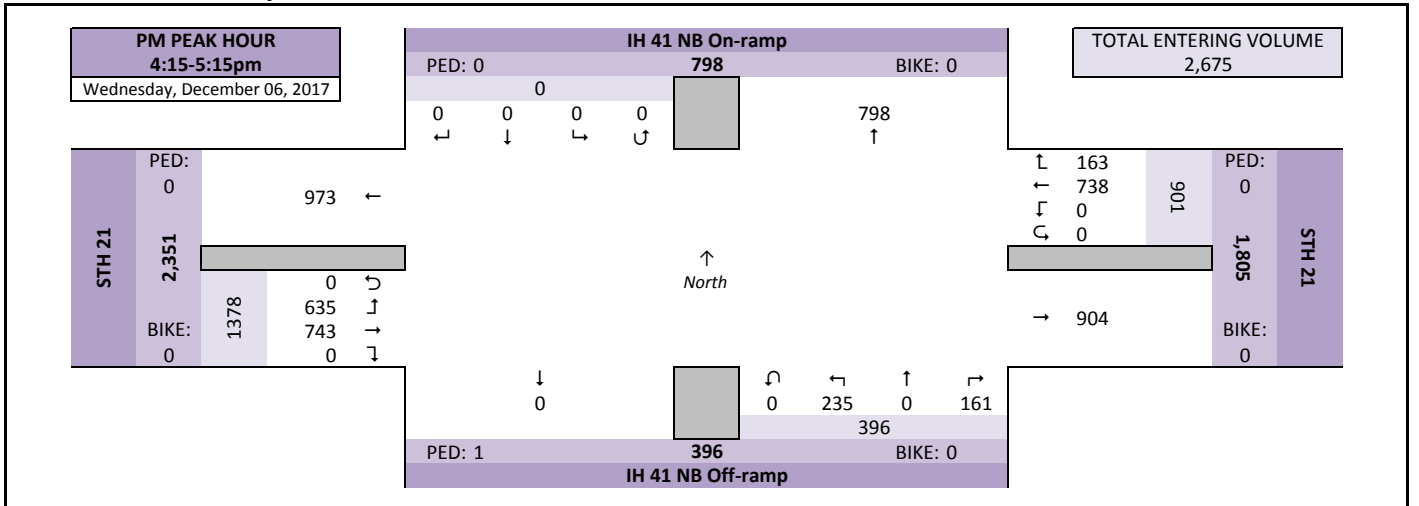
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

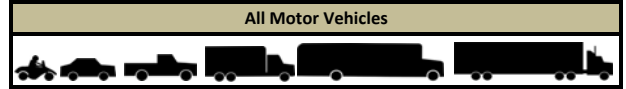


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

IH 41 NB Ramps and STH 21



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
AM Peak Hour	Start Time	IH 41 NB On-ramp					STH 21					IH 41 NB Off-ramp					STH 21					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	7:00 AM	0	0	0	0	0	43	111	0	0	154	32	0	40	0	72	0	177	174	0	351	577
	7:15 AM	0	0	0	0	0	45	140	0	0	185	44	0	54	0	98	0	200	193	0	393	676
	7:30 AM	0	0	0	0	0	60	118	0	0	178	57	0	54	0	111	0	183	206	0	389	678
	7:45 AM	0	0	0	0	0	53	148	0	0	201	51	0	52	0	103	0	224	185	0	409	713
	Peak Hour Volume	0	0	0	0	0	201	517	0	0	718	184	0	200	0	384	0	784	758	0	1542	2644
	Rounded Hourly Volume	0	0	0	0	0	200	515	0	0	715	185	0	200	0	385	0	785	760	0	1545	2645
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	2.5	2.3	0.0	0.0	2.4	0.5	0.0	1.5	0.0	1.0	0.0	1.9	2.5	0.0	2.2	2.1
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.6	0.5	0.0	7.0	0.0	3.9	0.0	0.1	1.8	0.0	1.0	1.3
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	3.0	2.9	0.0	0.0	2.9	1.1	0.0	8.5	0.0	4.9	0.0	2.0	4.4	0.0	3.2	3.4
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.84	0.87	0.00	0.00	0.89	0.81	0.00	0.93	0.00	0.86	0.00	0.87	0.92	0.00	0.94	0.93

Saturday, January 00, 1900		↓ From North					← From East					↑ From South					→ From West					Totals
Midday (MD) Peak Hour	Start Time	IH 41 NB On-ramp					STH 21					IH 41 NB Off-ramp					STH 21					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
PM Peak Hour	Start Time	IH 41 NB On-ramp					STH 21					IH 41 NB Off-ramp					STH 21					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:15 PM	0	0	0	0	0	33	187	0	0	220	34	0	68	0	102	0	187	186	0	373	695
	4:30 PM	0	0	0	0	0	53	189	0	0	242	38	0	39	0	77	0	180	151	0	331	650
	4:45 PM	0	0	0	0	0	36	169	0	0	205	40	0	69	0	109	0	199	137	0	336	650
	5:00 PM	0	0	0	0	0	41	193	0	0	234	49	0	59	0	108	0	177	161	0	338	680
	Peak Hour Volume	0	0	0	0	0	163	738	0	0	901	161	0	235	0	396	0	743	635	0	1378	2675
	Rounded Hourly Volume	0	0	0	0	0	165	740	0	0	905	160	0	235	0	395	0	745	635	0	1380	2680
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	2.5	1.2	0.0	0.0	1.4	1.9	0.0	10.2	0.0	6.8	0.0	1.7	2.5	0.0	2.1	2.6
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	1.3	0.0	0.8	0.0	0.0	0.8	0.0	0.4	0.4
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	2.5	1.5	0.0	0.0	1.7	1.9	0.0	11.5	0.0	7.6	0.0	1.7	3.3	0.0	2.5	3.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.77	0.96	0.00	0.00	0.93	0.82	0.00	0.85	0.00	0.91	0.00	0.93	0.85	0.00	0.92	0.96

Peak Hour Pedestrian and Bicyclist Volumes

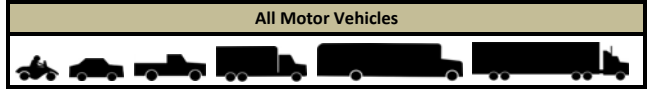
Pedestrians and Bicyclists	Crossing ←→			Crossing ↕			Crossing ↕			Crossing ↕			Total Ped & Bike Volume
	North Approach			East Approach			South Approach			West Approach			
	IH 41 NB On-ramp			STH 21			IH 41 NB Off-ramp			STH 21			
15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	1	0	1	0	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	1	0	1	0	0	1

Intersection Traffic Volume Report

Count Basics		<i>Page 4 of 11</i>
Start Date:	Wednesday, December 06, 2017	Weekday
Total Number of Hours Counted:	6	Non-Holiday No Special Events

Hourly Volume Summary - Motor Vehicle Data

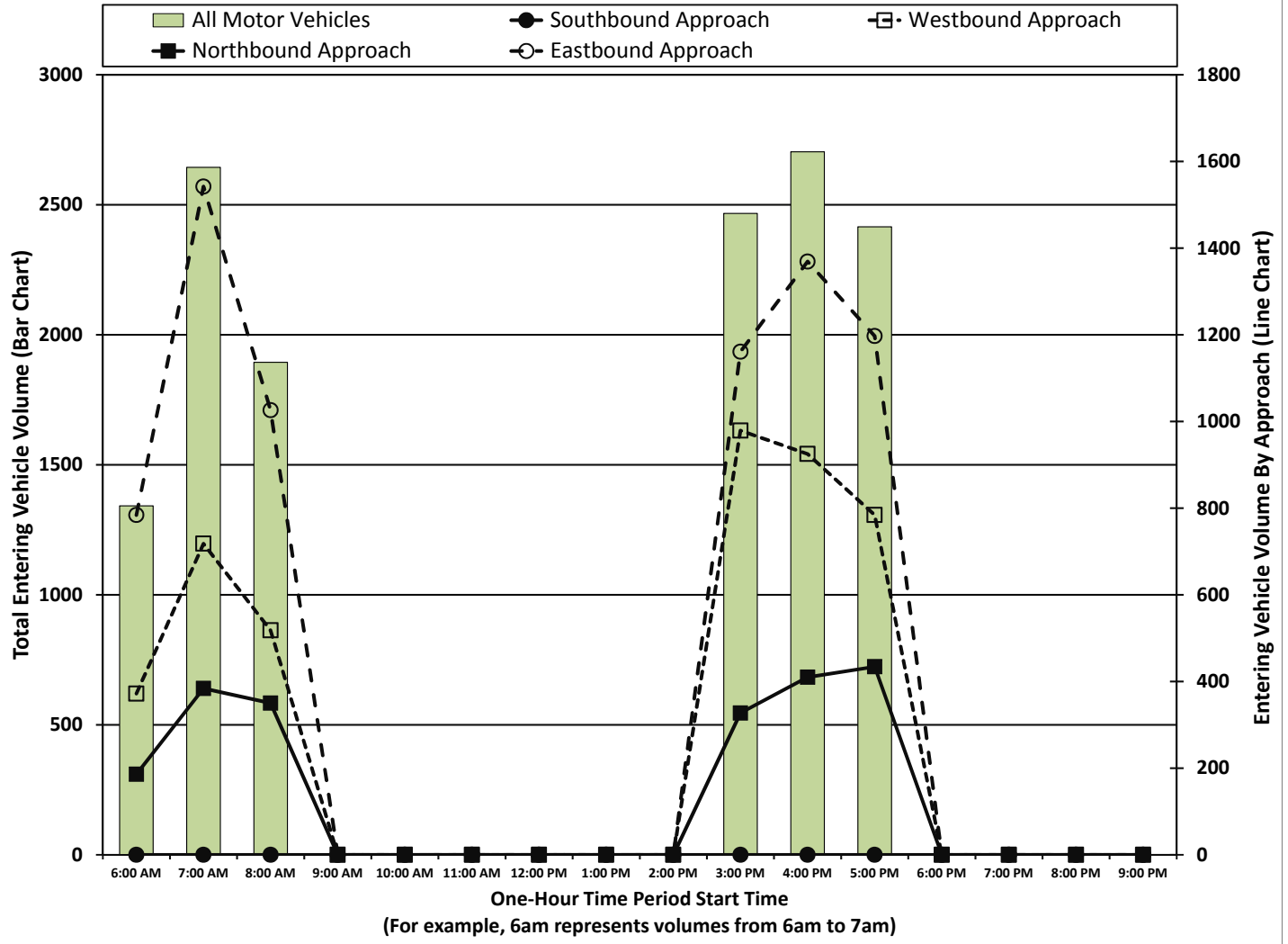
IH 41 NB Ramps and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
	IH 41 NB On-ramp					STH 21					IH 41 NB Off-ramp					STH 21						E/W	N/S
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
6:00 AM	0	0	0	0	0	95	277	0	0	372	75	0	111	0	186	0	318	466	0	784	1342	1156	186
7:00 AM	0	0	0	0	0	201	517	0	0	718	184	0	200	0	384	0	784	758	0	1542	2644	2260	384
8:00 AM	0	0	0	0	0	137	381	0	0	518	151	0	199	0	350	0	566	460	0	1026	1894	1544	350
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	188	791	0	0	979	110	0	217	0	327	0	617	544	0	1161	2467	2140	327
4:00 PM	0	0	0	0	0	187	738	0	0	925	155	0	255	0	410	0	732	637	0	1369	2704	2294	410
5:00 PM	0	0	0	0	0	160	624	0	0	784	158	0	276	0	434	0	622	575	0	1197	2415	1981	434
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	968	3328	0	0	4296	833	0	1258	0	2091	0	3639	3440	0	7079	13466	11375	2091

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

IH 41 NB Ramps and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	IH 41 NB On-ramp			STH 21			IH 41 NB Off-ramp			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	3	0	3	0	0	0	3	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2011.J2		Page 1 of 11
Start Date:	Wednesday, December 06, 2017	Weekday		
Total Number of Hours Counted:	6	Non-Holiday		No Special Events



Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **N. Koeller St. and STH 21**

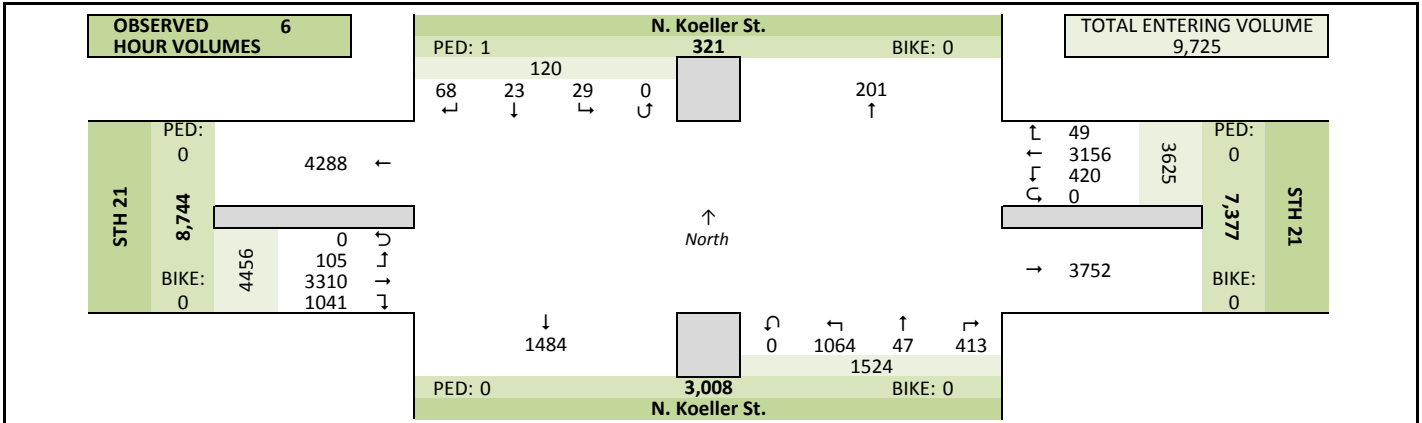
Site Information

Municipality	Oshkosh		
County	Winnebago	WisDOT Region	NE
Traffic Control	Roundabout		
Roadway Names	North Direction ↑		
North Leg	N. Koeller St.		
East Leg	STH 21		
South Leg	N. Koeller St.		
West Leg	STH 21		
Special Considerations			
Schools			
Holidays			
Special Events			
Special Pedestrians Observed			
	Pre-school children	None	
	Elementary school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe)	None	None

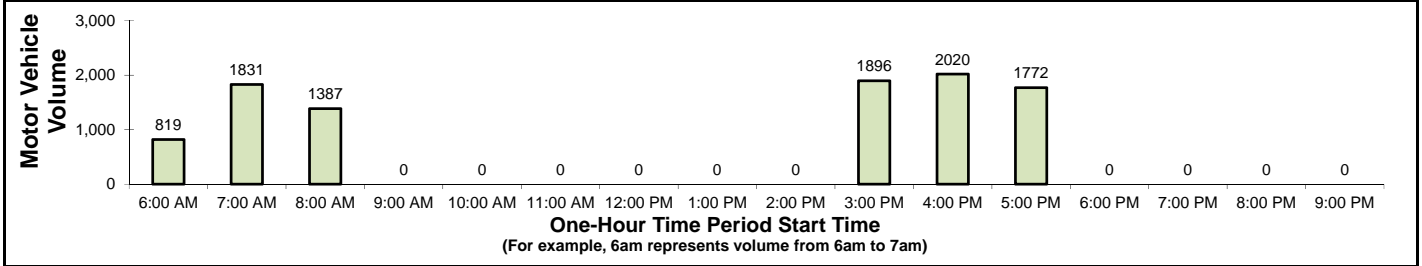
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM			
Count Dates	Wednesday, December 06, 2017		Weather	
AM Peak Period	Wednesday, December 06, 2017			
Midday Peak Period				
PM Peak Period	Wednesday, December 06, 2017			
Calculated Peak Hours				
	AM	7:15-8:15am MD	PM	4:15-5:15pm
Peak Hours Selected for Analysis				
	AM	7:00-8:00am MD	PM	4:15-5:15pm
Daily/Seasonal Adjustment Group				
Count Expansion Group				
Daily/Seasonal Adjustment Factor			Count Expansion Factor	
Company Name			Manual Adj.	1.000
Observers	AM Peak Period	NDG		
	Midday Peak Period			
	PM Peak Period	NDG		
Comments				

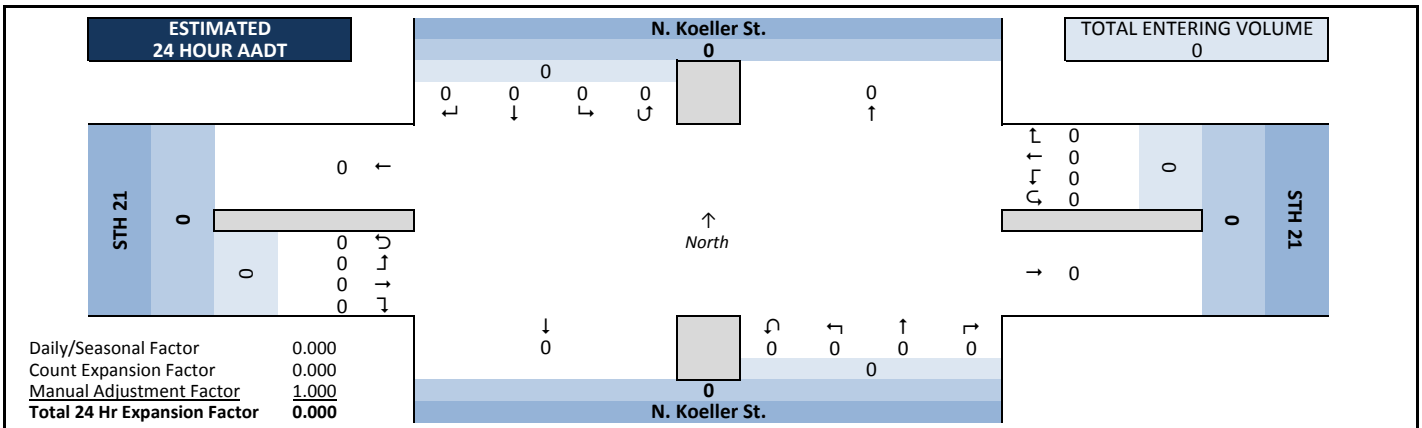
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

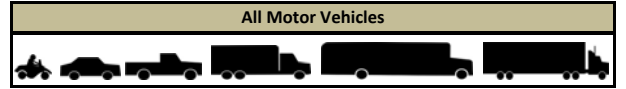


Intersection Traffic Volume Report

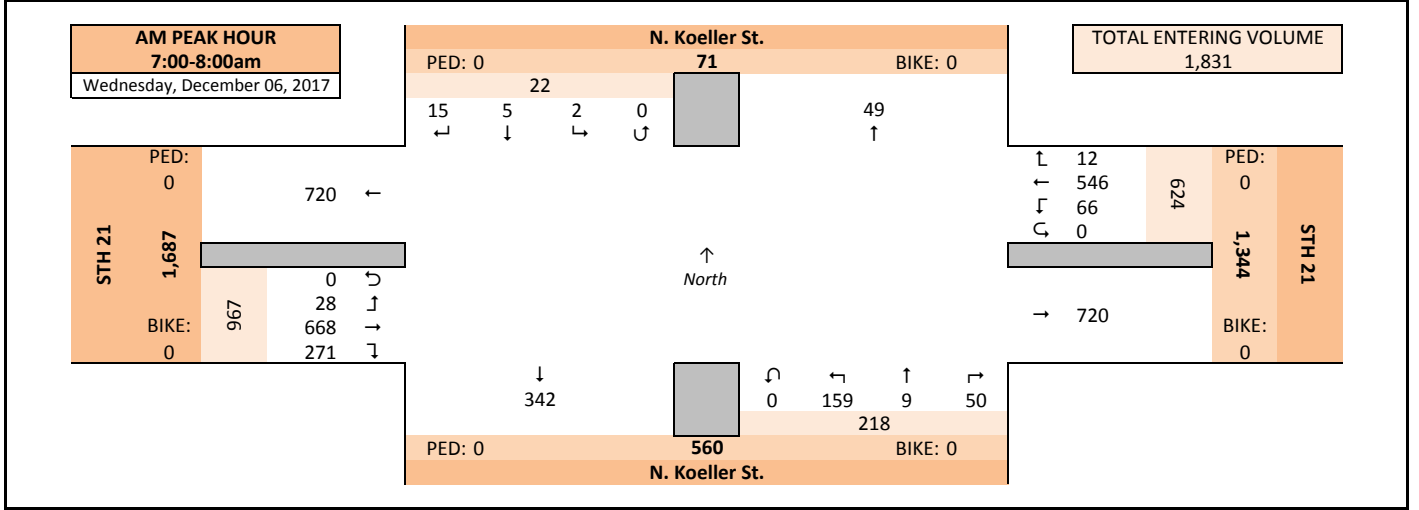
Count Basics		Page 2 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

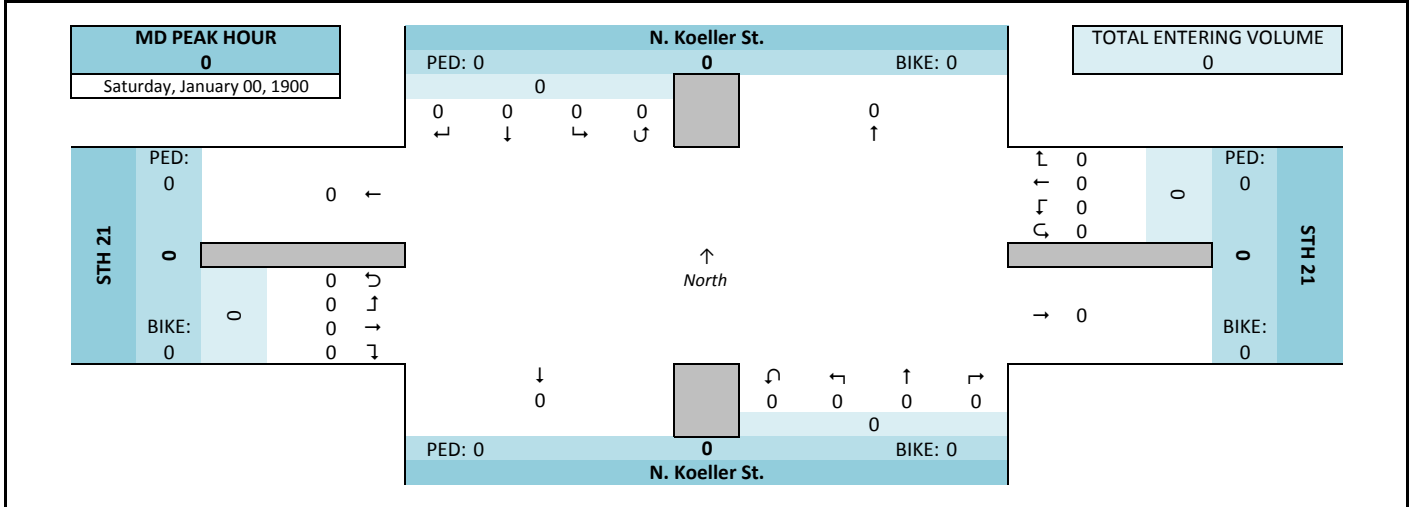
N. Koeller St. and STH 21



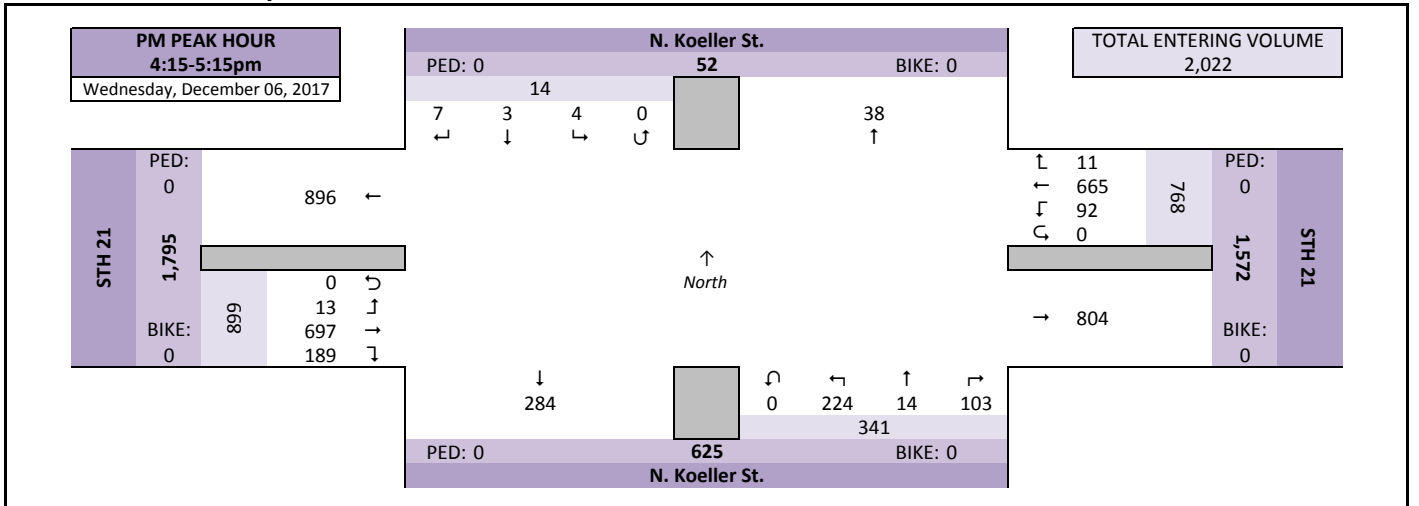
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

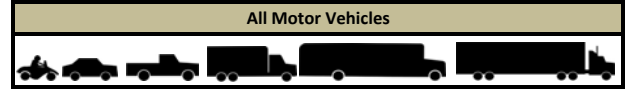


Intersection Traffic Volume Report

Count Basics		<i>Page 3 of 11</i>	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

N. Koeller St. and STH 21



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
		N. Koeller St.					STH 21					N. Koeller St.					STH 21					
AM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	7:00 AM	6	2	1	0	9	2	118	6	0	126	6	2	32	0	40	74	132	3	0	209	384
	7:15 AM	3	1	0	0	4	2	150	19	0	171	10	1	32	0	43	67	173	4	0	244	462
	7:30 AM	2	0	0	0	2	4	141	21	0	166	19	2	36	0	57	57	171	12	0	240	465
	7:45 AM	4	2	1	0	7	4	137	20	0	161	15	4	59	0	78	73	192	9	0	274	520
	Peak Hour Volume	15	5	2	0	22	12	546	66	0	624	50	9	159	0	218	271	668	28	0	967	1831
	Rounded Hourly Volume	15	5	0	0	20	10	545	65	0	620	50	10	160	0	220	270	670	30	0	970	1830
	% Single Unit Trucks	6.7	0.0	0.0	0.0	4.5	0.0	2.6	1.5	0.0	2.4	0.0	0.0	3.1	0.0	2.3	1.1	1.6	7.1	0.0	1.7	2.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.2	0.3
% Trucks (Total)	6.7	0.0	0.0	0.0	4.5	0.0	3.3	1.5	0.0	3.0	0.0	0.0	3.1	0.0	2.3	1.5	1.8	7.1	0.0	1.9	2.3	
Peak Hour Factor (PHF)	0.62	0.62	0.50	0.00	0.61	0.75	0.91	0.79	0.00	0.91	0.66	0.56	0.67	0.00	0.70	0.92	0.87	0.58	0.00	0.88	0.88	

Saturday, January 00, 1900		↓ From North					← From East					↑ From South					→ From West					Totals	
		N. Koeller St.					STH 21					N. Koeller St.					STH 21						
Midday (MD) Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
		N. Koeller St.					STH 21					N. Koeller St.					STH 21					
PM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	4:15 PM	0	1	0	0	1	0	174	26	0	200	28	3	46	0	77	44	173	4	0	221	499
	4:30 PM	3	2	2	0	7	3	178	17	0	198	24	7	59	0	90	45	170	1	0	216	511
	4:45 PM	1	0	1	0	2	3	143	24	0	170	23	3	60	0	86	57	180	1	0	238	496
	5:00 PM	3	0	1	0	4	5	170	25	0	200	28	1	59	0	88	43	174	7	0	224	516
	Peak Hour Volume	7	3	4	0	14	11	665	92	0	768	103	14	224	0	341	189	697	13	0	899	2022
	Rounded Hourly Volume	5	5	5	0	15	10	665	90	0	765	105	15	225	0	345	190	695	15	0	900	2025
	% Single Unit Trucks	14.3	0.0	0.0	0.0	7.1	0.0	1.8	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.1	1.7	15.4	0.0	1.8	1.4
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
% Trucks (Total)	14.3	0.0	0.0	0.0	7.1	0.0	2.1	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.1	1.7	15.4	0.0	1.8	1.5	
Peak Hour Factor (PHF)	0.58	0.37	0.50	0.00	0.50	0.55	0.93	0.88	0.00	0.96	0.92	0.50	0.93	0.00	0.95	0.83	0.97	0.46	0.00	0.94	0.98	

Peak Hour Pedestrian and Bicyclist Volumes

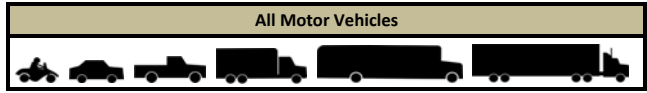
Pedestrians and Bicyclists		Crossing ←→ North Approach			Crossing ↕ East Approach			Crossing ↔ South Approach			Crossing ⇕ West Approach			Total Ped & Bike Volume
		N. Koeller St.			STH 21			N. Koeller St.			STH 21			
15-Minute Start Time		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Count Basics		<i>Page 4 of 11</i>
Start Date:	Wednesday, December 06, 2017	Weekday
Total Number of Hours Counted:	6	Non-Holiday No Special Events

Hourly Volume Summary - Motor Vehicle Data

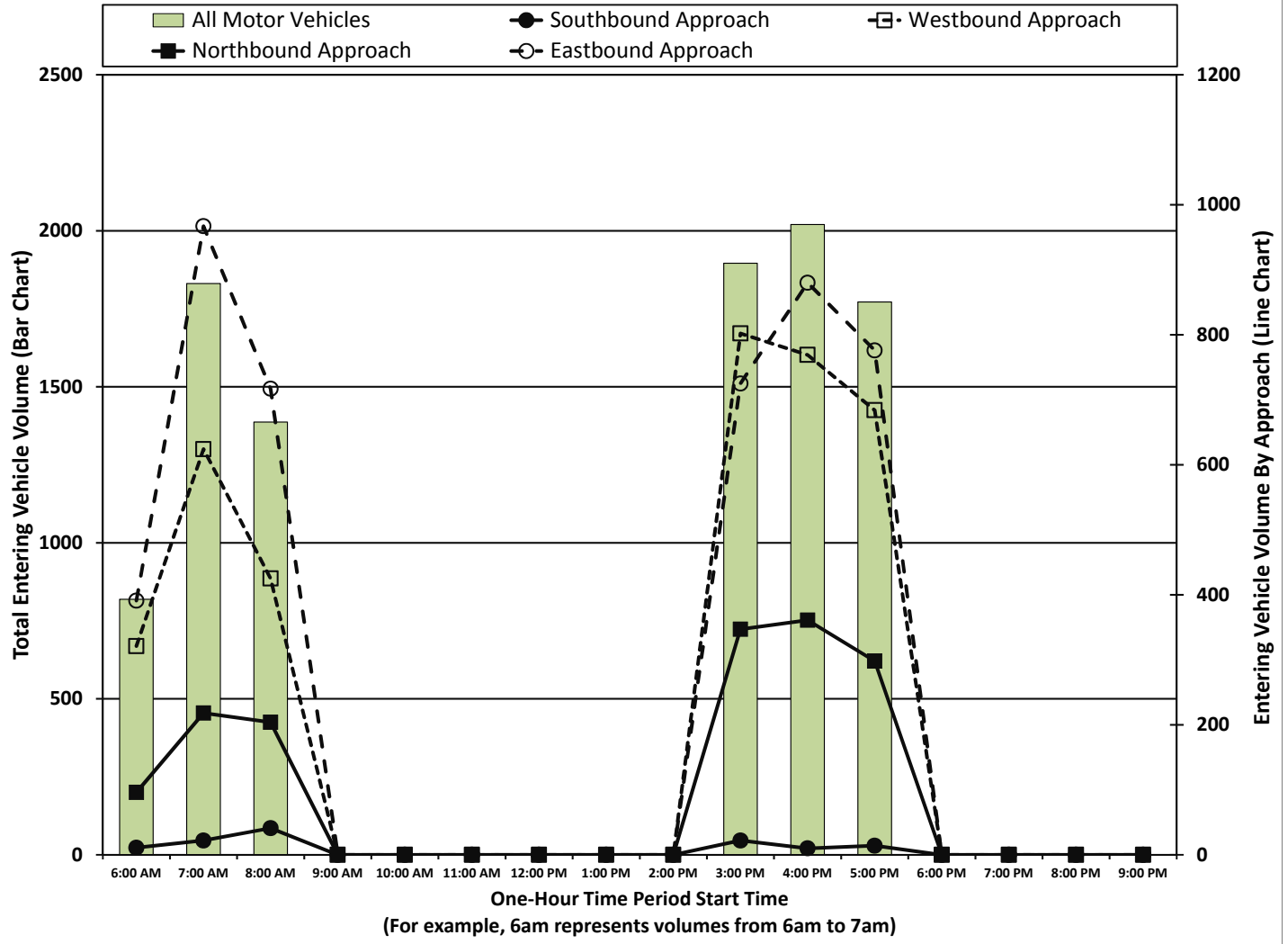
N. Koeller St. and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North N. Koeller St.					From East STH 21					From South N. Koeller St.					From West STH 21					Total Vehicle Volume	Directional Volume Totals	
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S
	Start Time																						
AM																							
6:00 AM	6	2	3	0	11	3	287	31	0	321	14	4	78	0	96	66	312	13	0	391	819	712	107
7:00 AM	15	5	2	0	22	12	546	66	0	624	50	9	159	0	218	271	668	28	0	967	1831	1591	240
8:00 AM	24	5	12	0	41	10	357	58	0	425	53	12	139	0	204	187	502	28	0	717	1387	1142	245
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD																							
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	13	6	3	0	22	4	709	89	0	802	89	3	255	0	347	175	539	11	0	725	1896	1527	369
4:00 PM	4	3	3	0	10	8	674	87	0	769	106	15	240	0	361	188	681	11	0	880	2020	1649	371
5:00 PM	6	2	6	0	14	12	583	89	0	684	101	4	193	0	298	154	608	14	0	776	1772	1460	312
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	68	23	29	0	120	49	3156	420	0	3625	413	47	1064	0	1524	1041	3310	105	0	4456	9725	8081	1644

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

N. Koeller St. and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	N. Koeller St.			STH 21			N. Koeller St.			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	0	1	0	0	0	0	0	0	0	0	0	1	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries



Intersection of: **N. Westfield St and STH 21**

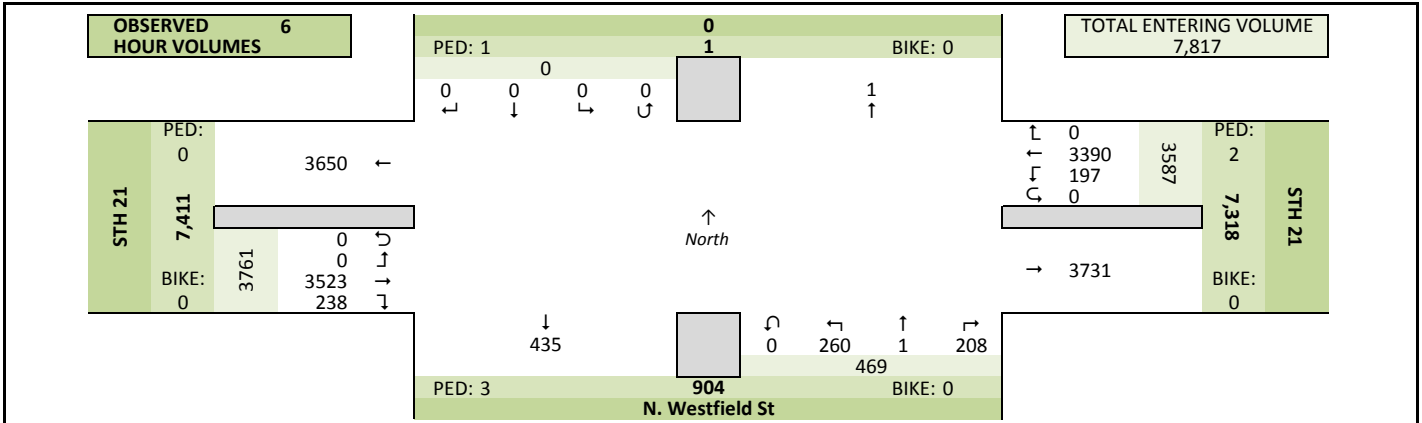
Site Information

Municipality	Oshkosh
County	Winnebago
WisDOT Region	NE
Traffic Control	Traffic Signal
Roadway Names	North Direction
North Leg	
East Leg	STH 21
South Leg	N. Westfield St
West Leg	STH 21
Special Considerations	
Schools	
Holidays	
Special Events	
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

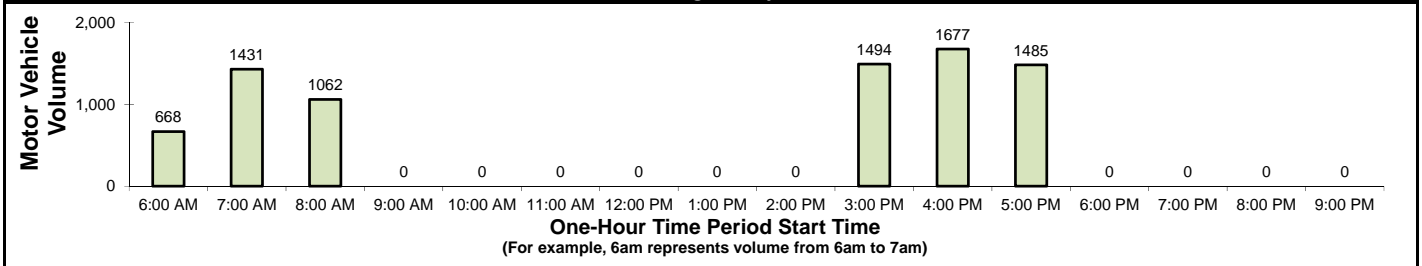
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM
Count Dates	Wednesday, December 06, 2017
Weather	
AM Peak Period	7:15-8:15am
Midday Peak Period	
PM Peak Period	4:15-5:15pm
Calculated Peak Hours	
AM	7:00-8:00am
MD	
PM	4:15-5:15pm
Peak Hours Selected for Analysis	
Daily/Seasonal Adjustment Group	
Count Expansion Group	
Daily/Seasonal Adjustment Factor	
Count Expansion Factor	
Company Name	
Manual Adj.	1.000
Observers	I. Mullooly
AM Peak Period	
Midday Peak Period	
PM Peak Period	
Comments	

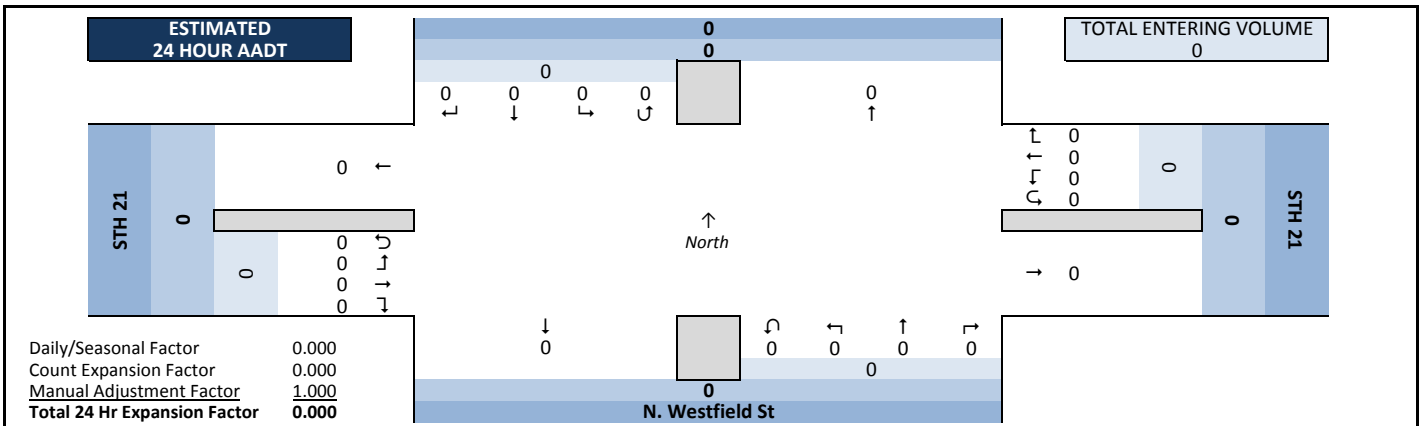
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

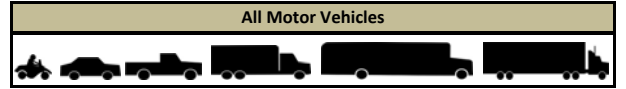


Intersection Traffic Volume Report

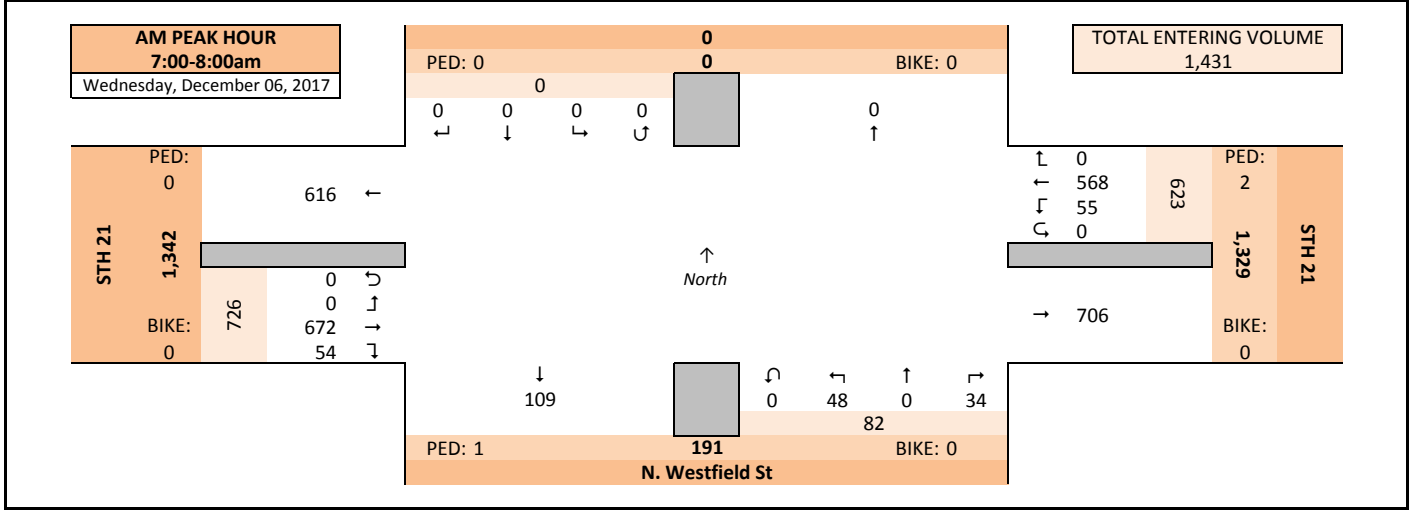
Count Basics		Page 2 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

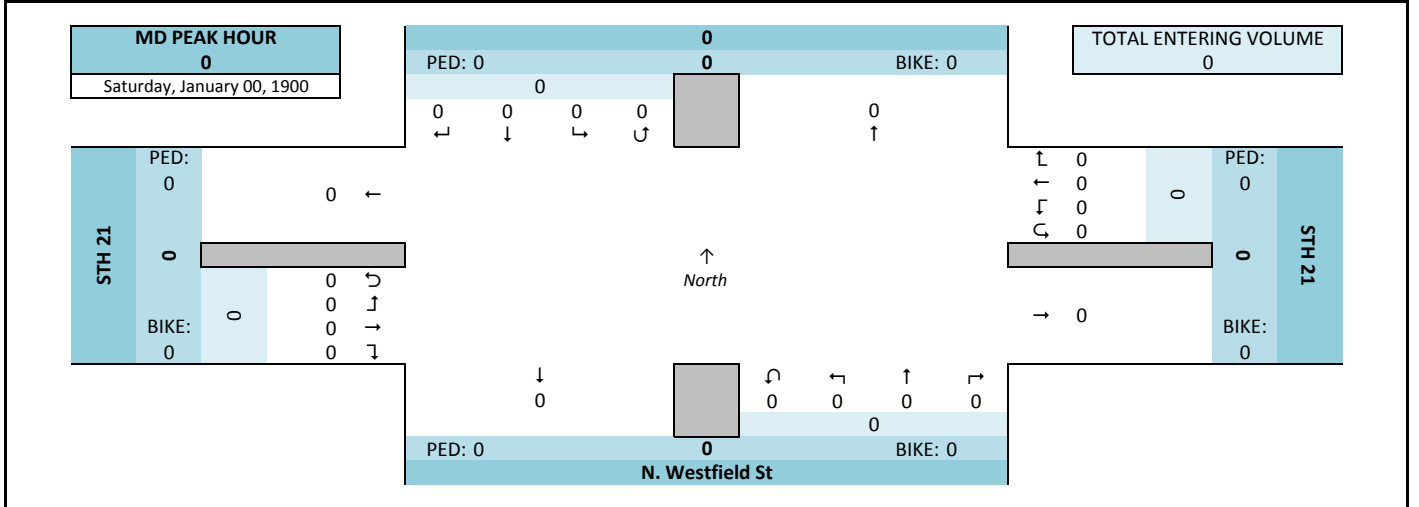
N. Westfield St and STH 21



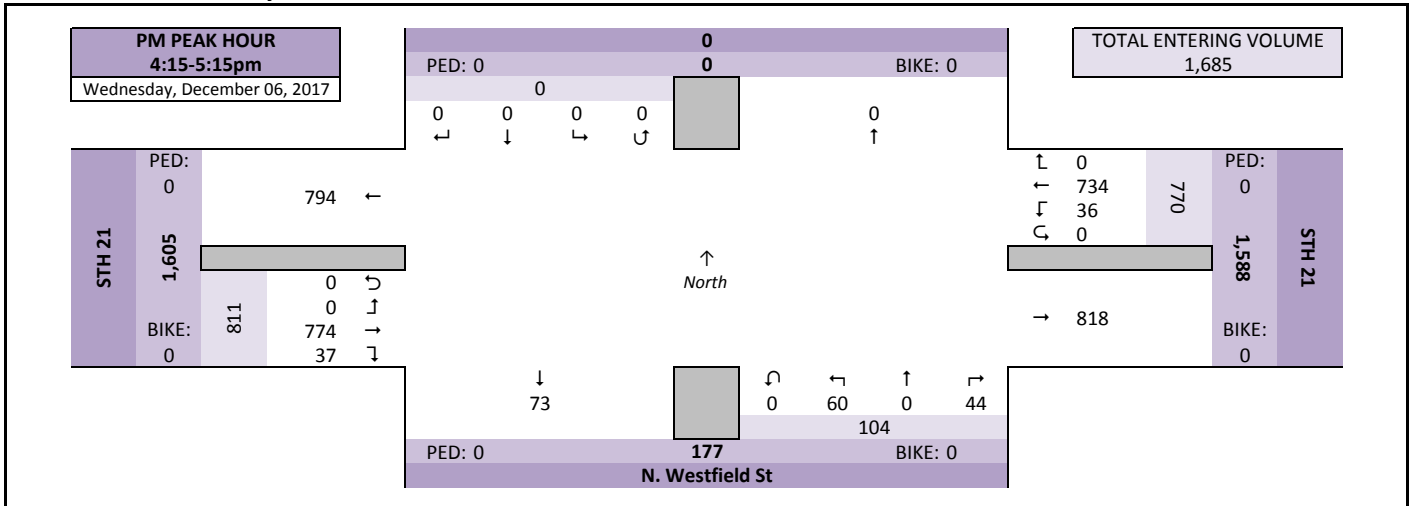
AM Peak Hour Summary



Middy (MD) Peak Hour Summary



PM Peak Hour Summary

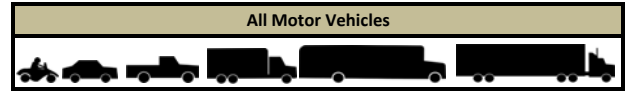


Intersection Traffic Volume Report

Count Basics		<i>Page 3 of 11</i>	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

N. Westfield St and STH 21



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 06, 2017		From North					From East					From South					From West					Totals
		0					STH 21					N. Westfield St					STH 21					
AM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	7:00 AM	0	0	0	0	0	0	115	9	0	124	3	0	9	0	12	3	133	0	0	136	272
	7:15 AM	0	0	0	0	0	0	157	10	0	167	12	0	12	0	24	17	165	0	0	182	373
	7:30 AM	0	0	0	0	0	0	144	14	0	158	9	0	16	0	25	15	181	0	0	196	379
	7:45 AM	0	0	0	0	0	0	152	22	0	174	10	0	11	0	21	19	193	0	0	212	407
	Peak Hour Volume	0	0	0	0	0	0	568	55	0	623	34	0	48	0	82	54	672	0	0	726	1431
	Rounded Hourly Volume	0	0	0	0	0	0	570	55	0	625	35	0	50	0	85	55	670	0	0	725	1435
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.8	0.0	1.4	2.9	0.0	4.2	0.0	3.7	1.9	0.9	0.0	0.0	1.0	1.3
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.3
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.8	0.0	2.1	2.9	0.0	4.2	0.0	3.7	1.9	1.0	0.0	0.0	1.1	1.7
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.62	0.00	0.90	0.71	0.00	0.75	0.00	0.82	0.71	0.87	0.00	0.00	0.86	0.88

Saturday, January 00, 1900		From North					From East					From South					From West					Totals
		0					STH 21					N. Westfield St					STH 21					
Midday (MD) Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, December 06, 2017		From North					From East					From South					From West					Totals
		0					STH 21					N. Westfield St					STH 21					
PM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:15 PM	0	0	0	0	0	0	175	10	0	185	16	0	16	0	32	10	199	0	0	209	426
	4:30 PM	0	0	0	0	0	0	196	14	0	210	10	0	21	0	31	7	187	0	0	194	435
	4:45 PM	0	0	0	0	0	0	165	7	0	172	7	0	10	0	17	12	189	0	0	201	390
	5:00 PM	0	0	0	0	0	0	198	5	0	203	11	0	13	0	24	8	199	0	0	207	434
	Peak Hour Volume	0	0	0	0	0	0	734	36	0	770	44	0	60	0	104	37	774	0	0	811	1685
	Rounded Hourly Volume	0	0	0	0	0	0	735	35	0	770	45	0	60	0	105	35	775	0	0	810	1685
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	3.3	0.0	1.9	0.0	0.9	0.0	0.0	0.9	0.8
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	3.3	0.0	1.9	0.0	0.9	0.0	0.0	0.9	0.9
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.64	0.00	0.92	0.69	0.00	0.71	0.00	0.81	0.77	0.97	0.00	0.00	0.97	0.97

Peak Hour Pedestrian and Bicyclist Volumes

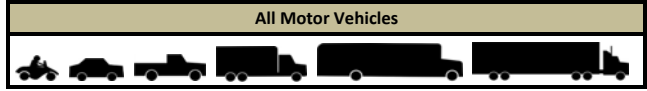
Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		0			STH 21			N. Westfield St			STH 21			
15-Minute Start Time		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:00 AM	0	0	0	2	0	2	0	0	0	0	0	0	2
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
	Total	0	0	0	2	0	2	1	0	1	0	0	0	3
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Count Basics		<i>Page 4 of 11</i>	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Hourly Volume Summary - Motor Vehicle Data

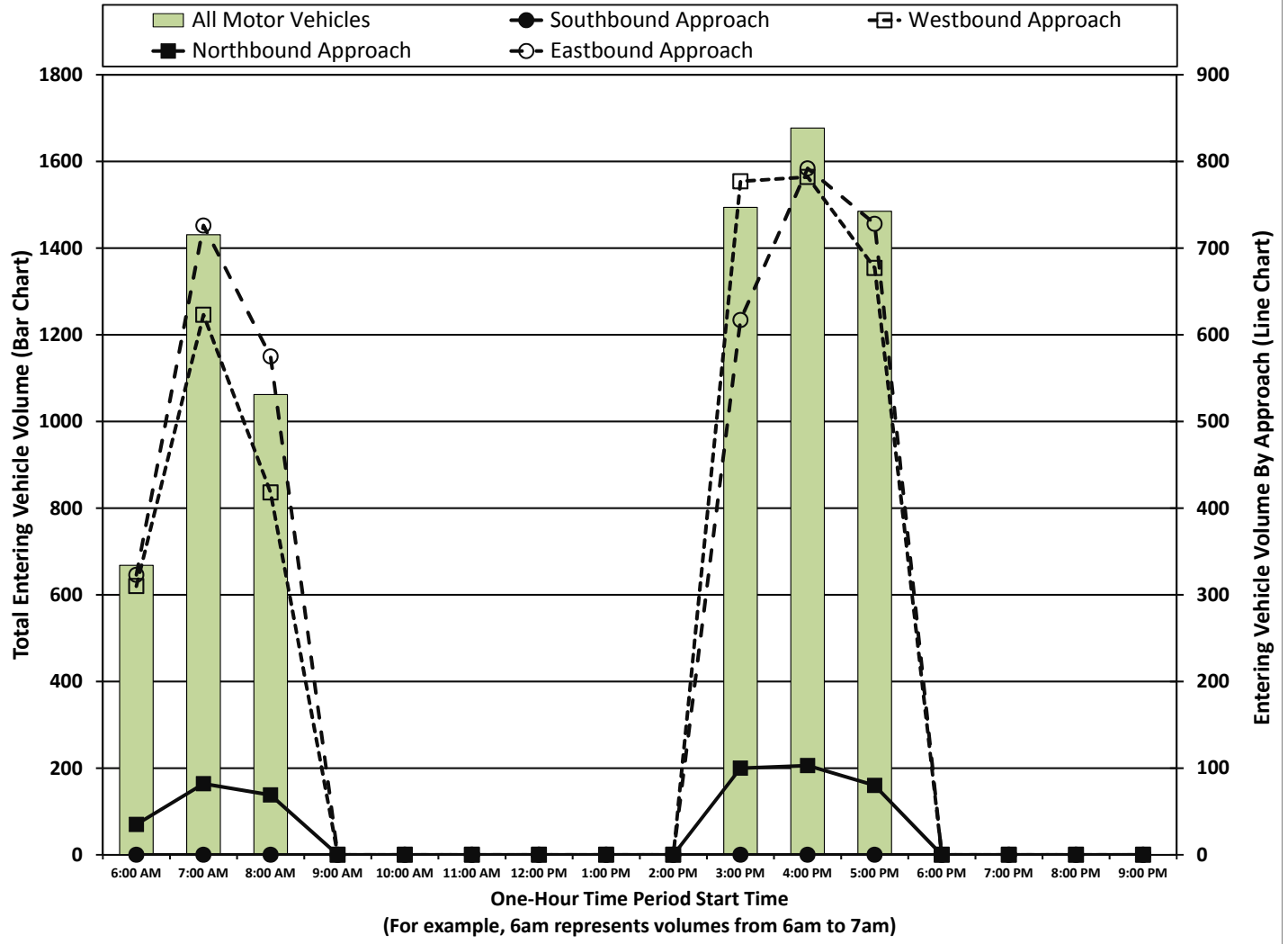
N. Westfield St and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
	0					STH 21					N. Westfield St					STH 21						E/W	N/S
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
6:00 AM	0	0	0	0	0	0	304	6	0	310	13	0	22	0	35	19	304	0	0	323	668	633	35
7:00 AM	0	0	0	0	0	0	568	55	0	623	34	0	48	0	82	54	672	0	0	726	1431	1349	82
8:00 AM	0	0	0	0	0	0	387	31	0	418	34	0	35	0	69	49	526	0	0	575	1062	993	69
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	746	31	0	777	47	1	52	0	100	30	587	0	0	617	1494	1394	100
4:00 PM	0	0	0	0	0	0	740	42	0	782	42	0	61	0	103	42	750	0	0	792	1677	1574	103
5:00 PM	0	0	0	0	0	0	645	32	0	677	38	0	42	0	80	44	684	0	0	728	1485	1405	80
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	3390	197	0	3587	208	1	260	0	469	238	3523	0	0	3761	7817	7348	469

Graphical Summary of Hourly Volumes

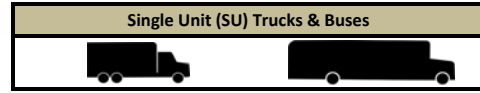


Intersection Traffic Volume Report

Count Basics				Page 7 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday			
Total Number of Hours Counted:	6	Non-Holiday	No Special Events		

15-Minute Single Unit (SU) Truck & Bus Data

N. Westfield St and STH 21



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	0					STH 21					N. Westfield St					STH 21							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM					6:00 AM					6:00 AM					6:00 AM					1	2	19
	6:15 AM					6:15 AM					6:15 AM					6:15 AM					0	3	23
	6:30 AM					6:30 AM					6:30 AM					6:30 AM					0	4	22
	6:45 AM					6:45 AM					6:45 AM					6:45 AM					0	6	20
	7:00 AM					7:00 AM					7:00 AM					7:00 AM					0	0	19
	7:15 AM					7:15 AM					7:15 AM					7:15 AM					0	2	26
	7:30 AM					7:30 AM					7:30 AM					7:30 AM					0	2	34
	7:45 AM					7:45 AM					7:45 AM					7:45 AM					0	3	38
	8:00 AM					8:00 AM					8:00 AM					8:00 AM					0	5	35
	8:15 AM					8:15 AM					8:15 AM					8:15 AM					0	3	10
	8:30 AM					8:30 AM					8:30 AM					8:30 AM					0	3	9
	8:45 AM					8:45 AM					8:45 AM					8:45 AM					0	2	3
	9:00 AM					9:00 AM					9:00 AM					9:00 AM					0	0	0
	9:15 AM					9:15 AM					9:15 AM					9:15 AM					0	0	0
	9:30 AM					9:30 AM					9:30 AM					9:30 AM					0	0	0
	9:45 AM					9:45 AM					9:45 AM					9:45 AM					0	0	0
Midday Peak Period	10:00 AM					10:00 AM					10:00 AM					10:00 AM					0	0	0
	10:15 AM					10:15 AM					10:15 AM					10:15 AM					0	0	0
	10:30 AM					10:30 AM					10:30 AM					10:30 AM					0	0	0
	10:45 AM					10:45 AM					10:45 AM					10:45 AM					0	0	0
	11:00 AM					11:00 AM					11:00 AM					11:00 AM					0	0	0
	11:15 AM					11:15 AM					11:15 AM					11:15 AM					0	0	0
	11:30 AM					11:30 AM					11:30 AM					11:30 AM					0	0	0
	11:45 AM					11:45 AM					11:45 AM					11:45 AM					0	0	0
	12:00 PM					12:00 PM					12:00 PM					12:00 PM					0	0	0
	12:15 PM					12:15 PM					12:15 PM					12:15 PM					0	0	0
	12:30 PM					12:30 PM					12:30 PM					12:30 PM					0	0	0
	12:45 PM					12:45 PM					12:45 PM					12:45 PM					0	0	0
	1:00 PM					1:00 PM					1:00 PM					1:00 PM					0	0	0
	1:15 PM					1:15 PM					1:15 PM					1:15 PM					0	0	0
	1:30 PM					1:30 PM					1:30 PM					1:30 PM					0	0	0
	1:45 PM					1:45 PM					1:45 PM					1:45 PM					0	0	0
PM Peak Period	2:00 PM					2:00 PM					2:00 PM					2:00 PM					0	0	0
	2:15 PM					2:15 PM					2:15 PM					2:15 PM					0	0	0
	2:30 PM					2:30 PM					2:30 PM					2:30 PM					0	0	0
	2:45 PM					2:45 PM					2:45 PM					2:45 PM					0	0	0
	3:00 PM					3:00 PM					3:00 PM					3:00 PM					5	1	25
	3:15 PM					3:15 PM					3:15 PM					3:15 PM					1	4	22
	3:30 PM					3:30 PM					3:30 PM					3:30 PM					4	1	20
	3:45 PM					3:45 PM					3:45 PM					3:45 PM					0	2	17
	4:00 PM					4:00 PM					4:00 PM					4:00 PM					3	1	17
	4:15 PM					4:15 PM					4:15 PM					4:15 PM					2	2	14
	4:30 PM					4:30 PM					4:30 PM					4:30 PM					1	3	12
	4:45 PM					4:45 PM					4:45 PM					4:45 PM					0	2	10
	5:00 PM					5:00 PM					5:00 PM					5:00 PM					2	0	10
	5:15 PM					5:15 PM					5:15 PM					5:15 PM					1	1	2
	5:30 PM					5:30 PM					5:30 PM					5:30 PM					1	0	3
	5:45 PM					5:45 PM					5:45 PM					5:45 PM					0	2	2
	6:00 PM					6:00 PM					6:00 PM					6:00 PM					0	0	0
	6:15 PM					6:15 PM					6:15 PM					6:15 PM					0	0	0
	6:30 PM					6:30 PM					6:30 PM					6:30 PM					0	0	0
	6:45 PM					6:45 PM					6:45 PM					6:45 PM					0	0	0
	7:00 PM					7:00 PM					7:00 PM					7:00 PM					0	0	0
	7:15 PM					7:15 PM					7:15 PM					7:15 PM					0	0	0
	7:30 PM					7:30 PM					7:30 PM					7:30 PM					0	0	0
	7:45 PM					7:45 PM					7:45 PM					7:45 PM					0	0	0
	8:00 PM					8:00 PM					8:00 PM					8:00 PM					0	0	0
	8:15 PM					8:15 PM					8:15 PM					8:15 PM					0	0	0
	8:30 PM					8:30 PM					8:30 PM					8:30 PM					0	0	0
	8:45 PM					8:45 PM					8:45 PM					8:45 PM					0	0	0
	9:00 PM					9:00 PM					9:00 PM					9:00 PM					0	0	0
	9:15 PM					9:15 PM					9:15 PM					9:15 PM					0	0	0
	9:30 PM					9:30 PM					9:30 PM					9:30 PM					0	0	0
	9:45 PM					9:45 PM					9:45 PM					9:45 PM					0	0	0
Totals	0	0	0	0	0	0	0	47	5	0	52	5	0	15	0	20	2	51	0	0	53	125	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume	
	0					STH 21					N. Westfield St					STH 21						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:00 AM	0	0	0	0	0	0	0	8	1	0	9	1	0	2	0	3	1	6	0	0	7	19
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	0	7	0	0	7	14

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

N. Westfield St and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	0			STH 21			N. Westfield St			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:00 AM	0	0	0	2	0	2	0	0	0	0	0	0	2	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	1	0	1	0	0	0	1	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	1	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	1	0	1	0	0	0	1	0	1	0	0	0	2	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	1	0	1	2	0	2	3	0	3	0	0	0	6	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2011.J2		Page 1 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday			
Total Number of Hours Counted:	6	Non-Holiday		No Special Events	

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries



Intersection of: **N. Sawyer St and STH 21**

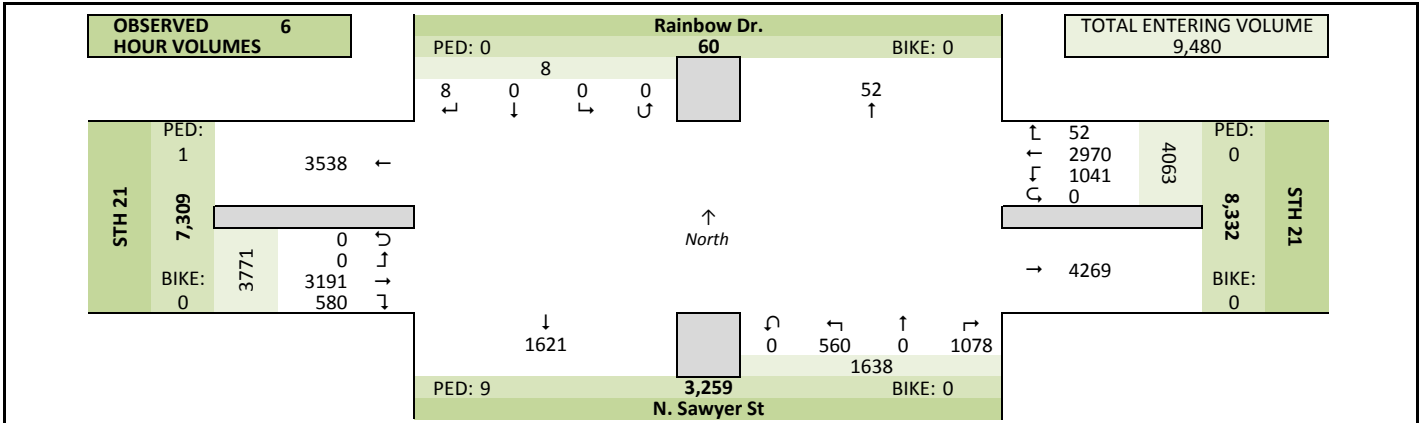
Site Information

Municipality	Oshkosh
County	Winnebago
WisDOT Region	NE
Traffic Control	Traffic Signal
Roadway Names	North Direction ↑
North Leg	Rainbow Dr.
East Leg	STH 21
South Leg	N. Sawyer St
West Leg	STH 21
Special Considerations	
Schools	
Holidays	
Special Events	
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

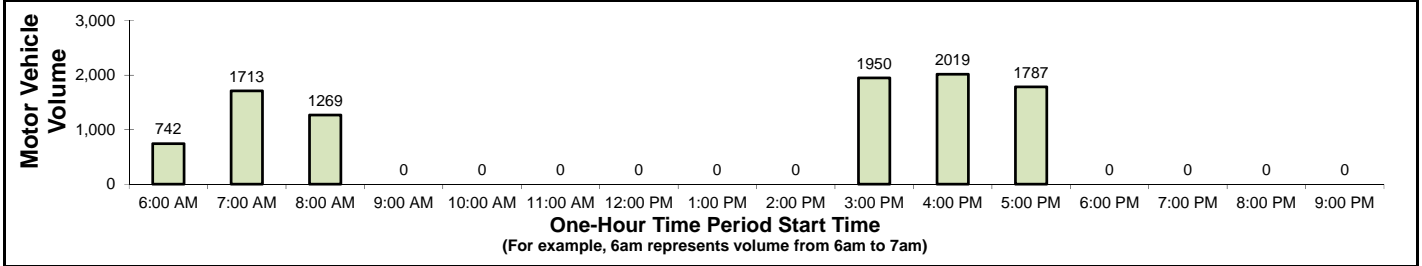
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM
Count Dates	Wednesday, December 06, 2017
Weather	
AM Peak Period	7:15-8:15am
Midday Peak Period	
PM Peak Period	4:15-5:15pm
Calculated Peak Hours	
AM	7:00-8:00am
MD	
PM	4:15-5:15pm
Peak Hours Selected for Analysis	
Daily/Seasonal Adjustment Group	
Count Expansion Group	
Daily/Seasonal Adjustment Factor	
Count Expansion Factor	
Company Name	
Manual Adj.	1.000
Observers	AM Peak Period: NDG
	Midday Peak Period:
	PM Peak Period: NDG
Comments	

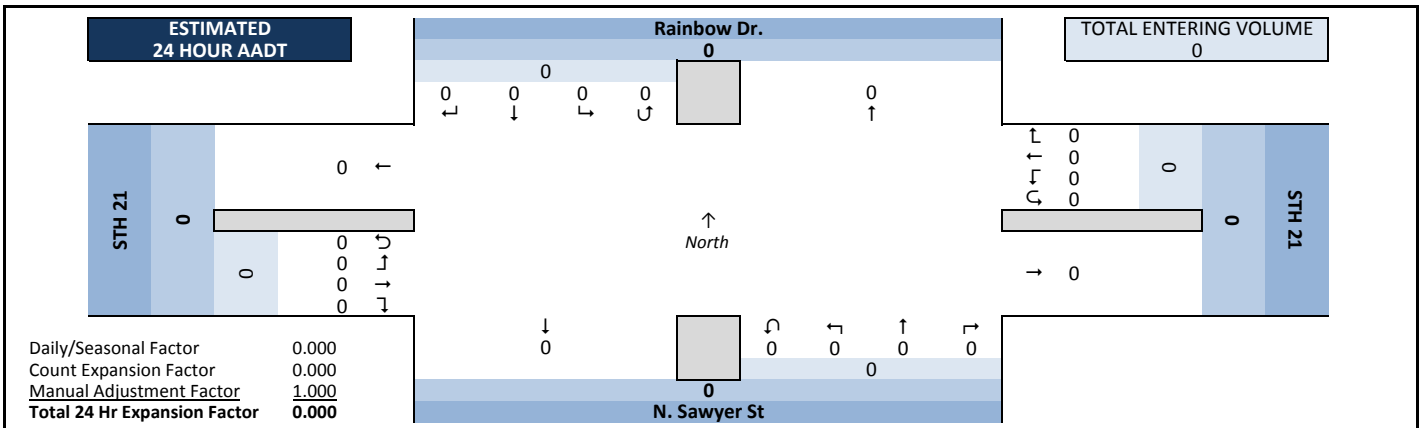
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

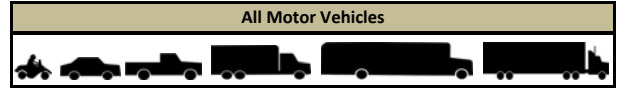


Intersection Traffic Volume Report

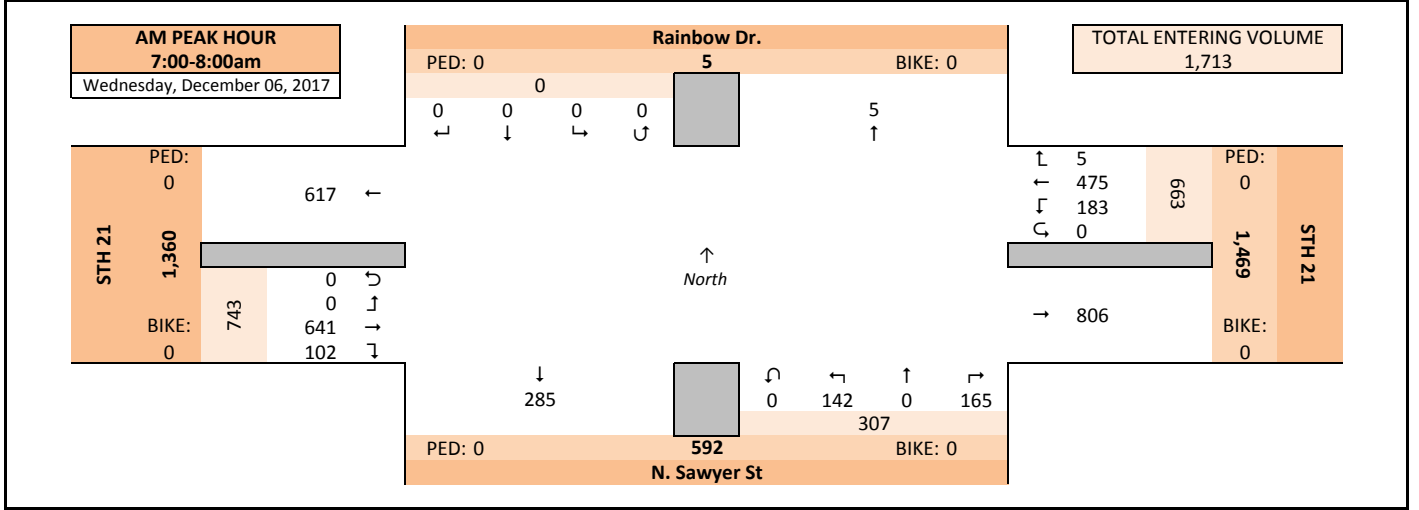
Count Basics		Page 2 of 11	
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

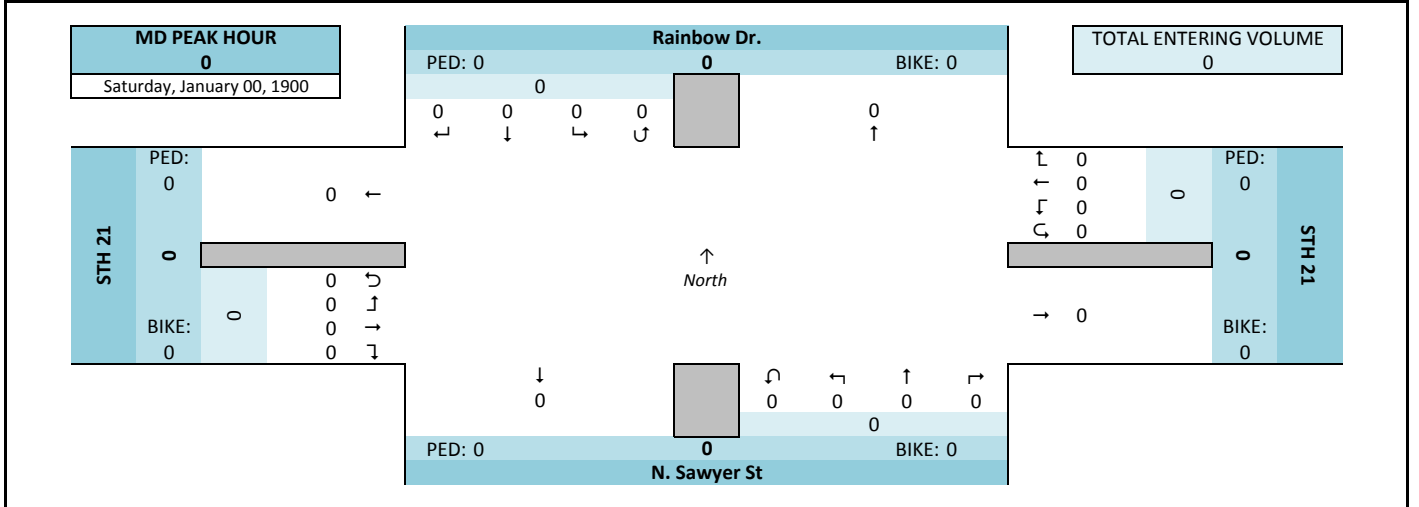
N. Sawyer St and STH 21



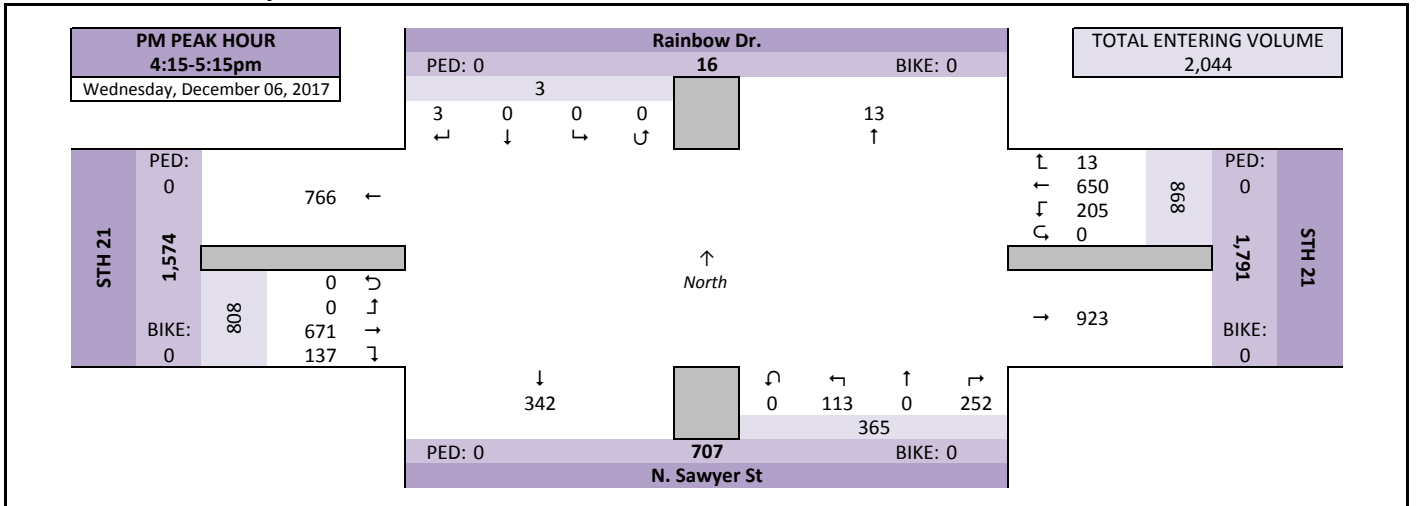
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

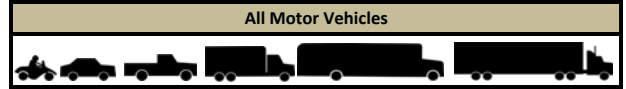


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

N. Sawyer St and STH 21



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
		Rainbow Dr.					STH 21					N. Sawyer St					STH 21					
AM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	7:00 AM	0	0	0	0	0	2	96	32	0	130	25	0	27	0	52	18	118	0	0	136	318
	7:15 AM	0	0	0	0	0	1	126	44	0	171	31	0	44	0	75	22	160	0	0	182	428
	7:30 AM	0	0	0	0	0	1	113	53	0	167	63	0	44	0	107	33	173	0	0	206	480
	7:45 AM	0	0	0	0	0	1	140	54	0	195	46	0	27	0	73	29	190	0	0	219	487
	Peak Hour Volume	0	0	0	0	0	5	475	183	0	663	165	0	142	0	307	102	641	0	0	743	1713
	Rounded Hourly Volume	0	0	0	0	0	5	475	185	0	665	165	0	140	0	305	100	640	0	0	740	1710
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.2	0.0	2.3	3.6	0.0	2.8	0.0	3.3	0.0	2.2	0.0	0.0	1.9	2.3
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.2
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.2	0.0	2.7	3.6	0.0	2.8	0.0	3.3	0.0	2.3	0.0	0.0	2.0	2.5
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.62	0.85	0.85	0.00	0.85	0.65	0.00	0.81	0.00	0.72	0.77	0.84	0.00	0.00	0.85	0.88

Saturday, January 00, 1900		↓ From North					← From East					↑ From South					→ From West					Totals
		Rainbow Dr.					STH 21					N. Sawyer St					STH 21					
Midday (MD) Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, December 06, 2017		↓ From North					← From East					↑ From South					→ From West					Totals
		Rainbow Dr.					STH 21					N. Sawyer St					STH 21					
PM Peak Hour	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:15 PM	1	0	0	0	1	3	155	43	0	201	75	0	34	0	109	28	179	0	0	207	518
	4:30 PM	1	0	0	0	1	2	177	59	0	238	56	0	21	0	77	37	161	0	0	198	514
	4:45 PM	0	0	0	0	0	5	159	58	0	222	51	0	22	0	73	46	149	0	0	195	490
	5:00 PM	1	0	0	0	1	3	159	45	0	207	70	0	36	0	106	26	182	0	0	208	522
	Peak Hour Volume	3	0	0	0	3	13	650	205	0	868	252	0	113	0	365	137	671	0	0	808	2044
	Rounded Hourly Volume	5	0	0	0	5	15	650	205	0	870	250	0	115	0	365	135	670	0	0	805	2045
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	7.7	1.7	1.0	0.0	1.6	0.8	0.0	3.5	0.0	1.6	0.7	3.0	0.0	0.0	2.6	2.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	7.7	2.0	1.0	0.0	1.8	0.8	0.0	3.5	0.0	1.6	0.7	3.0	0.0	0.0	2.6	2.1
	Peak Hour Factor (PHF)	0.75	0.00	0.00	0.00	0.75	0.65	0.92	0.87	0.00	0.91	0.84	0.00	0.78	0.00	0.84	0.74	0.92	0.00	0.00	0.97	0.98

Peak Hour Pedestrian and Bicyclist Volumes

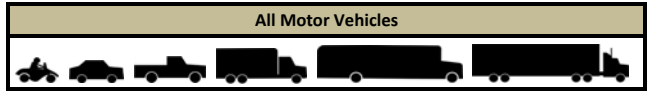
Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Rainbow Dr.			STH 21			N. Sawyer St			STH 21			
15-Minute Start Time		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Count Basics		Page 4 of 11
Start Date:	Wednesday, December 06, 2017	Weekday
Total Number of Hours Counted:	6	Non-Holiday No Special Events

Hourly Volume Summary - Motor Vehicle Data

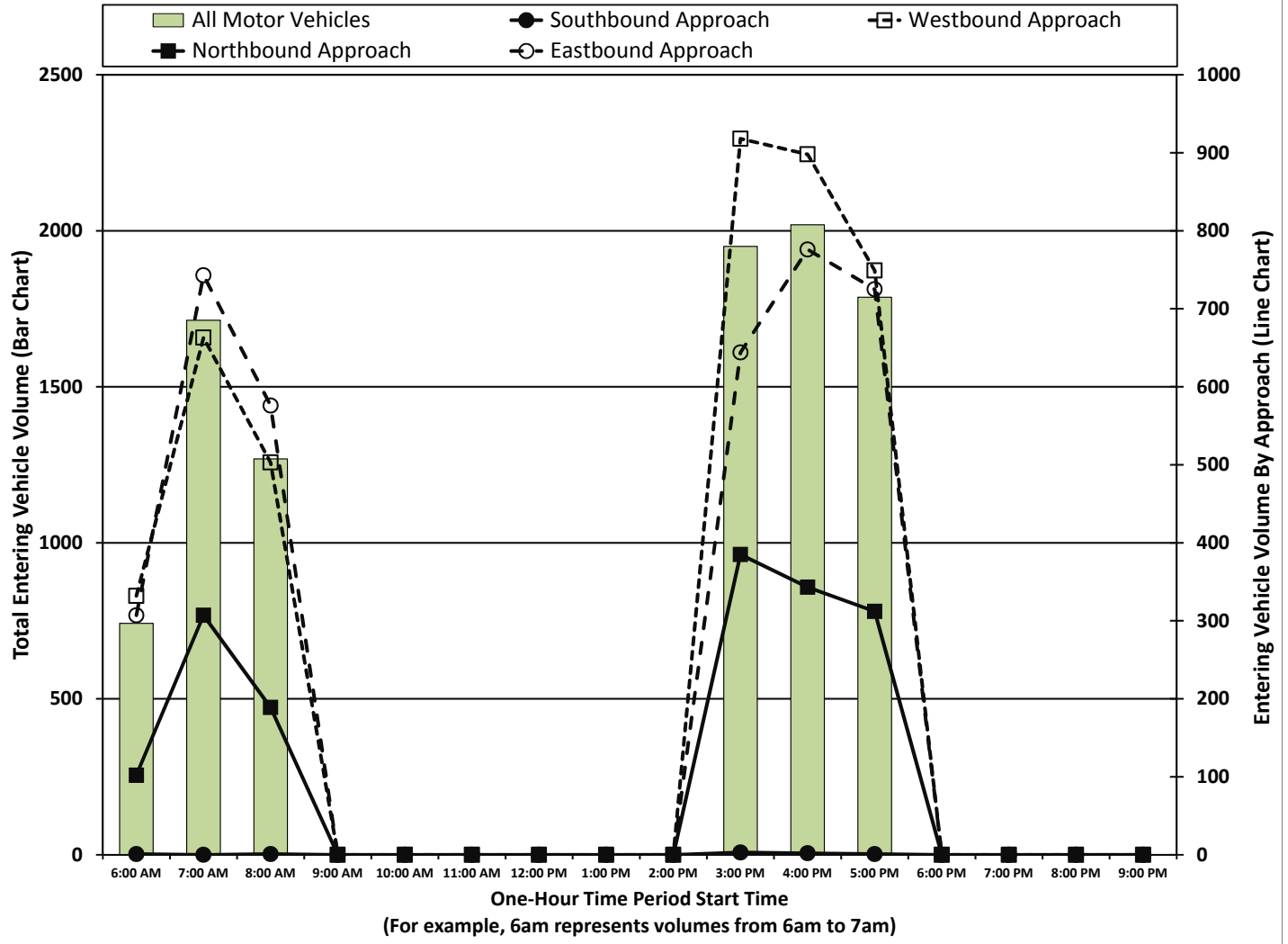
N. Sawyer St and STH 21



One-Hour Motor Vehicle Data

One-Hour Time Period	From North Rainbow Dr.					From East STH 21					From South N. Sawyer St					From West STH 21					Total Vehicle Volume	Directional Volume Totals			
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S		
	Start Time																								
AM	6:00 AM	1	0	0	0	1	2	265	65	0	332	66	0	36	0	102	59	248	0	0	307	742	639	103	
	7:00 AM	0	0	0	0	0	5	475	183	0	663	165	0	142	0	307	102	641	0	0	743	1713	1406	307	
	8:00 AM	1	0	0	0	1	6	340	157	0	503	130	0	59	0	189	78	498	0	0	576	1269	1079	190	
MD	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	3	0	0	0	3	17	653	248	0	918	269	0	116	0	385	102	542	0	0	644	1950	1562	388	
	4:00 PM	2	0	0	0	2	13	673	212	0	898	238	0	105	0	343	132	644	0	0	776	2019	1674	345	
	5:00 PM	1	0	0	0	1	9	564	176	0	749	210	0	102	0	312	107	618	0	0	725	1787	1474	313	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	8	0	0	0	8	52	2970	1041	0	4063	1078	0	560	0	1638	580	3191	0	0	3771	9480	7834	1646		

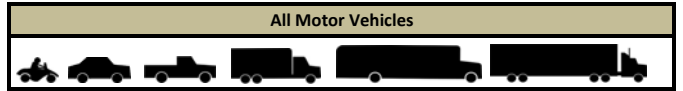
Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

N. Sawyer St and STH 21



15-Minute Motor Vehicle Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
6:00 AM	0	0	0	0	0	0	44	11	0	55	9	0	5	0	14	7	36	0	0	43	112	742	0.72
6:15 AM	1	0	0	0	1	2	53	15	0	70	17	0	4	0	21	9	59	0	0	68	160	948	0.75
6:30 AM	0	0	0	0	0	0	81	17	0	98	23	0	13	0	36	15	64	0	0	79	213	1216	0.71
6:45 AM	0	0	0	0	0	0	87	22	0	109	17	0	14	0	31	28	89	0	0	117	257	1483	0.77
7:00 AM	0	0	0	0	0	2	96	32	0	130	25	0	27	0	52	18	118	0	0	136	318	1713	0.88
7:15 AM	0	0	0	0	0	1	126	44	0	171	31	0	44	0	75	22	160	0	0	182	428	1759	0.90
7:30 AM	0	0	0	0	0	1	113	53	0	167	63	0	44	0	107	33	173	0	0	206	480	1644	0.84
7:45 AM	0	0	0	0	0	1	140	54	0	195	46	0	27	0	73	29	190	0	0	219	487	1432	0.74
8:00 AM	0	0	0	0	0	0	92	54	0	146	45	0	15	0	60	29	129	0	0	158	364	1269	0.87
8:15 AM	1	0	0	0	1	4	82	43	0	129	26	0	18	0	44	18	121	0	0	139	313		
8:30 AM	0	0	0	0	0	0	80	26	0	106	25	0	14	0	39	13	110	0	0	123	268		
8:45 AM	0	0	0	0	0	2	86	34	0	122	34	0	12	0	46	18	138	0	0	156	324		
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3:00 PM	1	0	0	0	1	5	154	70	0	229	58	0	32	0	90	21	138	0	0	159	479	1950	0.94
3:15 PM	2	0	0	0	2	4	162	61	0	227	53	0	29	0	82	25	125	0	0	150	461	1968	0.95
3:30 PM	0	0	0	0	0	6	165	75	0	246	84	0	25	0	109	25	137	0	0	162	517	2025	0.98
3:45 PM	0	0	0	0	0	2	172	42	0	216	74	0	30	0	104	31	142	0	0	173	493	2022	0.98
4:00 PM	0	0	0	0	0	3	182	52	0	237	56	0	28	0	84	21	155	0	0	176	497	2019	0.97
4:15 PM	1	0	0	0	1	3	155	43	0	201	75	0	34	0	109	28	179	0	0	207	518	2044	0.98
4:30 PM	1	0	0	0	1	2	177	59	0	238	56	0	21	0	77	37	161	0	0	198	514	2006	0.96
4:45 PM	0	0	0	0	0	5	159	58	0	222	51	0	22	0	73	46	149	0	0	195	490	1891	0.91
5:00 PM	1	0	0	0	1	3	159	45	0	207	70	0	36	0	106	26	182	0	0	208	522	1787	0.86
5:15 PM	0	0	0	0	0	1	150	46	0	197	55	0	31	0	86	37	160	0	0	197	480		
5:30 PM	0	0	0	0	0	2	130	50	0	182	42	0	23	0	65	26	126	0	0	152	399		
5:45 PM	0	0	0	0	0	3	125	35	0	163	43	0	12	0	55	18	150	0	0	168	386		
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	8	0	0	0	8	52	2970	1041	0	4063	1078	0	560	0	1638	580	3191	0	0	3771	9480		

Peak Hour All Vehicle Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume	PHF
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21						
Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:00 AM	0	0	0	0	0	5	475	183	0	663	165	0	142	0	307	102	641	0	0	743	1713	0.88
MD 12:00 PM	0	0	0	0	0	0	0	0	0</													

Intersection Traffic Volume Report

Count Basics			Page 6 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Automobile Data

N. Sawyer St and STH 21



15-Minute Automobile Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
6:00 AM	0	0	0	0	0	0	43	11	0	54	8	0	4	0	13	7	35	0	0	42	109	707
6:15 AM	1	0	0	0	1	2	53	15	0	70	16	0	4	0	20	9	52	0	0	61	152	910
6:30 AM	0	0	0	0	0	0	78	17	0	95	20	0	13	0	33	15	60	0	0	75	203	1178
6:45 AM	0	0	0	0	0	0	85	22	0	107	16	0	13	0	29	25	82	0	0	107	243	1440
7:00 AM	0	0	0	0	0	2	92	32	0	126	24	0	27	0	51	18	117	0	0	135	312	1670
7:15 AM	0	0	0	0	0	1	126	43	0	170	30	0	42	0	72	22	156	0	0	178	420	1697
7:30 AM	0	0	0	0	0	1	108	51	0	160	59	0	43	0	102	33	170	0	0	203	465	1568
7:45 AM	0	0	0	0	0	1	135	53	0	189	46	0	26	0	72	29	183	0	0	212	473	1355
8:00 AM	0	0	0	0	0	0	83	53	0	136	42	0	13	0	55	28	120	0	0	148	339	1196
8:15 AM	1	0	0	0	1	4	76	41	0	121	25	0	17	0	42	16	111	0	0	127	291	
8:30 AM	0	0	0	0	0	0	77	26	0	103	24	0	14	0	38	13	98	0	0	111	252	
8:45 AM	0	0	0	0	0	2	85	33	0	120	31	0	12	0	43	18	133	0	0	151	314	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	0	0	0	1	5	146	70	0	221	55	0	32	0	87	21	132	0	0	153	462	1904
3:15 PM	2	0	0	0	2	4	159	60	0	223	50	0	29	0	79	25	120	0	0	145	449	1932
3:30 PM	0	0	0	0	0	6	160	75	0	241	83	0	24	0	107	25	133	0	0	158	506	1987
3:45 PM	0	0	0	0	0	2	172	41	0	215	74	0	30	0	104	28	140	0	0	168	487	1982
4:00 PM	0	0	0	0	0	3	177	52	0	232	55	0	28	0	83	21	154	0	0	175	490	1978
4:15 PM	1	0	0	0	1	3	150	42	0	195	75	0	31	0	106	28	174	0	0	202	504	2001
4:30 PM	1	0	0	0	1	1	172	59	0	232	55	0	21	0	76	36	156	0	0	192	501	1973
4:45 PM	0	0	0	0	0	5	158	58	0	221	51	0	21	0	72	46	144	0	0	190	483	1868
5:00 PM	1	0	0	0	1	3	157	44	0	204	69	0	36	0	105	26	177	0	0	203	513	1762
5:15 PM	0	0	0	0	0	1	149	46	0	196	55	0	30	0	85	37	158	0	0	195	476	
5:30 PM	0	0	0	0	0	2	129	49	0	180	41	0	23	0	64	26	126	0	0	152	396	
5:45 PM	0	0	0	0	0	3	124	35	0	162	41	0	12	0	53	17	145	0	0	162	377	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	8	0	0	0	8	51	2894	1028	0	3973	1045	0	546	0	1591	569	3076	0	0	3645	9217	

Peak Hour Automobile Volume Summary

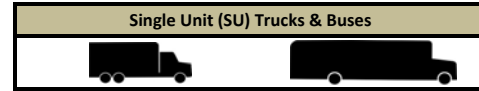
Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:00 AM	0	0	0	0	0	5	461	179	0	645	159	0	138	0	297	102	626	0	0	728	1670
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	3	0	0	0	3	12	637	203	0	852	250	0	109	0	359	136	651	0	0	787	2001

Intersection Traffic Volume Report

Count Basics			Page 7 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Single Unit (SU) Truck & Bus Data

N. Sawyer St and STH 21



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
6:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3	29
6:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	4	32
6:30 AM	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	4	0	0	4	10	36
6:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3	7	0	0	10	12	38
7:00 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	1	0	0	1	6	39
7:15 AM	0	0	0	0	0	0	0	1	0	1	1	0	2	0	3	0	4	0	0	4	8	58
7:30 AM	0	0	0	0	0	0	3	2	0	5	4	0	1	0	5	0	2	0	0	2	12	71
7:45 AM	0	0	0	0	0	0	4	1	0	5	0	0	1	0	1	0	7	0	0	7	13	74
8:00 AM	0	0	0	0	0	0	9	1	0	10	3	0	2	0	5	1	9	0	0	10	25	70
8:15 AM	0	0	0	0	0	0	6	2	0	8	1	0	1	0	2	2	9	0	0	11	21	
8:30 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	11	0	0	11	15	
8:45 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	0	5	0	0	5	9	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	0	0	0	0	0	0	8	0	0	8	3	0	0	0	3	0	6	0	0	6	17	43
3:15 PM	0	0	0	0	0	0	3	1	0	4	3	0	0	0	3	0	4	0	0	4	11	33
3:30 PM	0	0	0	0	0	0	4	0	0	4	1	0	1	0	2	0	4	0	0	4	10	35
3:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	1	0	0	4	5	37
4:00 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	1	0	0	1	7	39
4:15 PM	0	0	0	0	0	0	4	1	0	5	0	0	3	0	3	0	5	0	0	5	13	41
4:30 PM	0	0	0	0	0	1	4	0	0	5	1	0	0	0	1	1	5	0	0	6	12	31
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5	0	0	5	7	22
5:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	5	0	0	5	9	24
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	3	
5:30 PM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0	3	
5:45 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	1	5	0	0	6	9	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	1	68	13	82	31	0	14	0	45	11	106	0	0	117	244	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

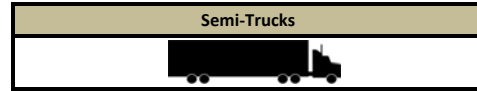
Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume	
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:00 AM	0	0	0	0	0	0	11	4	0	15	6	0	4	0	10	0	14	0	0	14	39	
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 4:15 PM	0	0	0	0	0	1	11	2	0	14	2	0	4	0	6	1	20	0	0	21	41	

Intersection Traffic Volume Report

Count Basics			Page 8 of 11
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Semi-Truck Data

N. Sawyer St and STH 21



15-Minute Semi-Truck Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum		
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	6
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	5
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1	3	5
7:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3
3:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	0	9	0	0	9	19		

Peak Hour Semi-Truck Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume		
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM 7:00 AM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	2	0	0	2	5
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	1	3

Intersection Traffic Volume Report

Count Basics			<i>Page 9 of 11</i>
Start Date:	Wednesday, December 06, 2017	Weekday	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

N. Sawyer St and STH 21



15-Minute Heavy Vehicle Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
6:00 AM	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3	35
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	7	0	0	7	8	38
6:30 AM	0	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	4	0	0	4	10	38
6:45 AM	0	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	3	7	0	0	10	14	43
7:00 AM	0	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	1	0	0	1	6	43
7:15 AM	0	0	0	0	0	0	0	0	1	0	1	1	0	2	0	3	0	4	0	0	4	8	62
7:30 AM	0	0	0	0	0	0	0	5	2	0	7	4	0	1	0	5	0	3	0	0	3	15	76
7:45 AM	0	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	0	7	0	0	7	14	77
8:00 AM	0	0	0	0	0	0	0	9	1	0	10	3	0	2	0	5	1	9	0	0	10	25	73
8:15 AM	0	0	0	0	0	0	0	6	2	0	8	1	0	1	0	2	2	10	0	0	12	22	
8:30 AM	0	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	12	0	0	12	16	
8:45 AM	0	0	0	0	0	0	0	1	1	0	2	3	0	0	0	3	0	5	0	0	5	10	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	8	0	0	8	3	0	0	0	3	0	6	0	0	6	17	46
3:15 PM	0	0	0	0	0	0	0	3	1	0	4	3	0	0	0	3	0	5	0	0	5	12	36
3:30 PM	0	0	0	0	0	0	0	5	0	0	5	1	0	1	0	2	0	4	0	0	4	11	38
3:45 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	2	0	0	5	6	40
4:00 PM	0	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	1	0	0	1	7	41
4:15 PM	0	0	0	0	0	0	0	5	1	0	6	0	0	3	0	3	0	5	0	0	5	14	43
4:30 PM	0	0	0	0	0	0	0	1	5	0	6	1	0	0	0	1	1	5	0	0	6	13	33
4:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5	0	0	5	7	23
5:00 PM	0	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	5	0	0	5	9	25
5:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	4	
5:30 PM	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0	3	
5:45 PM	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	1	5	0	0	6	9	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	1	76	13	0	90	33	0	14	0	47	11	115	0	0	126	263	

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume		
	Rainbow Dr.					STH 21					N. Sawyer St					STH 21							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM 7:00 AM	0	0	0	0	0	0	0	14	4	0	18	6	0	4	0	10	0	0	15	0	0	15	43
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0	0	1	13	2	0	16	2	0	4	0	6	1	20	0	0	21	43	

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

N. Sawyer St and STH 21



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min Totals	Hourly Sum
	Rainbow Dr.			STH 21			N. Sawyer St			STH 21				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	10
3:15 PM	0	0	0	0	0	0	1	0	1	1	0	1	2	9
3:30 PM	0	0	0	0	0	0	7	0	7	0	0	0	7	7
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	9	0	9	1	0	1	10	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Oshkosh - 2010 Scenario Summary Statistics

Legend

2010 Base

2010 Base Plus 850

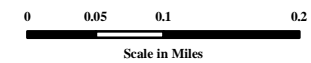
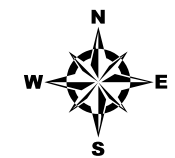
2010 Base Plus 1,200

2010 Base Plus 1,700

— Road Base

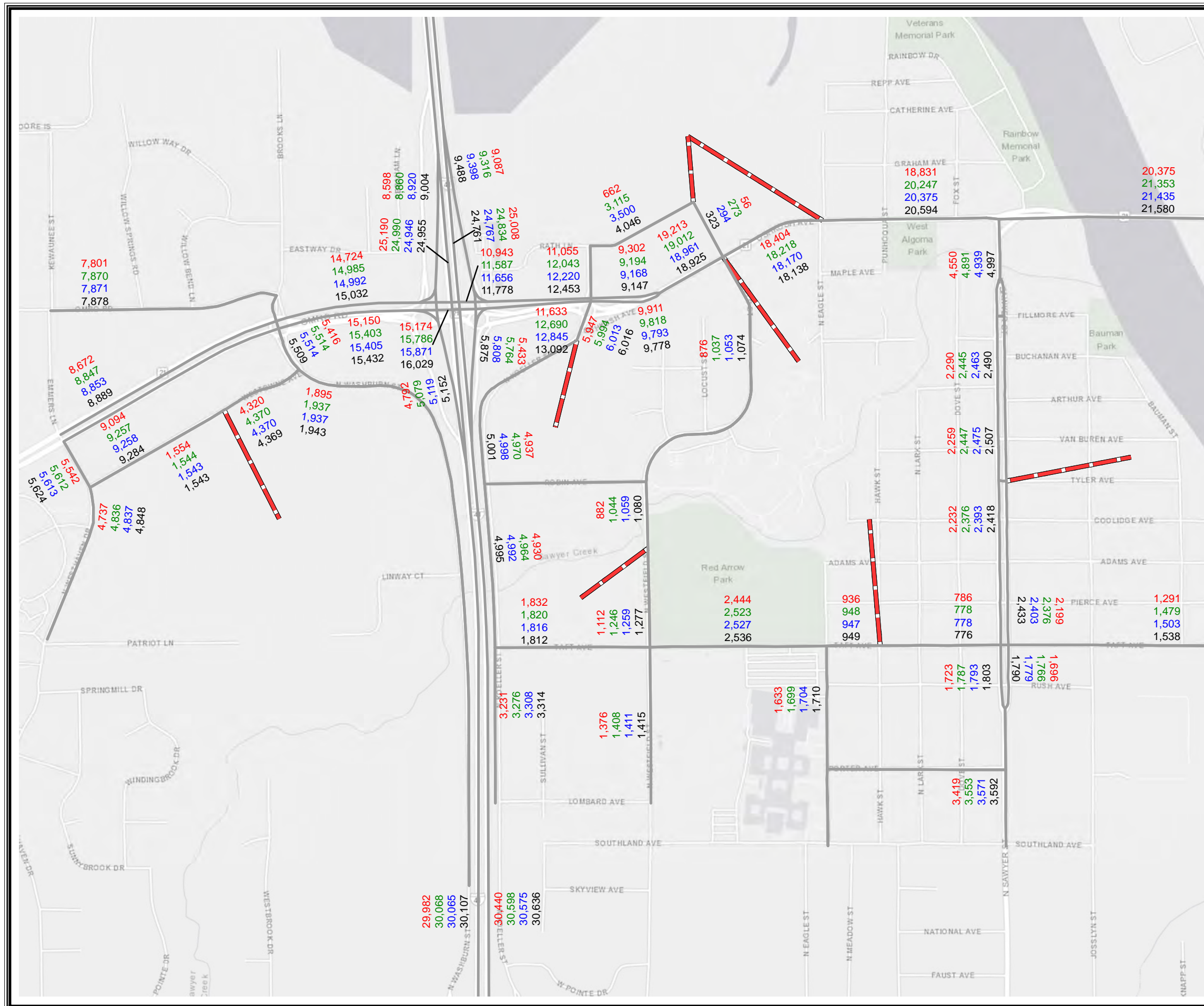
▬ Centroid Connectors

Source: Data derived from NE Travel Demand Model - 4/13/17



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PREPARED JANUARY 2018 BY:



Oshkosh - 2045 Scenario Summary Statistics

Legend

2045 Base

2045 Base Plus 850

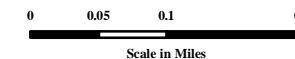
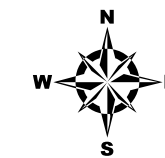
2045 Base Plus 1,200

2045 Base Plus 1,700

— Road Base

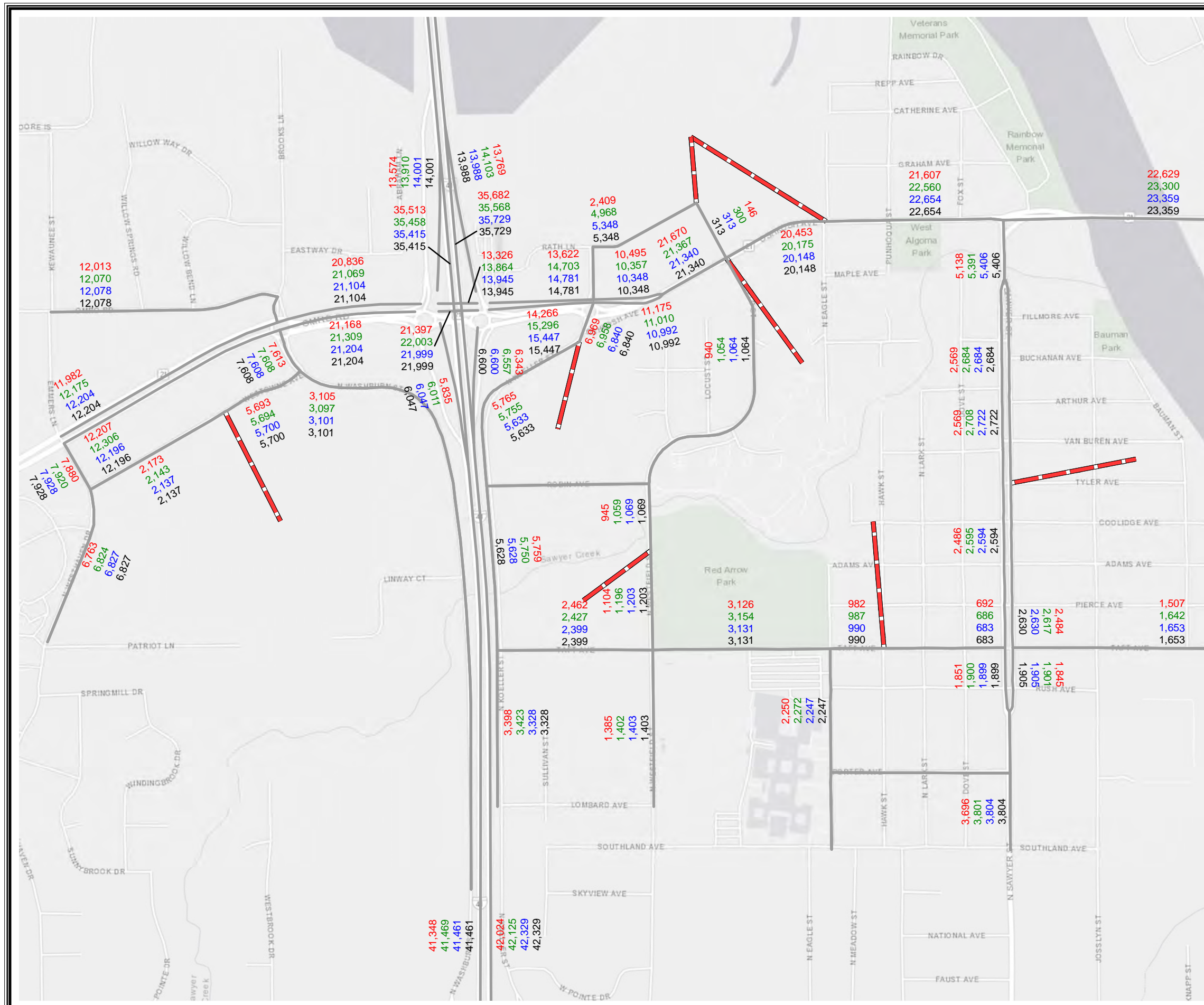
▬ Centroid Connectors

Source: Data derived from NE Travel Demand Model - 4/13/17



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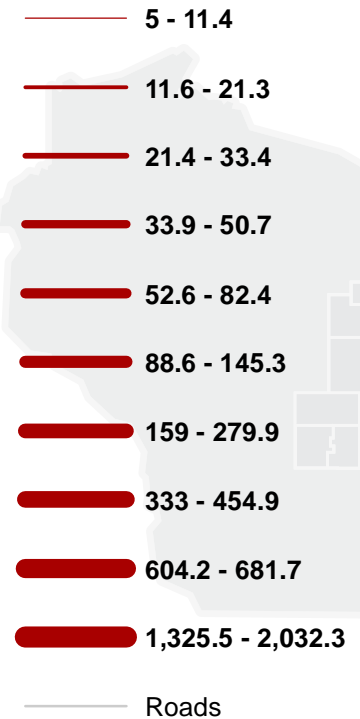
PREPARED JANUARY 2018 BY:



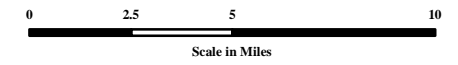
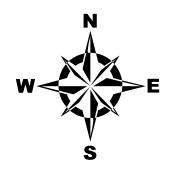
Oshkosh - TIA 2045 Select Link 1

Legend

Total Volume Select Link 1



Source: Data derived from NE Travel Demand Model - 4/13/17
Total volume greater than 5, 10 classes - Natural Breaks (Jenks)



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PREPARED JANUARY 2018 BY:



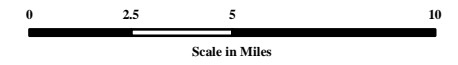
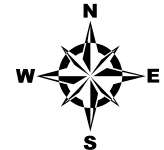
Oshkosh - TIA 2045 Select Link 2

Legend

Total Volume Select Link 2

-  5.0 - 12.0
-  12.1 - 22.2
-  22.4 - 33.9
-  34.4 - 51.2
-  53.1 - 85.0
-  86.7 - 149.0
-  154.6 - 262.0
-  313.1 - 530.2
-  644.9 - 1175.1
-  1890.0 - 2014.2
-  Roads

Source: Data derived from NE Travel Demand Model - 4/13/17
Total volume greater than 5, 10 classes - Natural Breaks (Jenks)



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PREPARED JANUARY 2018 BY:



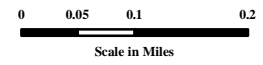
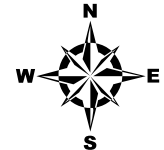
Oshkosh - TIA 2045 Select Link 3

Legend

Total Volume Select Link 3

-  18
-  21.4
-  29.4
-  36.4
-  56.2
-  74.2
-  110.6
-  132
-  161.4
-  Roads

Source: Data derived from NE Travel Demand Model - 4/13/17
Total volume greater than 5, 9 classes - Natural Breaks (Jenks)



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PREPARED JANUARY 2018 BY:



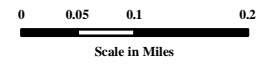
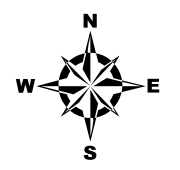
Oshkosh - TIA 2045 Select Link 4

Legend

Total Volume Select Link 4

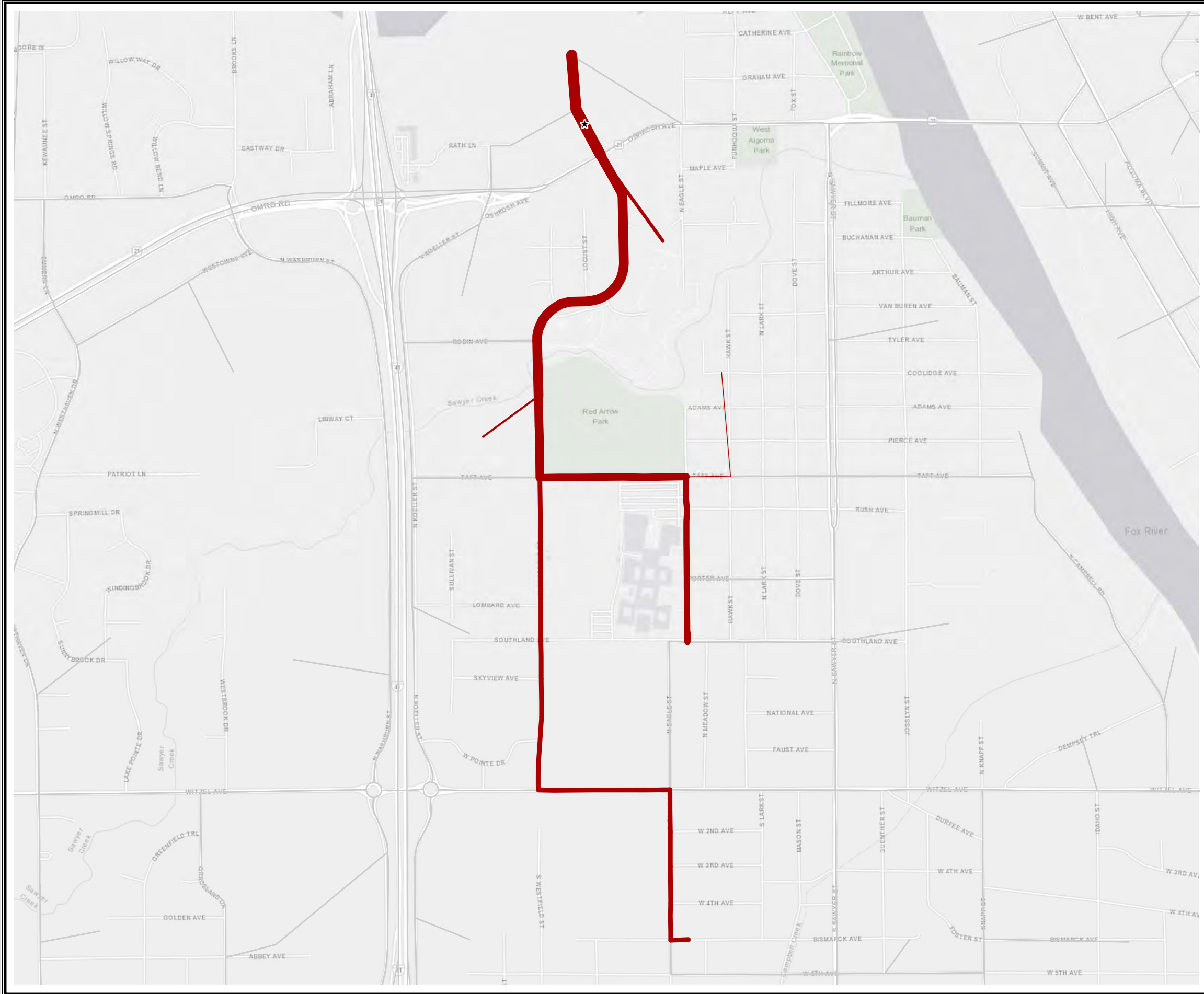
-  18.1
-  21.5
-  29.5
-  36.5
-  56.5
-  74.6
-  111.1
-  132.6
-  162.1
-  Roads

Source: Data derived from NE Travel Demand Model - 4/13/17
Total volume greater than 5, 9 classes - Natural Breaks (Jenks)



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PREPARED JANUARY 2018 BY:
East Central Wisconsin
Regional Planning Commission
ECWRPC



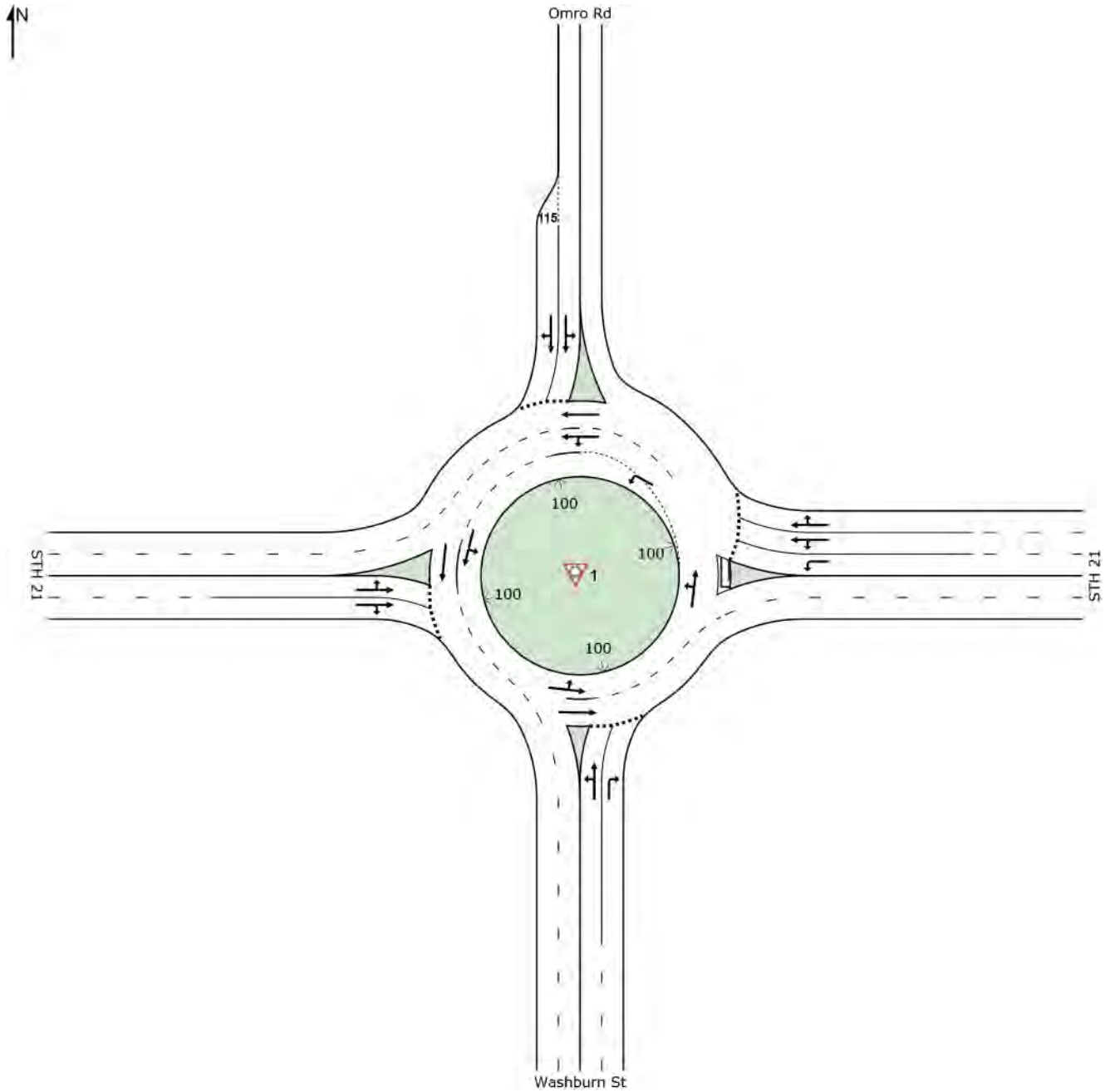
APPENDIX B

Existing Conditions Operational Analysis

SITE LAYOUT

Site: 1 [STH 21 & Washburn AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



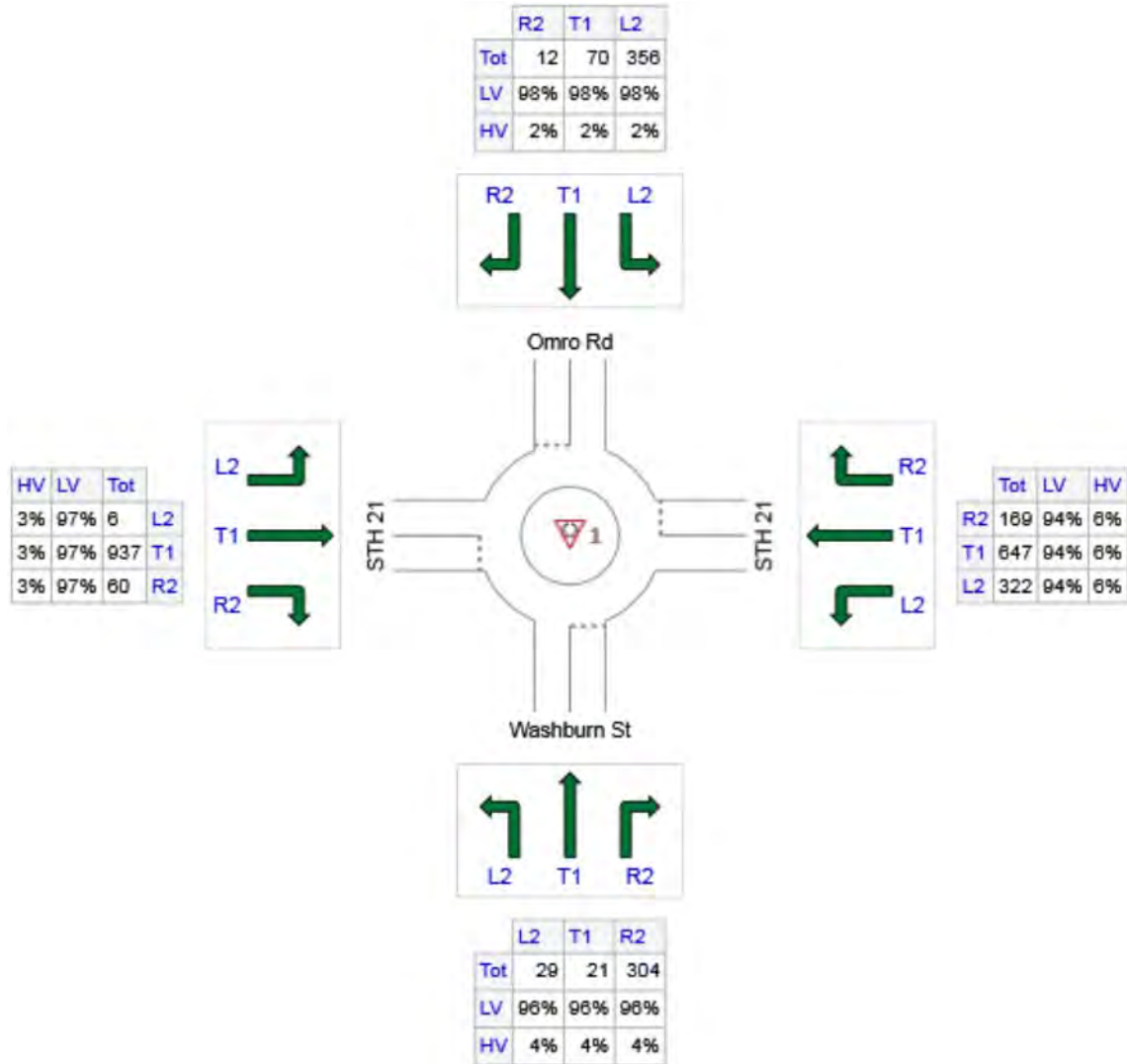
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	354	340	14
E: STH 21	1138	1070	68
N: Omro Rd	438	429	9
W: STH 21	1003	973	30
Total	2933	2812	121

MOVEMENT SUMMARY

Site: 1 [STH 21 & Washburn AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	31	4.0	0.117	9.7	LOS A	0.3	8.2	0.66	0.66	29.7
8	T1	22	4.0	0.117	9.7	LOS A	0.3	8.2	0.66	0.66	29.5
18	R2	320	4.0	0.713	29.2	LOS C	4.0	102.9	0.85	1.14	23.4
Approach		373	4.0	0.713	26.4	LOS C	4.0	102.9	0.82	1.07	24.2
East: STH 21											
1	L2	339	6.0	0.293	5.9	LOS A	1.1	29.3	0.17	0.07	32.6
6	T1	681	6.0	0.371	6.8	LOS A	1.6	41.1	0.19	0.08	34.7
16	R2	178	6.0	0.371	6.8	LOS A	1.6	41.1	0.19	0.08	33.3
Approach		1198	6.0	0.371	6.5	LOS A	1.6	41.1	0.18	0.08	33.9
North: Omro Rd											
7	L2	375	2.0	0.664	21.4	LOS C	4.0	101.7	0.78	1.00	27.0
4	T1	74	2.0	0.153	8.3	LOS A	0.4	11.1	0.59	0.59	34.0
14	R2	13	2.0	0.153	8.3	LOS A	0.4	11.1	0.59	0.59	32.8
Approach		461	2.0	0.664	18.9	LOS B	4.0	101.7	0.74	0.93	28.0
West: STH 21											
5	L2	6	3.0	0.762	23.7	LOS C	7.1	182.6	0.79	1.14	27.8
2	T1	986	3.0	0.762	23.7	LOS C	7.1	182.6	0.79	1.14	27.7
12	R2	63	3.0	0.762	23.7	LOS C	7.1	182.6	0.79	1.14	26.9
Approach		1056	3.0	0.762	23.7	LOS C	7.1	182.6	0.79	1.14	27.7
All Vehicles		3087	4.1	0.762	16.7	LOS B	7.1	182.6	0.55	0.69	29.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 1 [STH 21 & Washburn AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	53	4.0	449	0.117	100	9.7	LOS A	0.3	8.2	Full	1600	0.0	0.0
Lane 2 ^d	320	4.0	449	0.713	100	29.2	LOS C	4.0	102.9	Full	1600	0.0	0.0
Approach	373	4.0		0.713		26.4	LOS C	4.0	102.9				
East: STH 21													
Lane 1	339	6.0	1157	0.293	79 ⁵	5.9	LOS A	1.1	29.3	Full	1600	0.0	0.0
Lane 2	429	6.0	1157	0.371	100	6.8	LOS A	1.6	41.1	Full	1600	0.0	0.0
Lane 3 ^d	429	6.0	1157	0.371	100	6.8	LOS A	1.6	41.1	Full	1600	0.0	0.0
Approach	1198	6.0		0.371		6.5	LOS A	1.6	41.1				
North: Omro Rd													
Lane 1 ^d	375	2.0	565	0.664	100	21.4	LOS C	4.0	101.7	Full	1600	0.0	0.0
Lane 2	86	2.0	565	0.153	23 ⁵	8.3	LOS A	0.4	11.1	Short	115	0.0	NA
Approach	461	2.0		0.664		18.9	LOS B	4.0	101.7				
West: STH 21													
Lane 1	528	3.0	692	0.762	100	23.7	LOS C	7.1	182.6	Full	1600	0.0	0.0
Lane 2 ^d	528	3.0	692	0.762	100	23.7	LOS C	7.1	182.6	Full	1600	0.0	0.0
Approach	1056	3.0		0.762		23.7	LOS C	7.1	182.6				
Intersection	3087	4.1		0.762		16.7	LOS B	7.1	182.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

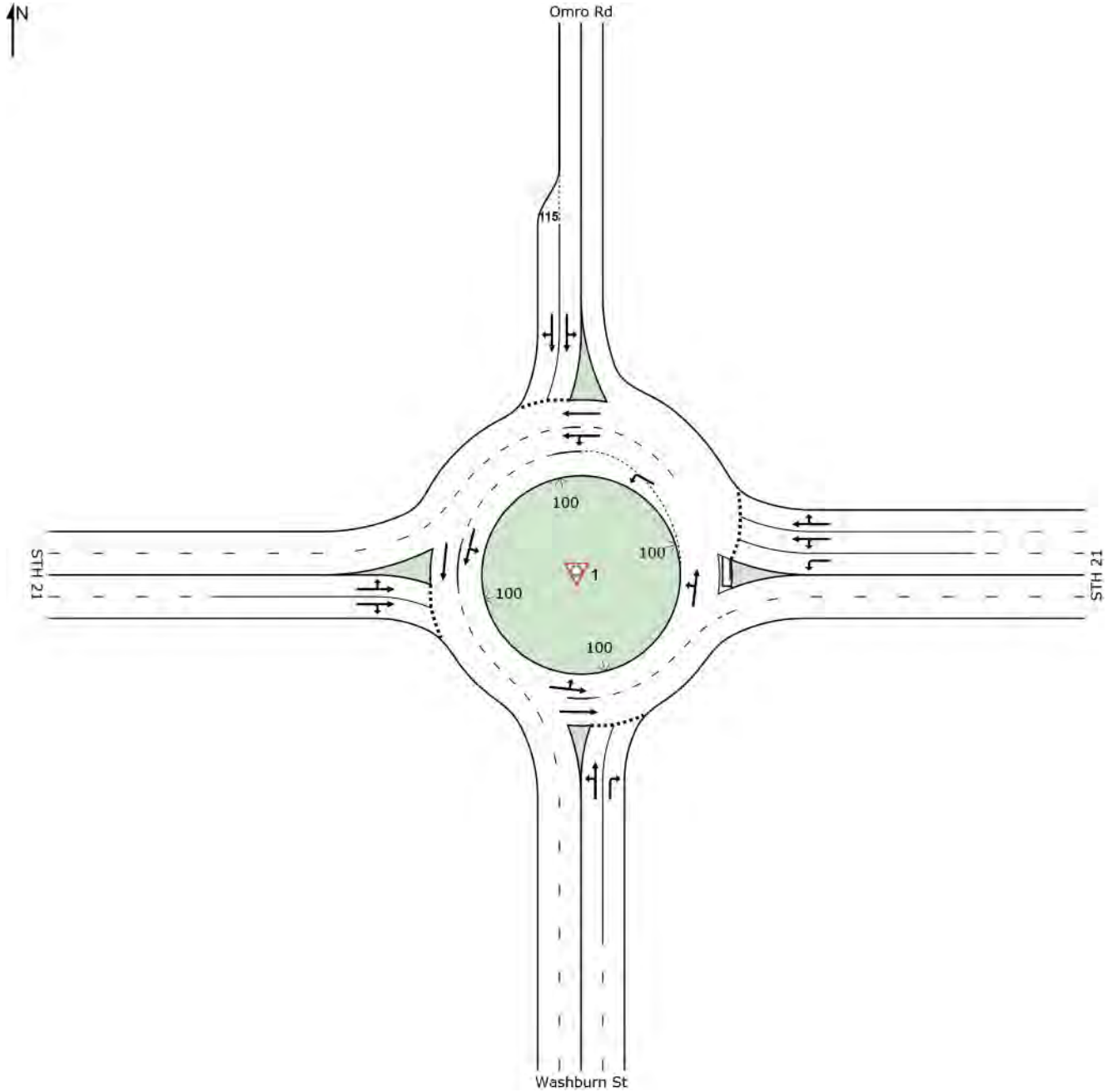
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 1 [STH 21 & Washburn PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



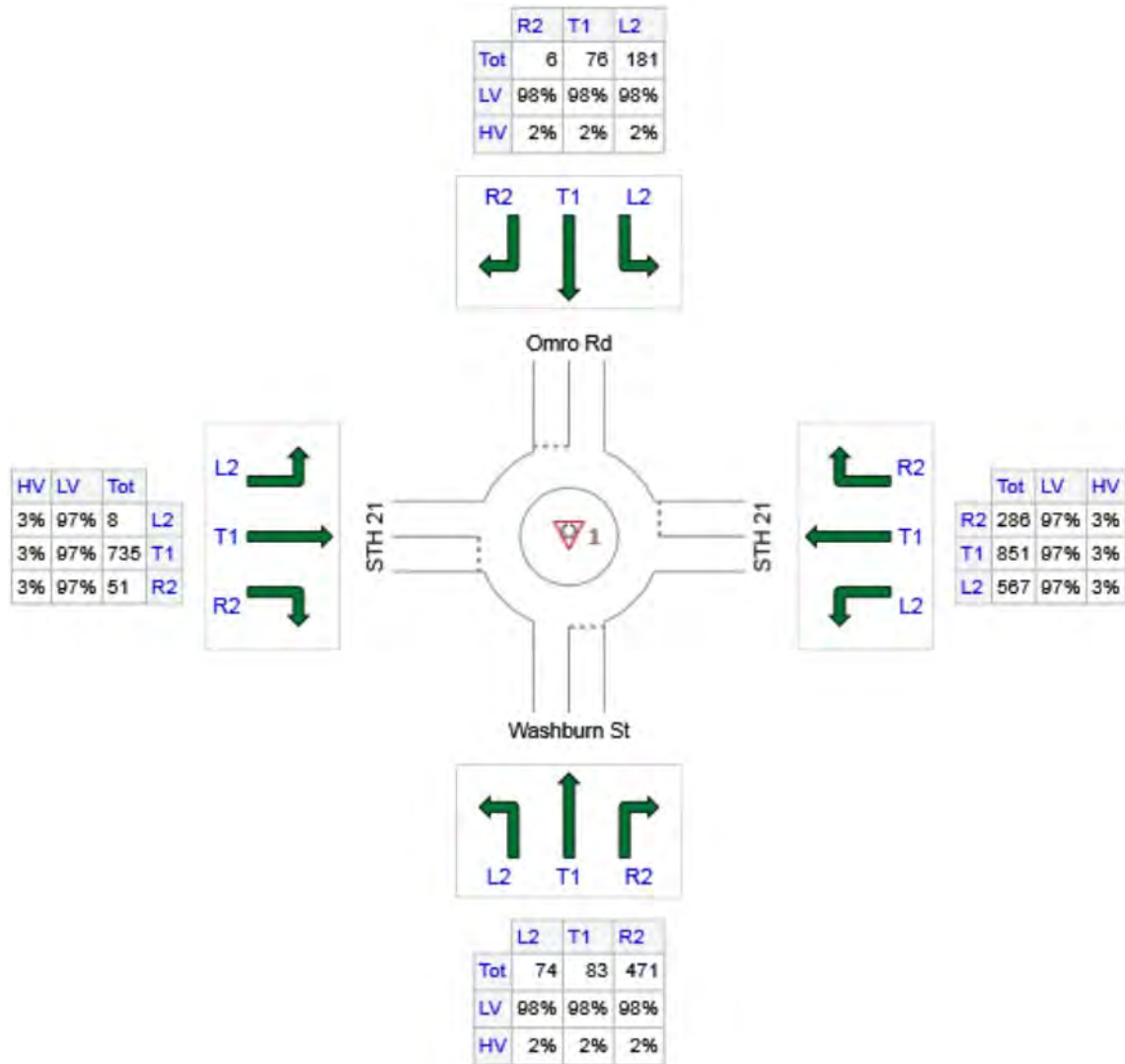
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 1 [STH 21 & Washburn PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	628	615	13
E: STH 21	1704	1653	51
N: Omro Rd	263	258	5
W: STH 21	794	770	24
Total	3389	3296	93

MOVEMENT SUMMARY

Site: 1 [STH 21 & Washburn PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	77	2.0	0.265	9.2	LOS A	0.8	21.0	0.58	0.59	30.1
8	T1	86	2.0	0.265	9.2	LOS A	0.8	21.0	0.58	0.59	29.9
18	R2	491	2.0	0.795	28.6	LOS C	7.2	181.7	0.83	1.25	23.6
Approach		654	2.0	0.795	23.8	LOS C	7.2	181.7	0.77	1.09	24.9
East: STH 21											
1	L2	591	3.0	0.542	9.9	LOS A	2.9	74.3	0.42	0.30	31.0
6	T1	886	3.0	0.544	9.9	LOS A	2.9	74.6	0.42	0.30	33.2
16	R2	298	3.0	0.544	9.9	LOS A	2.9	74.6	0.42	0.30	31.9
Approach		1775	3.0	0.544	9.9	LOS A	2.9	74.6	0.42	0.30	32.2
North: Omro Rd											
7	L2	189	2.0	0.475	19.4	LOS B	1.8	45.4	0.80	0.91	27.6
4	T1	79	2.0	0.215	12.6	LOS B	0.6	15.3	0.73	0.74	32.0
14	R2	6	2.0	0.215	12.6	LOS B	0.6	15.3	0.73	0.74	30.9
Approach		274	2.0	0.475	17.3	LOS B	1.8	45.4	0.78	0.86	28.8
West: STH 21											
5	L2	8	3.0	0.626	17.2	LOS B	4.0	101.8	0.71	0.91	30.1
2	T1	766	3.0	0.626	17.2	LOS B	4.0	101.8	0.71	0.91	30.0
12	R2	53	3.0	0.626	17.2	LOS B	4.0	101.8	0.71	0.91	29.1
Approach		827	3.0	0.626	17.2	LOS B	4.0	101.8	0.71	0.91	30.0
All Vehicles		3530	2.7	0.795	14.8	LOS B	7.2	181.7	0.58	0.63	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 1 [STH 21 & Washburn PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	164	2.0	617	0.265	100	9.2	LOS A	0.8	21.0	Full	1600	0.0	0.0
Lane 2 ^d	491	2.0	617	0.795	100	28.6	LOS C	7.2	181.7	Full	1600	0.0	0.0
Approach	654	2.0		0.795		23.8	LOS C	7.2	181.7				
East: STH 21													
Lane 1	591	3.0	1089	0.542	100 ⁵	9.9	LOS A	2.9	74.3	Full	1600	0.0	0.0
Lane 2	592	3.0	1089	0.544	100	9.9	LOS A	2.9	74.6	Full	1600	0.0	0.0
Lane 3 ^d	592	3.0	1089	0.544	100	9.9	LOS A	2.9	74.6	Full	1600	0.0	0.0
Approach	1775	3.0		0.544		9.9	LOS A	2.9	74.6				
North: Omro Rd													
Lane 1 ^d	189	2.0	397	0.475	100	19.4	LOS B	1.8	45.4	Full	1600	0.0	0.0
Lane 2	85	2.0	397	0.215	45 ⁵	12.6	LOS B	0.6	15.3	Short	115	0.0	NA
Approach	274	2.0		0.475		17.3	LOS B	1.8	45.4				
West: STH 21													
Lane 1	414	3.0	661	0.626	100	17.2	LOS B	4.0	101.8	Full	1600	0.0	0.0
Lane 2 ^d	414	3.0	661	0.626	100	17.2	LOS B	4.0	101.8	Full	1600	0.0	0.0
Approach	827	3.0		0.626		17.2	LOS B	4.0	101.8				
Intersection	3530	2.7		0.795		14.8	LOS B	7.2	181.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

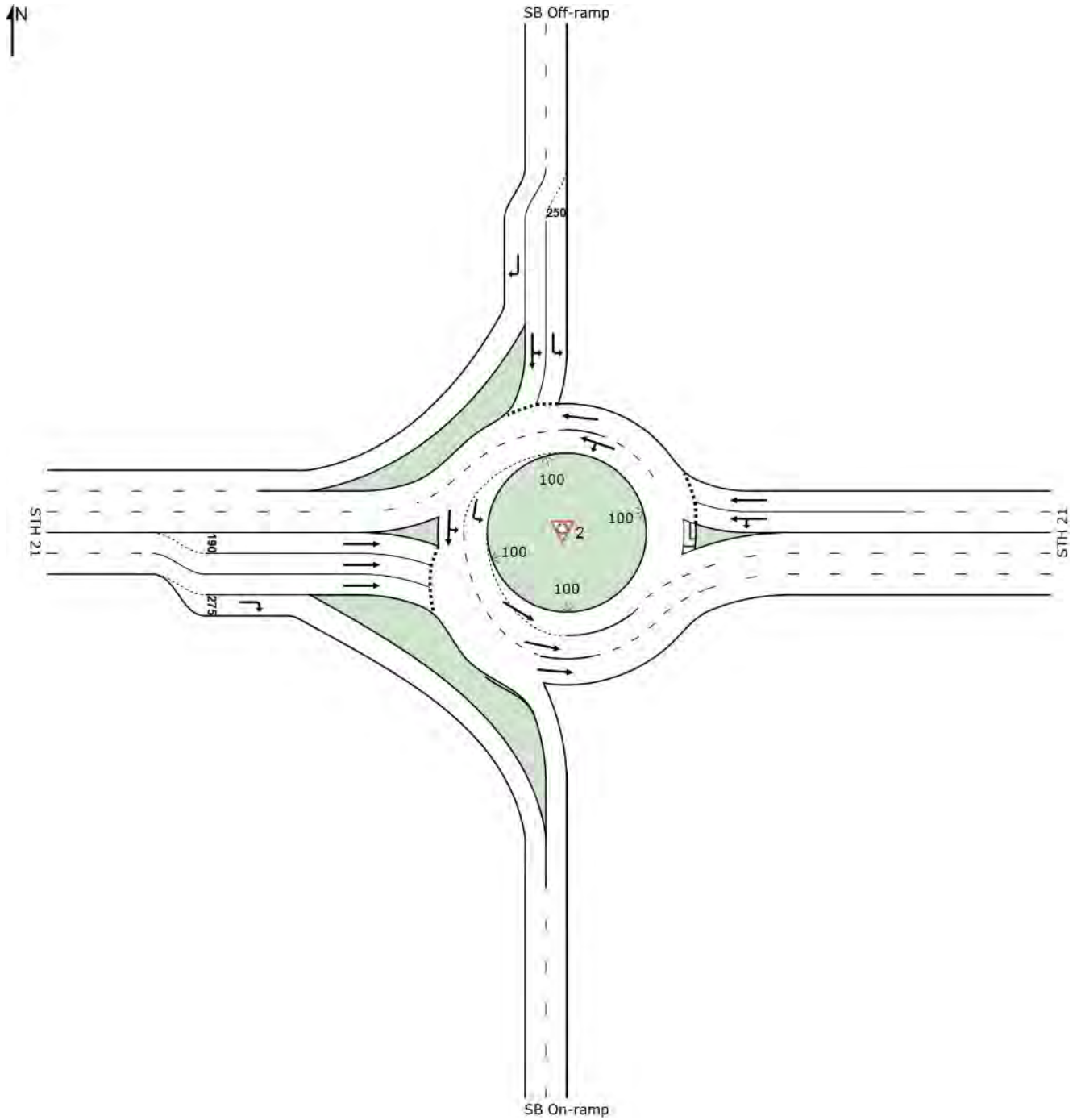
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 2 [STH 21 & SB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



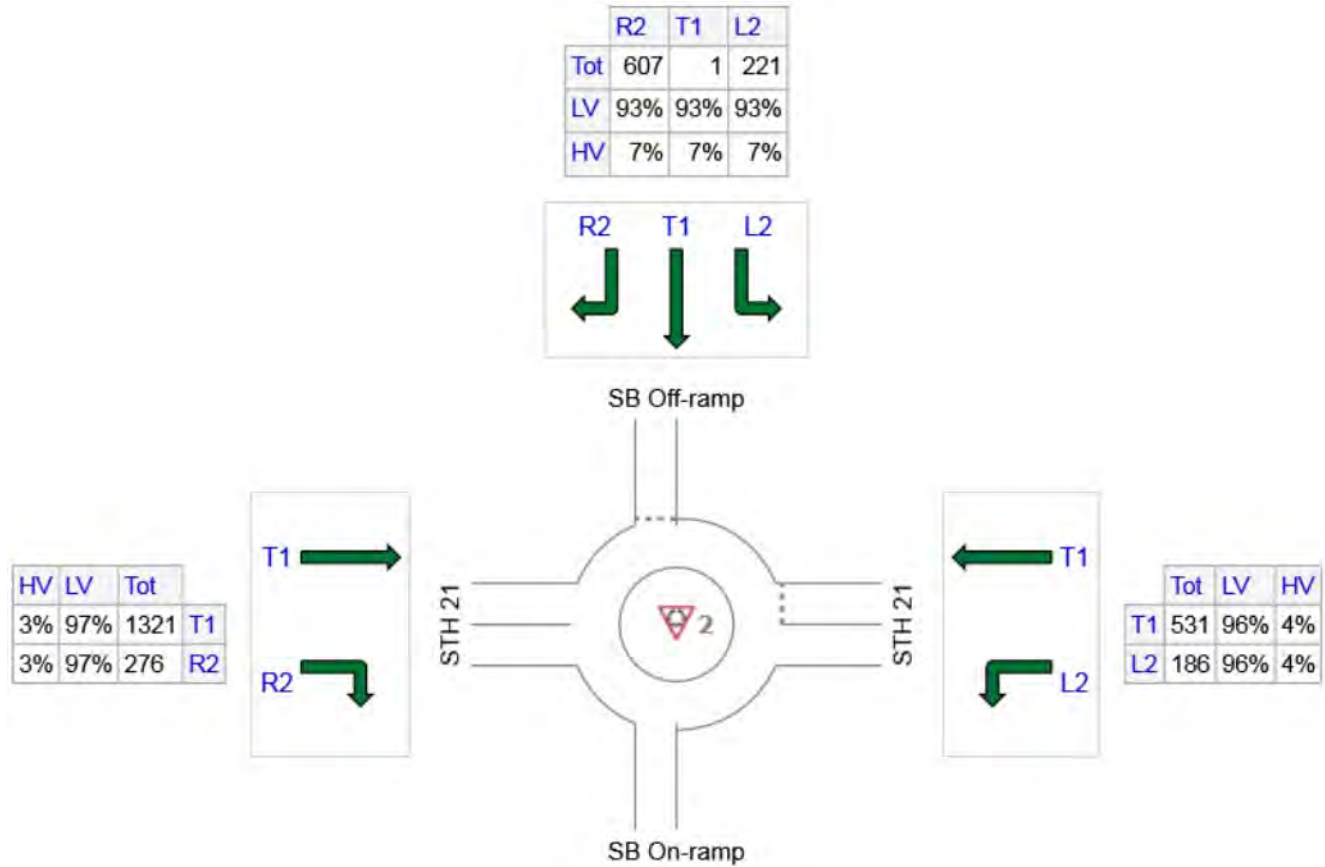
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	717	688	29
N: SB Off-ramp	829	771	58
W: STH 21	1597	1549	48
Total	3143	3008	135

MOVEMENT SUMMARY

Site: 2 [STH 21 & SB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	200	4.0	0.312	5.8	LOS A	0.0	0.0	0.00	0.00	37.0	
6	T1	571	4.0	0.312	5.8	LOS A	0.0	0.0	0.00	0.00	38.1	
Approach		771	4.0	0.312	5.8	LOS A	0.0	0.0	0.00	0.00	37.8	
North: SB Off-ramp												
7	L2	238	7.0	0.177	7.4	LOS A	0.5	13.3	0.51	0.51	31.9	
4	T1	1	7.0	0.177	7.4	LOS A	0.5	13.3	0.51	0.51	31.9	
14	R2	653	7.0	0.417	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		891	7.0	0.417	2.0	LOS A	0.5	13.3	0.14	0.14	35.6	
West: STH 21												
2	T1	1420	3.0	0.530	11.1	LOS B	3.5	88.8	0.56	0.68	32.7	
12	R2	297	3.0	0.183	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		1717	3.0	0.530	9.2	LOS A	3.5	88.8	0.47	0.57	33.4	
All Vehicles		3380	4.3	0.530	6.5	LOS A	3.5	88.8	0.27	0.32	34.9	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 2 [STH 21 & SB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Cap.	v/c	%	sec		Veh	Dist		ft	%	%
	veh/h	%	veh/h						ft				
East: STH 21													
Lane 1	385	4.0	1237	0.312	100	5.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	385	4.0	1237	0.312	100	5.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	771	4.0		0.312		5.8	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	119	7.0	674	0.177	100	7.4	LOS A	0.5	13.3	Short	250	0.0	NA
Lane 2 ^d	119	7.0	674	0.177	100	7.4	LOS A	0.5	13.3	Full	1600	0.0	0.0
Lane 3	653	7.0	1565	0.417	100	0.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	891	7.0		0.417		2.0	LOS A	0.5	13.3				
West: STH 21													
Lane 1	473	3.0	893	0.530	100	11.1	LOS B	3.5	88.8	Short	190	0.0	NA
Lane 2	473	3.0	893	0.530	100	11.1	LOS B	3.5	88.8	Full	1600	0.0	0.0
Lane 3 ^d	473	3.0	893	0.530	100	11.1	LOS B	3.5	88.8	Full	1600	0.0	0.0
Lane 4	297	3.0	1626	0.183	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	1717	3.0		0.530		9.2	LOS A	3.5	88.8				
Intersection	3380	4.3		0.530		6.5	LOS A	3.5	88.8				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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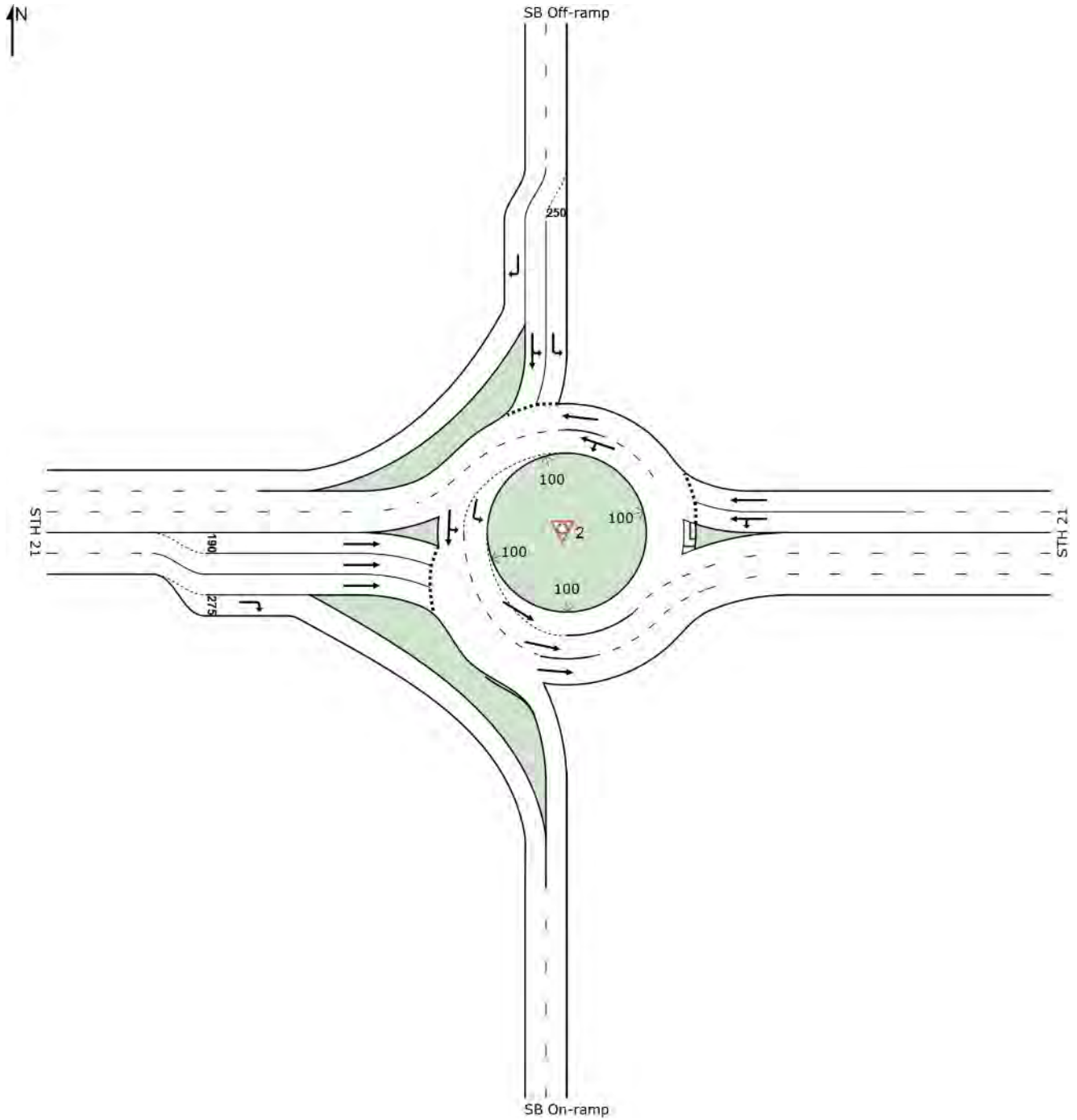
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Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

Site: 2 [STH 21 & SB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



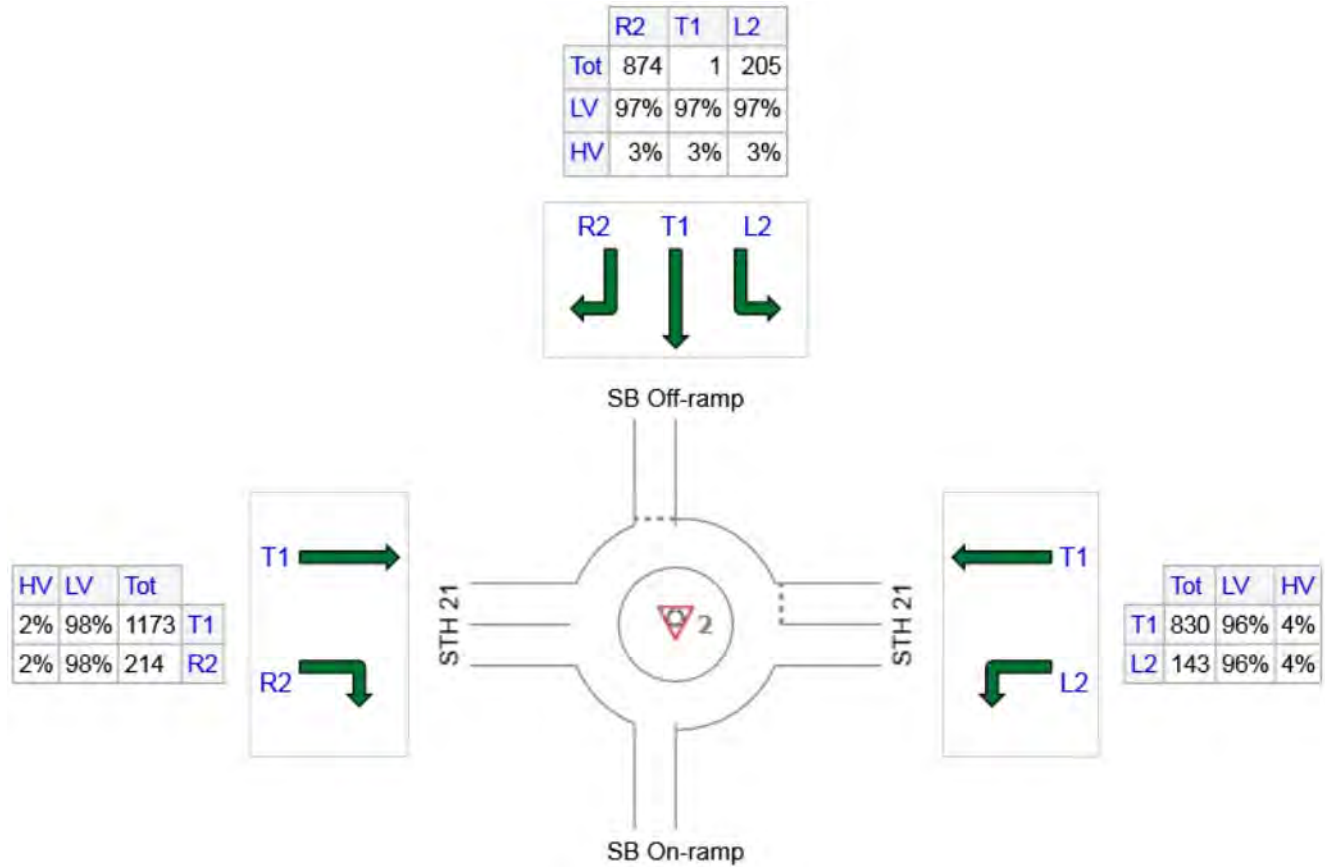
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	973	934	39
N: SB Off-ramp	1080	1048	32
W: STH 21	1387	1359	28
Total	3440	3341	99

MOVEMENT SUMMARY

Site: 2 [STH 21 & SB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	149	4.0	0.410	7.0	LOS A	0.0	0.0	0.00	0.00	37.8	
6	T1	865	4.0	0.410	7.0	LOS A	0.0	0.0	0.00	0.00	38.3	
Approach		1014	4.0	0.410	7.0	LOS A	0.0	0.0	0.00	0.00	38.2	
North: SB Off-ramp												
7	L2	214	3.0	0.184	8.5	LOS A	0.5	13.6	0.58	0.58	31.6	
4	T1	1	3.0	0.184	8.5	LOS A	0.5	13.6	0.58	0.58	31.5	
14	R2	910	3.0	0.560	0.0	LOS A	0.0	0.0	0.00	0.00	37.4	
Approach		1125	3.0	0.560	1.7	LOS A	0.5	13.6	0.11	0.11	36.0	
West: STH 21												
2	T1	1222	2.0	0.424	8.6	LOS A	1.8	45.8	0.47	0.44	33.9	
12	R2	223	2.0	0.136	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		1445	2.0	0.424	7.3	LOS A	1.8	45.8	0.40	0.37	34.4	
All Vehicles		3583	2.9	0.560	5.4	LOS A	1.8	45.8	0.19	0.19	35.9	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 2 [STH 21 & SB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	507	4.0	1237	0.410	100	7.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	507	4.0	1237	0.410	100	7.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1014	4.0		0.410		7.0	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	107	3.0	583	0.184	100	8.5	LOS A	0.5	13.6	Short	250	0.0	NA
Lane 2 ^d	107	3.0	583	0.184	100	8.5	LOS A	0.5	13.6	Full	1600	0.0	0.0
Lane 3	910	3.0	1626	0.560	100	0.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1125	3.0		0.560		1.7	LOS A	0.5	13.6				
West: STH 21													
Lane 1	407	2.0	961	0.424	100	8.6	LOS A	1.8	45.8	Short	190	0.0	NA
Lane 2	407	2.0	961	0.424	100	8.6	LOS A	1.8	45.8	Full	1600	0.0	0.0
Lane 3 ^d	407	2.0	961	0.424	100	8.6	LOS A	1.8	45.8	Full	1600	0.0	0.0
Lane 4	223	2.0	1642	0.136	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	1445	2.0		0.424		7.3	LOS A	1.8	45.8				
Intersection	3583	2.9		0.560		5.4	LOS A	1.8	45.8				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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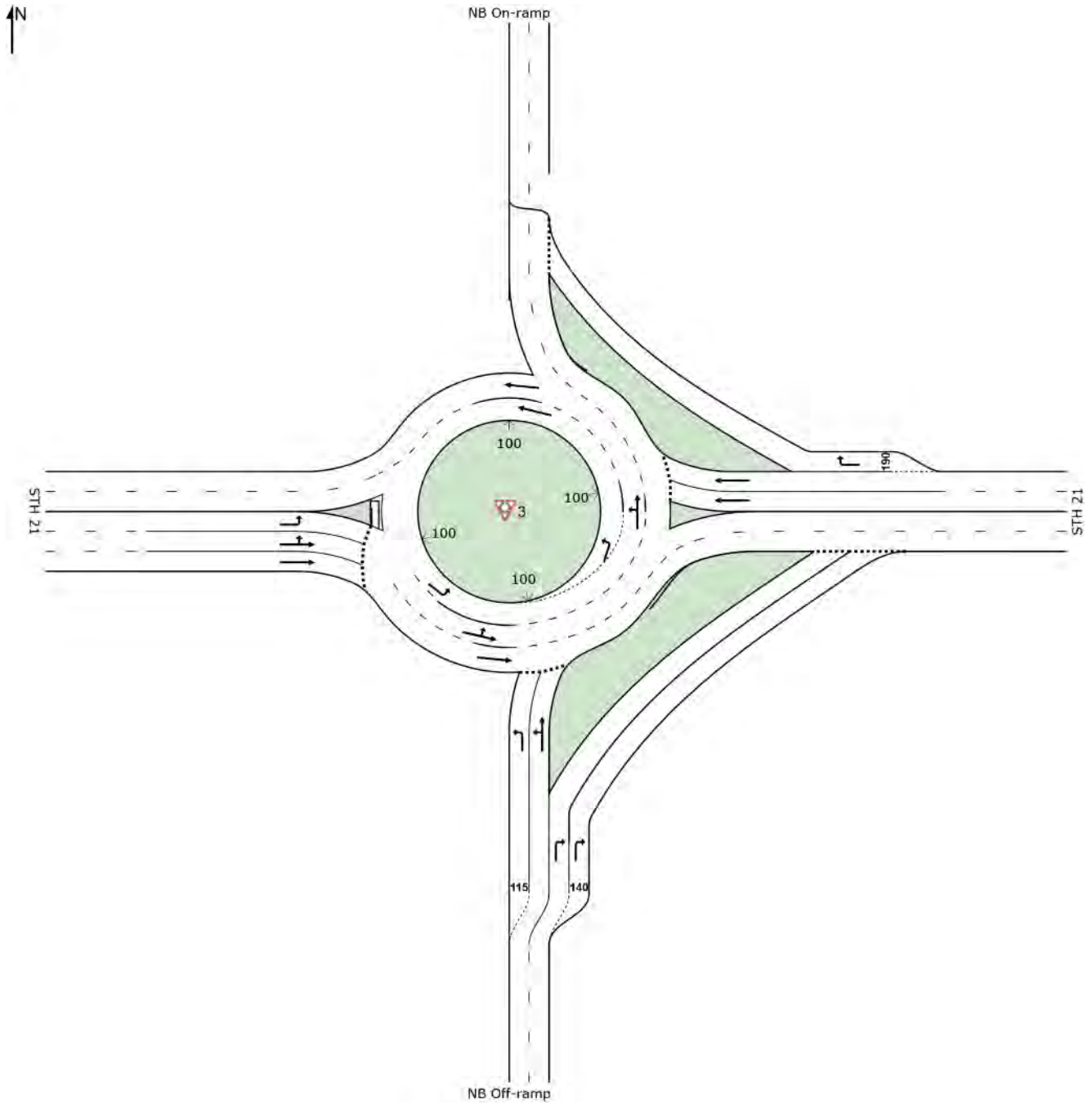
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Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

Site: 3 [STH 21 & NB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



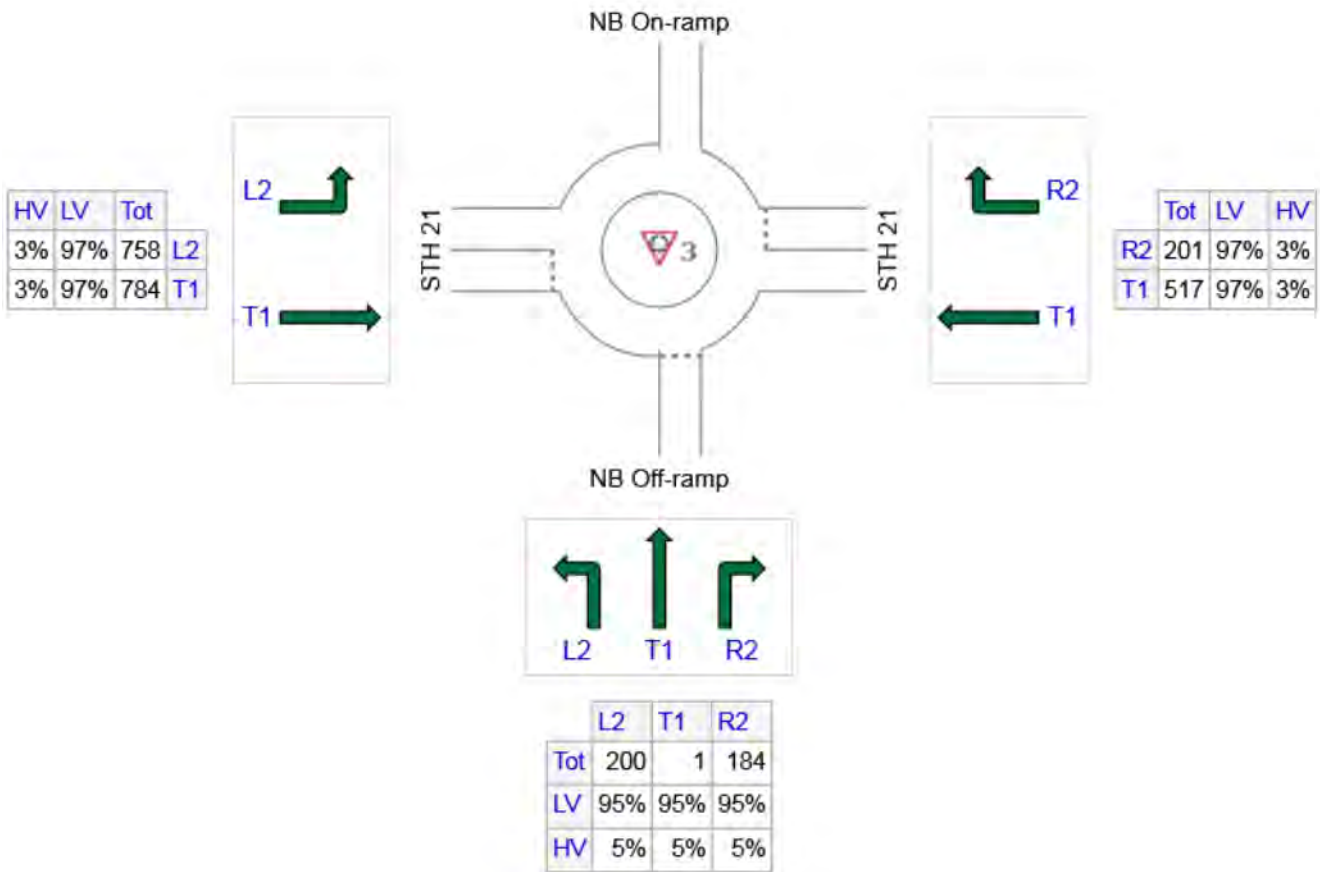
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 3 [STH 21 & NB Ramps AM - Existing Conditions]**

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	385	366	19
E: STH 21	718	696	22
W: STH 21	1542	1496	46
Total	2645	2558	87

MOVEMENT SUMMARY

Site: 3 [STH 21 & NB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	215	5.0	0.303	15.9	LOS B	0.9	23.5	0.77	0.82	28.7
8	T1	1	5.0	0.303	15.9	LOS B	0.9	23.5	0.77	0.82	28.6
18	R2	198	5.0	0.151	7.2	LOS A	0.4	11.2	0.52	0.52	33.0
Approach		414	5.0	0.303	11.8	LOS B	0.9	23.5	0.65	0.68	30.5
East: STH 21											
6	T1	556	3.0	0.481	14.3	LOS B	2.1	54.6	0.69	0.80	31.3
16	R2	216	3.0	0.318	9.3	LOS A	1.1	28.2	0.57	0.59	32.2
Approach		772	3.0	0.481	12.9	LOS B	2.1	54.6	0.65	0.74	31.5
West: STH 21											
5	L2	815	3.0	0.443	7.4	LOS A	0.0	0.0	0.00	0.00	36.0
2	T1	843	3.0	0.443	7.4	LOS A	0.0	0.0	0.00	0.00	38.1
Approach		1658	3.0	0.443	7.4	LOS A	0.0	0.0	0.00	0.00	37.1
All Vehicles		2844	3.3	0.481	9.5	LOS A	2.1	54.6	0.27	0.30	34.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 3 [STH 21 & NB Ramps AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	108	5.0	357	0.303	100	15.9	LOS B	0.9	23.5	Short	115	0.0	NA
Lane 2 ^d	108	5.0	357	0.303	100	15.9	LOS B	0.9	23.5	Full	1600	0.0	0.0
Lane 3	99	5.0	654	0.151	100	7.2	LOS A	0.4	11.2	Full	1600	0.0	0.0
Lane 4	99	5.0	654	0.151	100	7.2	LOS A	0.4	11.2	Short	140	0.0	NA
Approach	414	5.0		0.303		11.8	LOS B	0.9	23.5				
East: STH 21													
Lane 1	278	3.0	578	0.481	100	14.3	LOS B	2.1	54.6	Full	1600	0.0	0.0
Lane 2 ^d	278	3.0	578	0.481	100	14.3	LOS B	2.1	54.6	Full	1600	0.0	0.0
Lane 3	216	3.0	680	0.318	100	9.3	LOS A	1.1	28.2	Short	190	0.0	NA
Approach	772	3.0		0.481		12.9	LOS B	2.1	54.6				
West: STH 21													
Lane 1	553	3.0	1249	0.443	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	553	3.0	1249	0.443	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	553	3.0	1249	0.443	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1658	3.0		0.443		7.4	LOS A	0.0	0.0				
Intersection	2844	3.3		0.481		9.5	LOS A	2.1	54.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

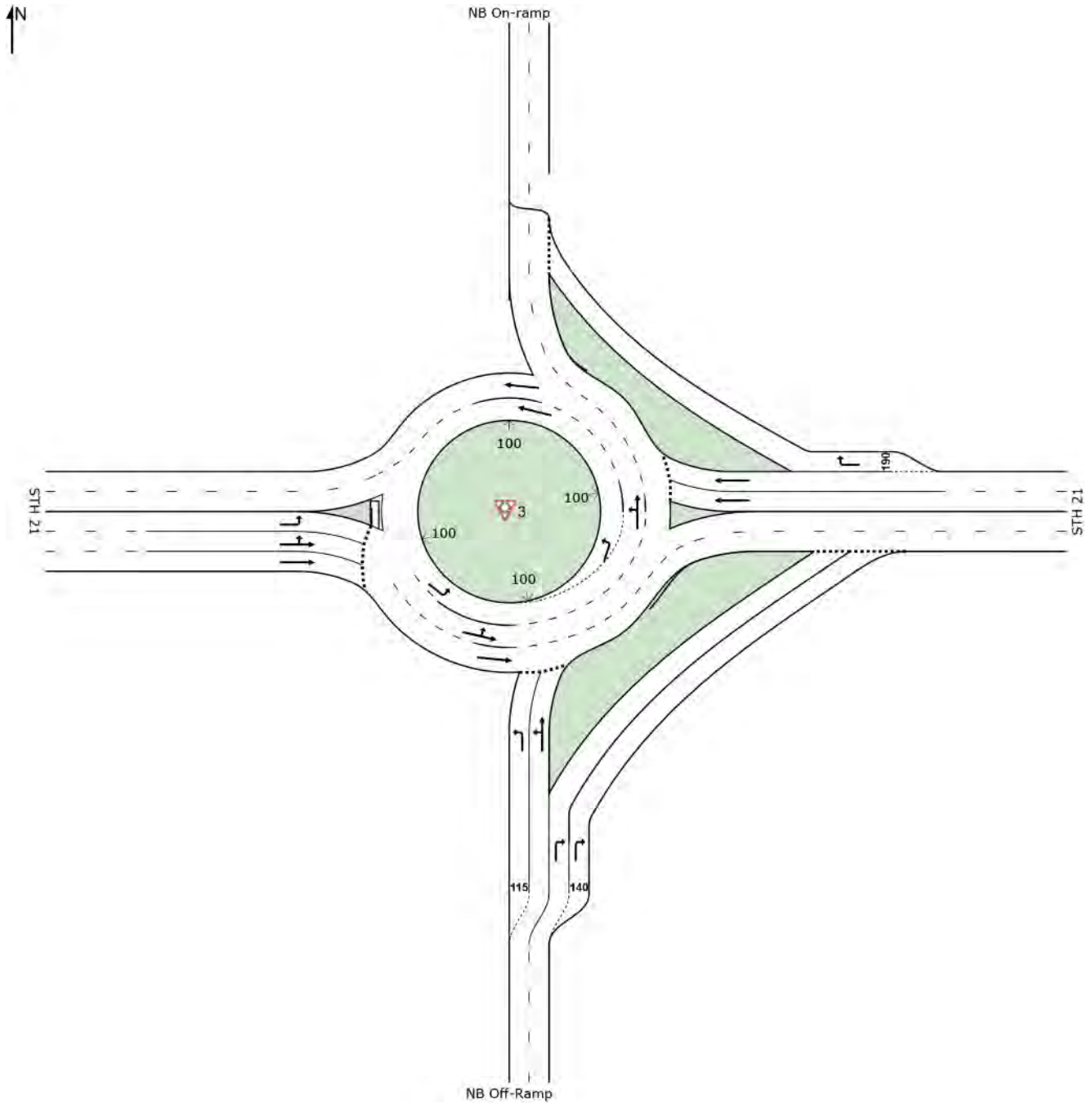
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 3 [STH 21 & NB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



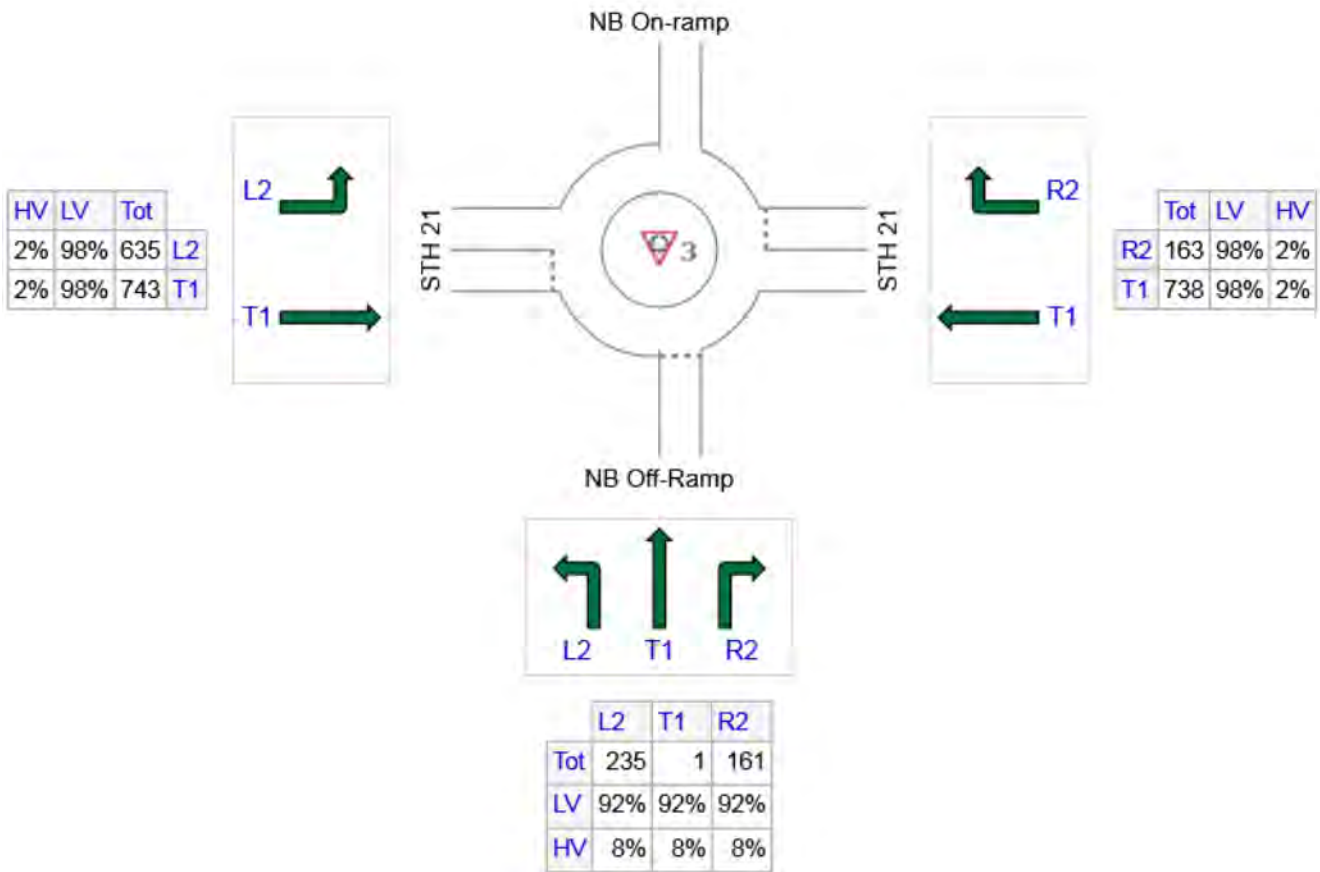
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-Ramp	397	365	32
E: STH 21	901	883	18
W: STH 21	1378	1350	28
Total	2676	2599	77

MOVEMENT SUMMARY

Site: 3 [STH 21 & NB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-Ramp											
3	L2	245	8.0	0.297	13.8	LOS B	0.9	23.5	0.72	0.77	29.4
8	T1	1	8.0	0.297	13.8	LOS B	0.9	23.5	0.72	0.77	29.3
18	R2	168	8.0	0.125	6.7	LOS A	0.3	9.1	0.49	0.49	33.2
Approach		414	8.0	0.297	10.9	LOS B	0.9	23.5	0.63	0.65	30.8
East: STH 21											
6	T1	769	2.0	0.601	16.7	LOS B	3.5	89.9	0.70	0.89	30.3
16	R2	170	2.0	0.219	7.1	LOS A	0.7	17.4	0.49	0.49	33.4
Approach		939	2.0	0.601	15.0	LOS B	3.5	89.9	0.67	0.82	30.8
West: STH 21											
5	L2	661	2.0	0.380	6.5	LOS A	0.0	0.0	0.00	0.00	36.1
2	T1	774	2.0	0.380	6.5	LOS A	0.0	0.0	0.00	0.00	38.2
Approach		1435	2.0	0.380	6.5	LOS A	0.0	0.0	0.00	0.00	37.2
All Vehicles		2788	2.9	0.601	10.0	LOS B	3.5	89.9	0.32	0.37	33.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 3 [STH 21 & NB Ramps PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-Ramp													
Lane 1	123	8.0	414	0.297	100	13.8	LOS B	0.9	23.5	Short	115	0.0	NA
Lane 2 ^d	123	8.0	414	0.297	100	13.8	LOS B	0.9	23.5	Full	1600	0.0	0.0
Lane 3	84	8.0	673	0.125	100	6.7	LOS A	0.3	9.1	Full	1600	0.0	0.0
Lane 4	84	8.0	673	0.125	100	6.7	LOS A	0.3	9.1	Short	140	0.0	NA
Approach	414	8.0		0.297		10.9	LOS B	0.9	23.5				
East: STH 21													
Lane 1	384	2.0	639	0.601	100	16.7	LOS B	3.5	89.9	Full	1600	0.0	0.0
Lane 2 ^d	384	2.0	639	0.601	100	16.7	LOS B	3.5	89.9	Full	1600	0.0	0.0
Lane 3	170	2.0	774	0.219	100	7.1	LOS A	0.7	17.4	Short	190	0.0	NA
Approach	939	2.0		0.601		15.0	LOS B	3.5	89.9				
West: STH 21													
Lane 1	478	2.0	1261	0.380	100	6.5	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	478	2.0	1261	0.380	100	6.5	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	478	2.0	1261	0.380	100	6.5	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1435	2.0		0.380		6.5	LOS A	0.0	0.0				
Intersection	2788	2.9		0.601		10.0	LOS B	3.5	89.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

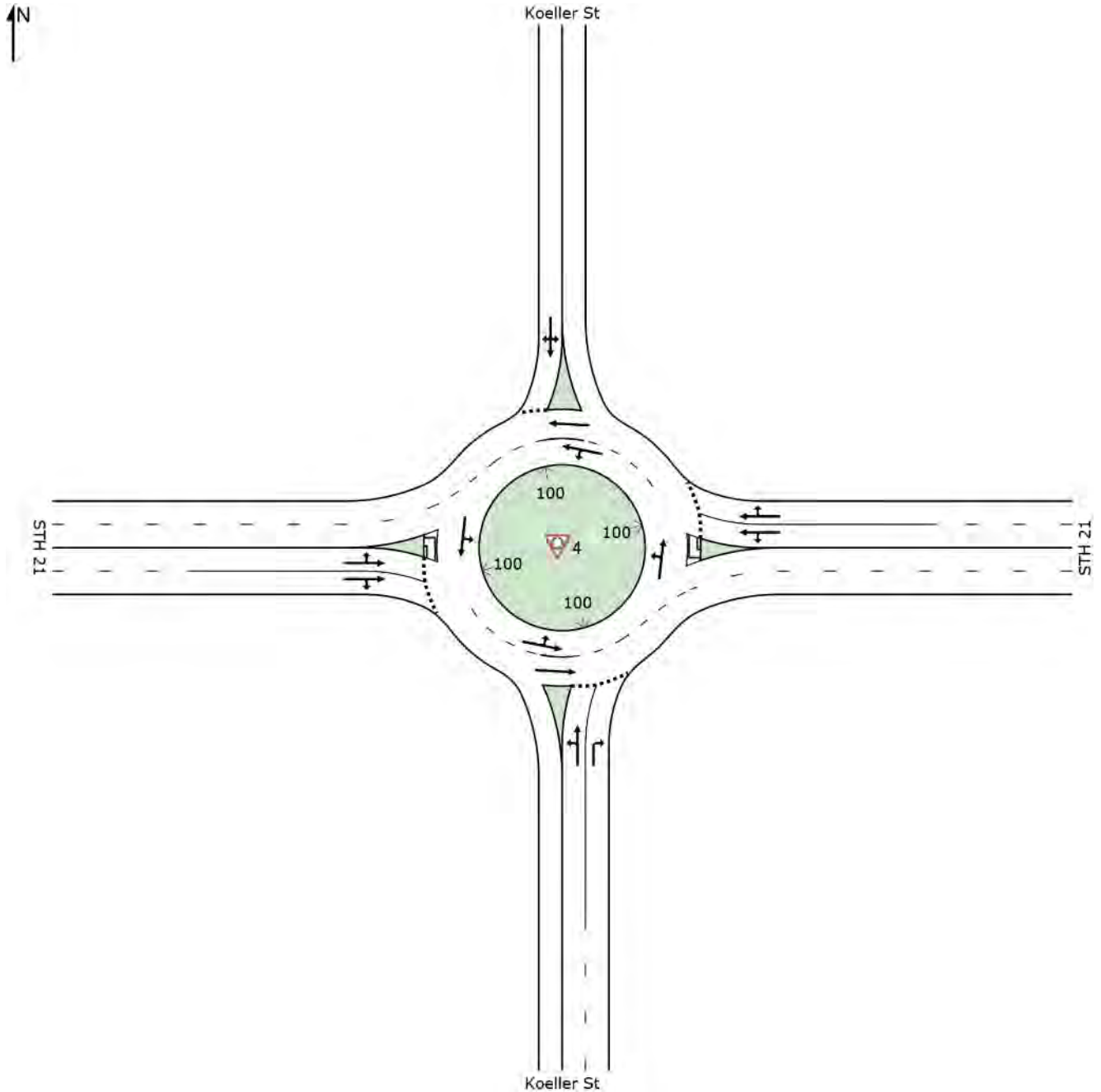
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 4 [STH 21 & Koeller AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



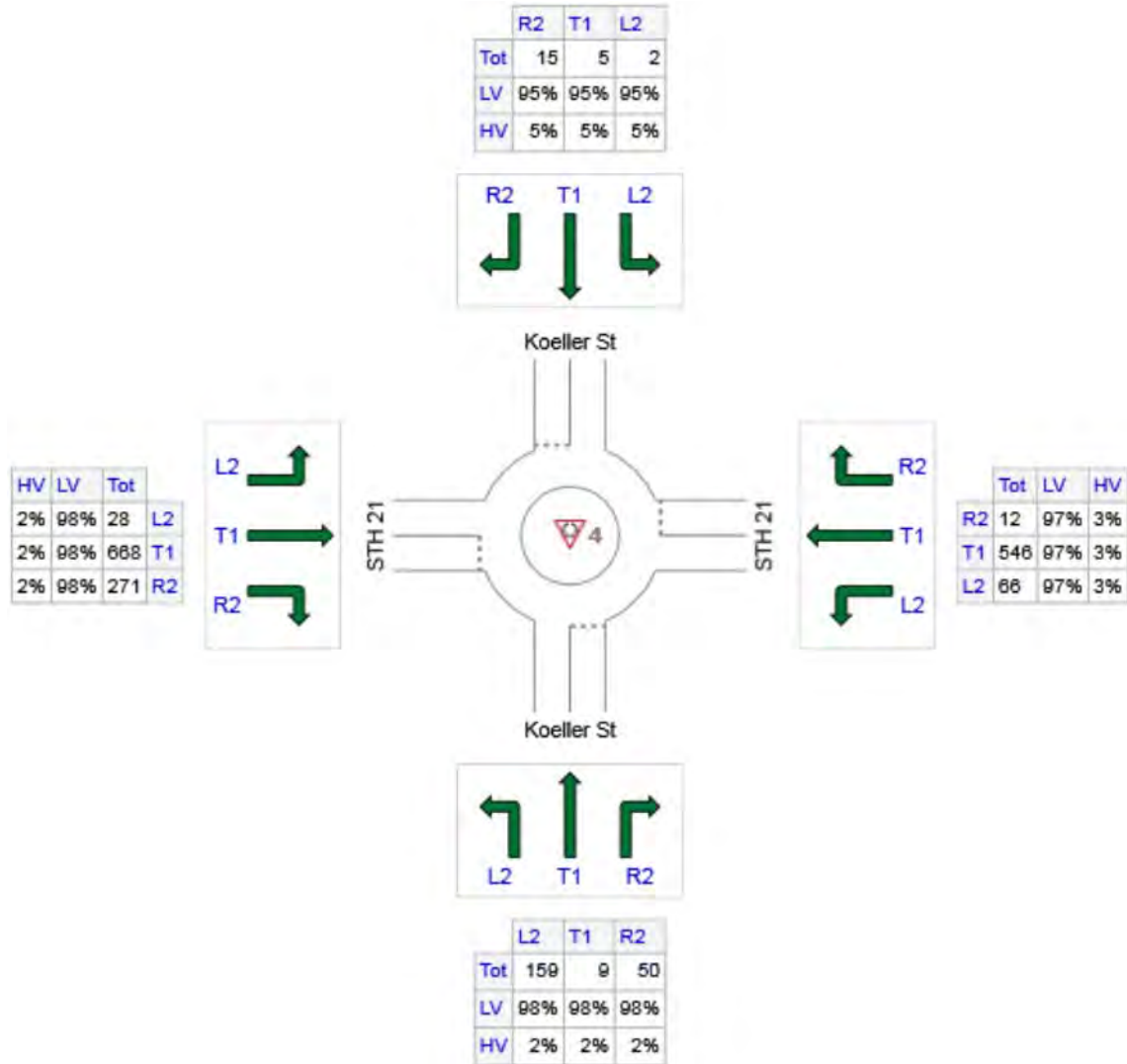
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	218	214	4
E: STH 21	624	605	19
N: Koeller St	22	21	1
W: STH 21	967	948	19
Total	1831	1787	44

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	181	2.0	0.272	8.4	LOS A	0.9	21.9	0.54	0.54	31.3
8	T1	10	2.0	0.272	8.4	LOS A	0.9	21.9	0.54	0.54	31.2
18	R2	57	2.0	0.081	6.0	LOS A	0.2	5.8	0.48	0.48	33.5
Approach		248	2.0	0.272	7.8	LOS A	0.9	21.9	0.53	0.53	31.8
East: STH 21											
1	L2	75	3.0	0.339	6.9	LOS A	1.4	34.6	0.36	0.27	33.8
6	T1	620	3.0	0.339	6.9	LOS A	1.4	34.6	0.36	0.27	34.0
16	R2	14	3.0	0.339	6.9	LOS A	1.4	34.6	0.36	0.27	33.2
Approach		709	3.0	0.339	6.9	LOS A	1.4	34.6	0.36	0.27	34.0
North: Koeller St											
7	L2	2	5.0	0.039	6.1	LOS A	0.1	2.7	0.49	0.47	34.5
4	T1	6	5.0	0.039	6.1	LOS A	0.1	2.7	0.49	0.47	34.4
14	R2	17	5.0	0.039	6.1	LOS A	0.1	2.7	0.49	0.47	33.4
Approach		25	5.0	0.039	6.1	LOS A	0.1	2.7	0.49	0.47	33.7
West: STH 21											
5	L2	32	2.0	0.466	8.0	LOS A	2.4	60.4	0.26	0.14	33.7
2	T1	759	2.0	0.466	8.0	LOS A	2.4	60.4	0.26	0.14	33.6
12	R2	308	2.0	0.466	8.0	LOS A	2.4	60.4	0.26	0.14	32.6
Approach		1099	2.0	0.466	8.0	LOS A	2.4	60.4	0.26	0.14	33.3
All Vehicles		2081	2.4	0.466	7.6	LOS A	2.4	60.4	0.33	0.23	33.3

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller AM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	95% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Koeller St													
Lane 1 ^d	191	2.0	703	0.272	100	8.4	LOS A	0.9	21.9	Full	1600	0.0	0.0
Lane 2	57	2.0	703	0.081	100	6.0	LOS A	0.2	5.8	Full	1600	0.0	0.0
Approach	248	2.0		0.272		7.8	LOS A	0.9	21.9				
East: STH 21													
Lane 1	355	3.0	1046	0.339	100	6.9	LOS A	1.4	34.6	Full	1600	0.0	0.0
Lane 2 ^d	355	3.0	1046	0.339	100	6.9	LOS A	1.4	34.6	Full	1600	0.0	0.0
Approach	709	3.0		0.339		6.9	LOS A	1.4	34.6				
North: Koeller St													
Lane 1 ^d	25	5.0	639	0.039	100	6.1	LOS A	0.1	2.7	Full	1600	0.0	0.0
Approach	25	5.0		0.039		6.1	LOS A	0.1	2.7				
West: STH 21													
Lane 1	549	2.0	1180	0.466	100	8.0	LOS A	2.4	60.4	Full	1600	0.0	0.0
Lane 2 ^d	549	2.0	1180	0.466	100	8.0	LOS A	2.4	60.4	Full	1600	0.0	0.0
Approach	1099	2.0		0.466		8.0	LOS A	2.4	60.4				
Intersection	2081	2.4		0.466		7.6	LOS A	2.4	60.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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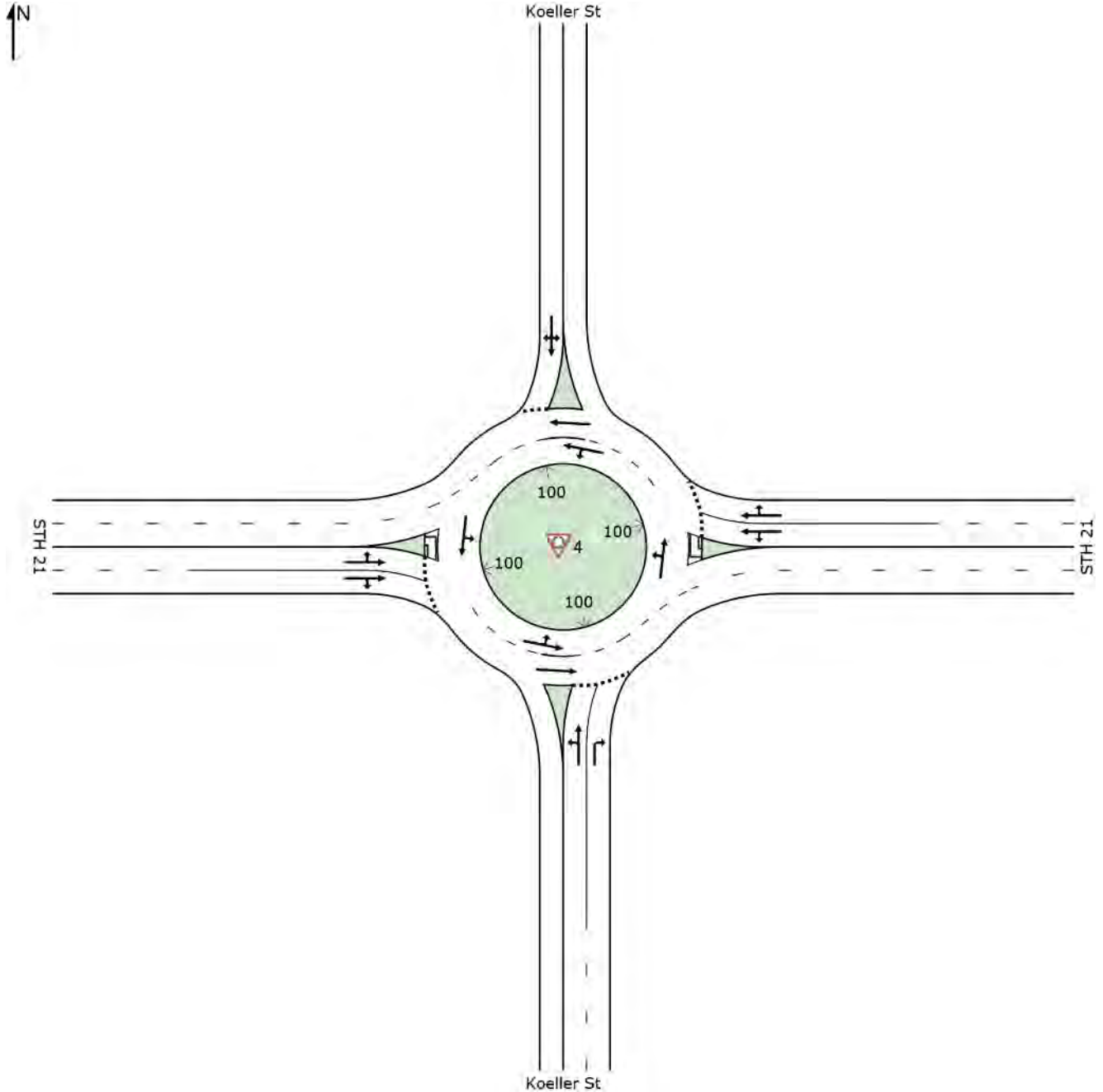
Organisation: KL ENGINEERING, INC. | Processed: Wednesday, February 07, 2018 12:36:47

Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

Site: 4 [STH 21 & Koeller PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout



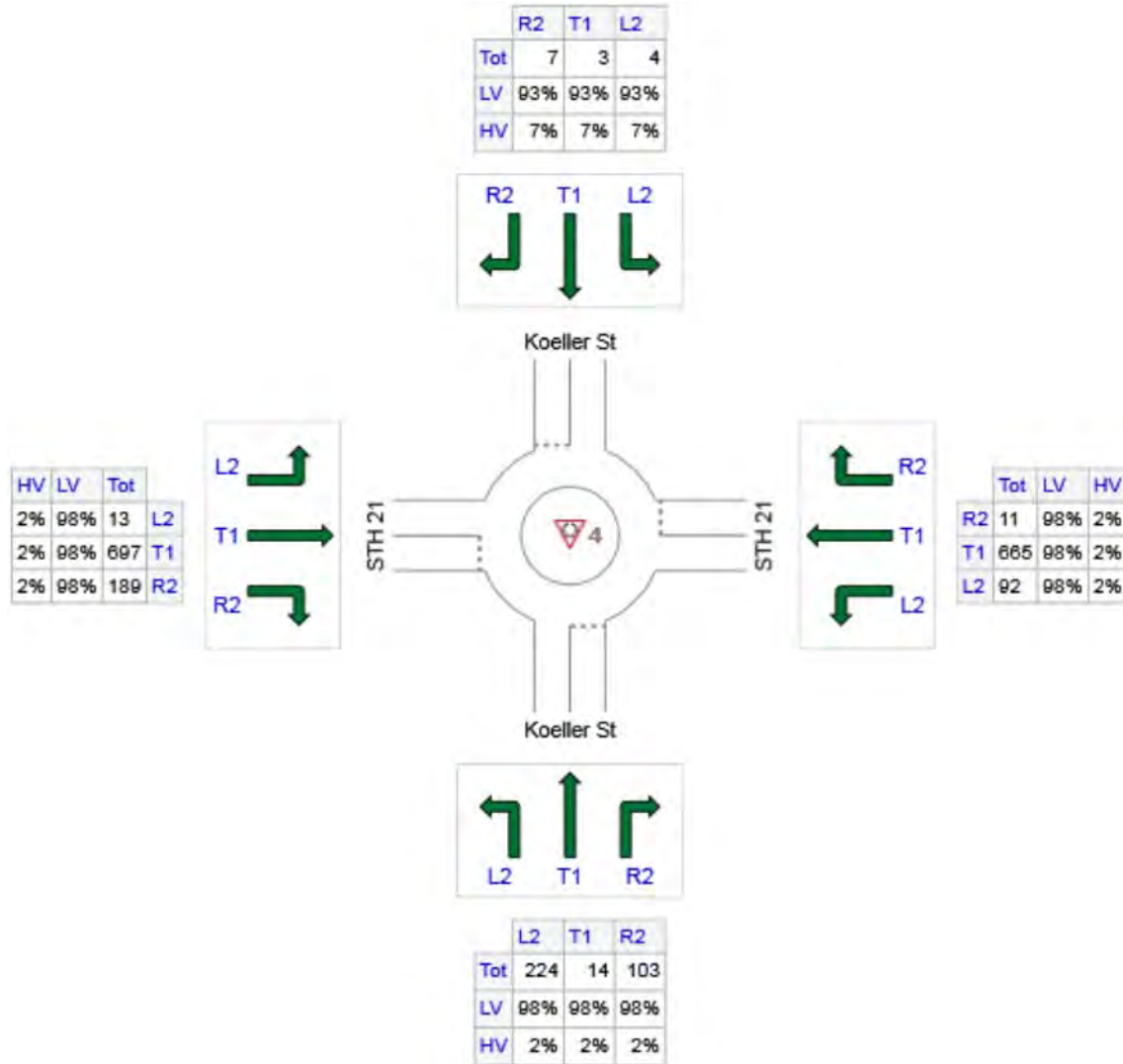
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 4 [STH 21 & Koeller PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	341	334	7
E: STH 21	768	753	15
N: Koeller St	14	13	1
W: STH 21	899	881	18
Total	2022	1981	41

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	229	2.0	0.329	8.9	LOS A	1.2	30.2	0.55	0.58	31.1
8	T1	14	2.0	0.329	8.9	LOS A	1.2	30.2	0.55	0.58	31.0
18	R2	105	2.0	0.143	6.4	LOS A	0.4	10.7	0.49	0.49	33.3
Approach		348	2.0	0.329	8.2	LOS A	1.2	30.2	0.53	0.55	31.7
East: STH 21											
1	L2	94	2.0	0.381	7.5	LOS A	1.6	40.6	0.41	0.32	33.4
6	T1	679	2.0	0.381	7.5	LOS A	1.6	40.6	0.41	0.32	33.7
16	R2	11	2.0	0.381	7.5	LOS A	1.6	40.6	0.41	0.32	32.9
Approach		784	2.0	0.381	7.5	LOS A	1.6	40.6	0.41	0.32	33.6
North: Koeller St											
7	L2	4	7.0	0.025	6.5	LOS A	0.1	1.7	0.53	0.50	33.6
4	T1	3	7.0	0.025	6.5	LOS A	0.1	1.7	0.53	0.50	33.6
14	R2	7	7.0	0.025	6.5	LOS A	0.1	1.7	0.53	0.50	32.6
Approach		14	7.0	0.025	6.5	LOS A	0.1	1.7	0.53	0.50	33.1
West: STH 21											
5	L2	13	2.0	0.394	7.1	LOS A	1.8	45.5	0.26	0.15	34.2
2	T1	711	2.0	0.394	7.1	LOS A	1.8	45.5	0.26	0.15	34.1
12	R2	193	2.0	0.394	7.1	LOS A	1.8	45.5	0.26	0.15	33.1
Approach		917	2.0	0.394	7.1	LOS A	1.8	45.5	0.26	0.15	33.9
All Vehicles		2063	2.0	0.394	7.4	LOS A	1.8	45.5	0.36	0.28	33.4

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller PM - Existing Conditions]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	243	2.0	737	0.329	100	8.9	LOS A	1.2	30.2	Full	1600	0.0	0.0
Lane 2	105	2.0	737	0.143	100	6.4	LOS A	0.4	10.7	Full	1600	0.0	0.0
Approach	348	2.0		0.329		8.2	LOS A	1.2	30.2				
East: STH 21													
Lane 1	392	2.0	1029	0.381	100	7.5	LOS A	1.6	40.6	Full	1600	0.0	0.0
Lane 2 ^d	392	2.0	1029	0.381	100	7.5	LOS A	1.6	40.6	Full	1600	0.0	0.0
Approach	784	2.0		0.381		7.5	LOS A	1.6	40.6				
North: Koeller St													
Lane 1 ^d	14	7.0	575	0.025	100	6.5	LOS A	0.1	1.7	Full	1600	0.0	0.0
Approach	14	7.0		0.025		6.5	LOS A	0.1	1.7				
West: STH 21													
Lane 1	459	2.0	1163	0.394	100	7.1	LOS A	1.8	45.5	Full	1600	0.0	0.0
Lane 2 ^d	459	2.0	1163	0.394	100	7.1	LOS A	1.8	45.5	Full	1600	0.0	0.0
Approach	917	2.0		0.394		7.1	LOS A	1.8	45.5				
Intersection	2063	2.0		0.394		7.4	LOS A	1.8	45.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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Lanes, Volumes, Timings
1: N Westfield St & STH 21

Existing Conditions
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	672	54	55	568	48	34
Future Volume (vph)	672	54	55	568	48	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1048			790	629	
Travel Time (s)	23.8			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	816	0	0	700	54	38
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.30			0.31	0.23	0.16
Control Delay	3.7			3.9	32.7	12.4

Lanes, Volumes, Timings
1: N Westfield St & STH 21

Existing Conditions
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.7			3.9	32.7	12.4
Queue Length 50th (ft)	58			52	23	0
Queue Length 95th (ft)	79			72	55	25
Internal Link Dist (ft)	968			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2718			2224	928	848
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.30			0.31	0.06	0.04

Intersection Summary

Area Type: Other

Cycle Length: 106.4

Actuated Cycle Length: 76.2

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
 1: N Westfield St & STH 21

Existing Conditions
 AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖	↗		
Traffic Volume (veh/h)	672	54	55	568	48	34		
Future Volume (veh/h)	672	54	55	568	48	34		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1845	1863	1863		
Adj Flow Rate, veh/h	755	61	62	638	54	26		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	2	2	3	3	2	2		
Cap, veh/h	2449	198	214	2101	193	172		
Arrive On Green	0.74	0.74	0.74	0.74	0.11	0.11		
Sat Flow, veh/h	3410	268	213	2929	1774	1583		
Grp Volume(v), veh/h	403	413	339	361	54	26		
Grp Sat Flow(s),veh/h/ln	1770	1815	1463	1595	1774	1583		
Q Serve(g_s), s	5.7	5.7	0.0	5.7	2.1	1.1		
Cycle Q Clear(g_c), s	5.7	5.7	4.4	5.7	2.1	1.1		
Prop In Lane		0.15	0.18		1.00	1.00		
Lane Grp Cap(c), veh/h	1307	1340	1138	1177	193	172		
V/C Ratio(X)	0.31	0.31	0.30	0.31	0.28	0.15		
Avail Cap(c_a), veh/h	1307	1340	1138	1177	953	850		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	3.3	3.1	3.3	30.5	30.1		
Incr Delay (d2), s/veh	0.6	0.6	0.1	0.1	0.8	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	5.2	5.4	4.0	4.4	1.9	0.9		
LnGrp Delay(d),s/veh	3.9	3.9	3.3	3.4	31.3	30.5		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	816			700	80			
Approach Delay, s/veh	3.9			3.4	31.0			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		14.0		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		7.7		4.1		7.7		
Green Ext Time (p_c), s		14.4		0.2		14.4		
Intersection Summary								
HCM 2010 Ctrl Delay			5.0					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
1: N Westfield St & STH 21

Existing Conditions
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	774	37	36	734	60	44
Future Volume (vph)	774	37	36	734	60	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1073			790	629	
Travel Time (s)	24.4			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	836	0	0	794	62	45
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.31			0.33	0.26	0.18
Control Delay	3.8			4.0	33.2	11.9

Lanes, Volumes, Timings
1: N Westfield St & STH 21

Existing Conditions
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.8			4.0	33.2	11.9
Queue Length 50th (ft)	61			60	27	0
Queue Length 95th (ft)	85			85	62	28
Internal Link Dist (ft)	993			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2724			2432	927	851
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.31			0.33	0.07	0.05

Intersection Summary

Area Type: Other

Cycle Length: 106.4

Actuated Cycle Length: 76.3

Natural Cycle: 40











Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

Existing Conditions
PM Peak

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	774	37	36	734	60	44		
Future Volume (veh/h)	774	37	36	734	60	44		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1863		
Adj Flow Rate, veh/h	798	38	37	757	62	32		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2523	120	123	2347	203	181		
Arrive On Green	0.73	0.73	0.73	0.73	0.11	0.11		
Sat Flow, veh/h	3533	164	96	3285	1774	1583		
Grp Volume(v), veh/h	410	426	407	387	62	32		
Grp Sat Flow(s),veh/h/ln	1770	1834	1686	1610	1774	1583		
Q Serve(g_s), s	6.0	6.0	0.0	6.3	2.4	1.4		
Cycle Q Clear(g_c), s	6.0	6.0	5.6	6.3	2.4	1.4		
Prop In Lane		0.09	0.09		1.00	1.00		
Lane Grp Cap(c), veh/h	1298	1345	1289	1181	203	181		
V/C Ratio(X)	0.32	0.32	0.32	0.33	0.31	0.18		
Avail Cap(c_a), veh/h	1298	1345	1289	1181	946	845		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.5	3.5	3.4	3.5	30.5	30.0		
Incr Delay (d2), s/veh	0.6	0.6	0.1	0.2	0.8	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	5.5	5.7	5.2	5.1	2.2	1.1		
LnGrp Delay(d),s/veh	4.1	4.1	3.5	3.7	31.3	30.5		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	836			794	94			
Approach Delay, s/veh	4.1			3.6	31.0			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		14.5		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		8.0		4.4		8.3		
Green Ext Time (p_c), s		15.7		0.3		15.7		
Intersection Summary								
HCM 2010 Ctrl Delay			5.3					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

Existing Conditions
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	641	102	0	475	142	0	
Future Volume (vph)	641	102	0	475	142	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	844	0	0	540	161	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	50.0				19.0		21.0
Total Split (%)	55.6%				21.1%		23%
Maximum Green (s)	45.0				14.0		16.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.48			0.21	0.59		
Control Delay	15.4			4.0	16.7		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.7	0.0		
Total Delay	15.4			4.7	16.7		
Queue Length 50th (ft)	153			42	5		
Queue Length 95th (ft)	196			56	38		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1746			2570	272		
Starvation Cap Reductn	0			1611	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.48			0.56	0.59		

Intersection Summary

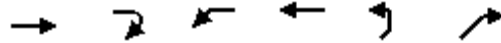
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

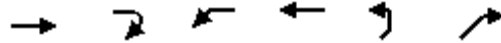
Existing Conditions
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	641	0	183	475	0	165	
Future Volume (vph)	641	0	183	475	0	165	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	728	0	208	540	0	188	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		15.0			15.0	
Total Split (s)	50.0		19.0			21.0	
Total Split (%)	55.6%		21.1%			23%	
Maximum Green (s)	45.5		14.5			16.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.41		0.38	0.15		0.12	
Control Delay	2.7		36.1	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

Existing Conditions
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.1		0.0	0.0		0.0	
Total Delay	2.8		36.1	0.1		0.2	
Queue Length 50th (ft)	12		55	0		0	
Queue Length 95th (ft)	14		86	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1789		547	3505		1596	
Starvation Cap Reductn	277		0	0		0	
Spillback Cap Reductn	0		0	5		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.48		0.38	0.15		0.12	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

Existing Conditions
AM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↖	
Traffic Volume (vph)	142	165	0	102	183	0	
Future Volume (vph)	142	165	0	102	183	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	161	188	0	116	208	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	15.0				15.0		22.5
Total Split (s)	19.0				21.0		50.0
Total Split (%)	21.1%				23.3%		56%
Maximum Green (s)	14.5				16.5		45.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.54	0.12		0.09	0.33		
Control Delay	42.3	0.2		1.1	3.9		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

Existing Conditions
AM Peak



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		0.9	0.1		
Total Delay	42.3	0.2		2.0	4.0		
Queue Length 50th (ft)	85	0		3	2		
Queue Length 95th (ft)	145	0		5	3		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	297	1568		1335	623		
Starvation Cap Reductn	0	0		1014	53		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.54	0.12		0.36	0.36		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	216	234	107	75	58
Average Queue (ft)	113	128	51	32	33
95th Queue (ft)	185	204	88	73	69
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	0	0	3	1	28
Queuing Penalty (veh)	0	0	7	2	41
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	NE
Directions Served	T	T	L	L	R
Maximum Queue (ft)	47	44	103	103	53
Average Queue (ft)	8	6	48	43	8
95th Queue (ft)	31	27	86	83	34
Link Distance (ft)	64	64	2124	2124	78
Upstream Blk Time (%)	0	0			0
Queuing Penalty (veh)	0	0			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: N Sawyer St & Connector

Movement	NB	SB	SW	SW
Directions Served	T	T	L	L
Maximum Queue (ft)	221	56	20	32
Average Queue (ft)	98	15	4	4
95th Queue (ft)	191	46	16	19
Link Distance (ft)	811	50	78	78
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 52

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

Existing Conditions
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	671	137	0	650	113	0	
Future Volume (vph)	671	137	0	650	113	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	825	0	0	663	115	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	40.0				26.0		24.0
Total Split (%)	44.4%				28.9%		27%
Maximum Green (s)	35.0				21.0		19.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.61			0.29	0.28		
Control Delay	23.5			7.0	5.0		

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

Existing Conditions
PM Peak

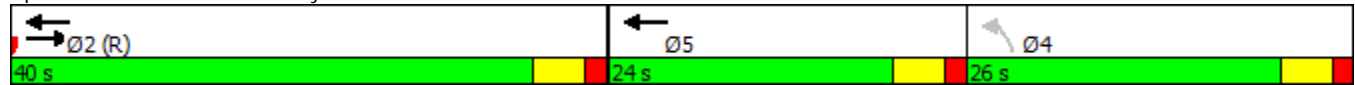


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.9	1.1		
Total Delay	23.5			7.8	6.2		
Queue Length 50th (ft)	186			74	3		
Queue Length 95th (ft)	248			100	6		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1347			2320	413		
Starvation Cap Reductn	0			1301	153		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.61			0.65	0.44		

Intersection Summary

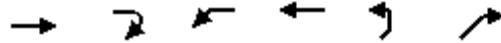
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

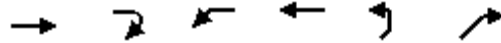
Existing Conditions
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	671	0	205	650	0	252	
Future Volume (vph)	671	0	205	650	0	252	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	685	0	209	663	0	257	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		22.5			22.5	
Total Split (s)	40.0		26.0			24.0	
Total Split (%)	44.4%		28.9%			27%	
Maximum Green (s)	35.5		21.5			19.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.50		0.25	0.19		0.16	
Control Delay	3.7		28.8	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

Existing Conditions
PM Peak

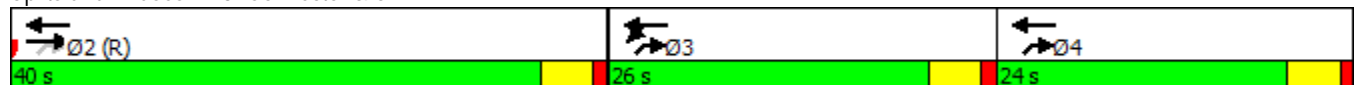


Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.3		0.0	0.0		0.0	
Total Delay	4.0		28.8	0.1		0.2	
Queue Length 50th (ft)	13		50	0		0	
Queue Length 95th (ft)	15		79	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1382		820	3539		1611	
Starvation Cap Reductn	211		0	0		0	
Spillback Cap Reductn	0		0	278		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.58		0.25	0.20		0.16	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



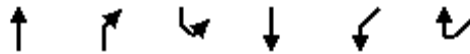
Lanes, Volumes, Timings
4: N Sawyer St & Connector

Existing Conditions
PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↖	
Traffic Volume (vph)	113	252	0	137	205	0	
Future Volume (vph)	113	252	0	137	205	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	115	257	0	140	209	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	22.5				22.5		22.5
Total Split (s)	24.0				26.0		40.0
Total Split (%)	26.7%				28.9%		44%
Maximum Green (s)	19.5				21.5		35.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)	7.0				7.0		7.0
Flash Dont Walk (s)	11.0				11.0		11.0
Pedestrian Calls (#/hr)	0				0		0
v/c Ratio	0.29	0.16		0.11	0.25		
Control Delay	31.7	0.2		1.4	4.6		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

Existing Conditions
PM Peak

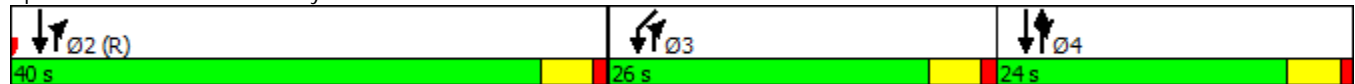


Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		1.4	0.2		
Total Delay	31.7	0.2		2.8	4.8		
Queue Length 50th (ft)	55	0		4	3		
Queue Length 95th (ft)	103	0		m6	6		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	403	1583		1231	820		
Starvation Cap Reductn	0	0		923	206		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.29	0.16		0.45	0.34		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	247	273	125	140	53
Average Queue (ft)	152	177	75	60	9
95th Queue (ft)	231	261	110	119	35
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	1	2	9	4	3
Queuing Penalty (veh)	3	9	30	14	3
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	57	52	109	109	12	4	88
Average Queue (ft)	13	12	44	43	0	0	18
95th Queue (ft)	41	39	81	87	9	3	57
Link Distance (ft)	64	64	2124	2124			78
Upstream Blk Time (%)	0	0					0
Queuing Penalty (veh)	1	0					1
Storage Bay Dist (ft)					225	225	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	153	54	57	44	37
Average Queue (ft)	64	2	17	9	7
95th Queue (ft)	119	29	51	28	28
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			2	0	
Queuing Penalty (veh)			3	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

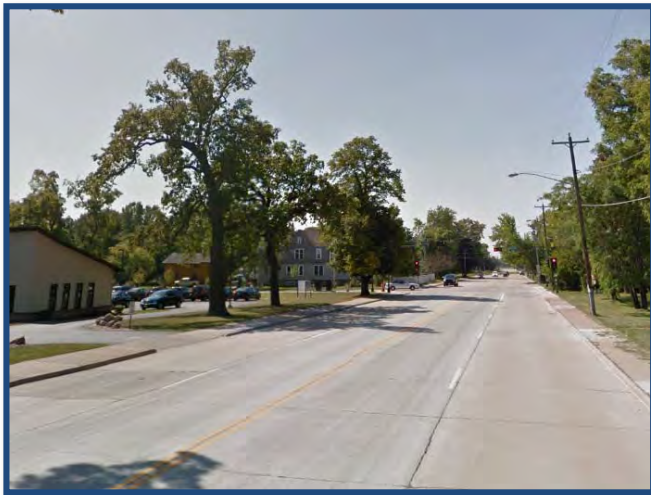
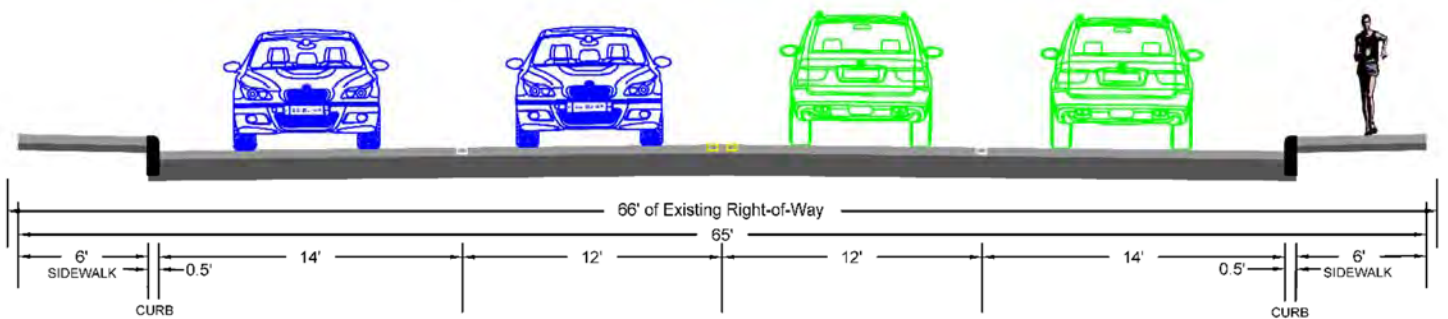
Zone Summary

Zone wide Queuing Penalty: 65

APPENDIX C

Corridor Improvement Alternatives

Existing



Oshkosh Ave (STH 21) just east of N. Westfield St - looking west



Oshkosh Ave (STH 21) just west of N. Sawyer St - looking west

PERFORMANCE MEASURES

Operations

Advantages

- Sufficient capacity for through vehicles.

Disadvantages

- No separate left-turn lanes. Through vehicles are delayed by left-turn vehicles.
- Poor lane utilization, which results in issues downstream.

Safety

Disadvantages

- Higher potential of rear-end, angle, and head-on crashes.
- Vehicle speed differential.
- Higher number of conflict points.
- No terrace between roadway and sidewalk.
- More difficult for pedestrians to judge gaps when crossing.

Access

Advantages

- Provides full access to all roadways and driveways along corridor.

Disadvantages

- No refuge for a two-stage crossing.

Feasibility

Advantages

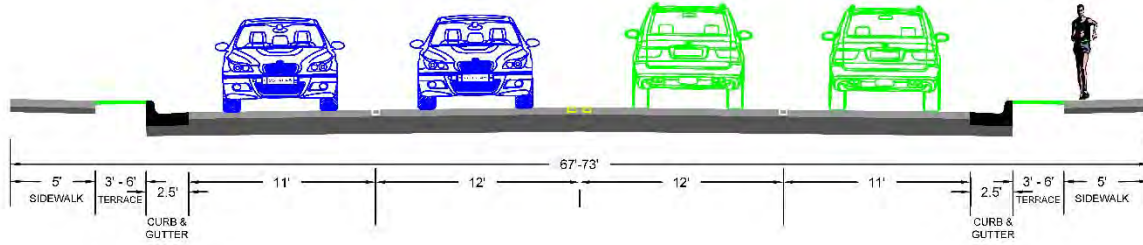
- Low cost
- Fits in existing right-of-way.

Disadvantages

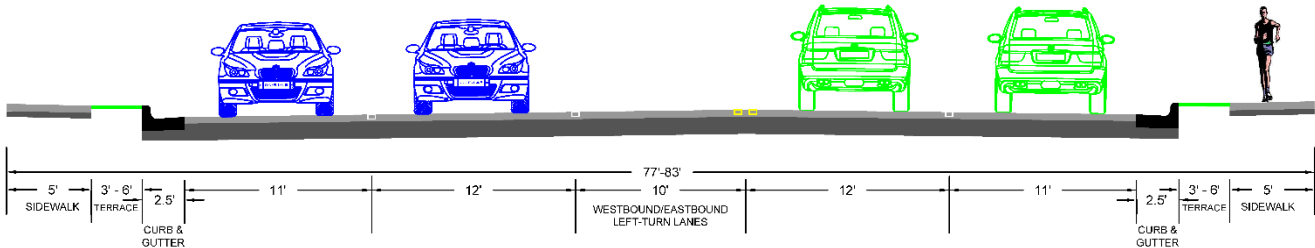
- Sidewalk does not meet ADA requirements.
- Provides minimal space for snow removal.
- Minimal opportunity for streetscape improvements.

Alt 1: Four-Lane Undivided

Corridor



At N. Westfield St Intersection



Example:

Algoma Blvd at W Murdock Ave – looking north (Oshkosh, WI)

PERFORMANCE MEASURES

Operations

Advantages

- Sufficient capacity for through vehicles.
- Left-turn lanes at N. Westfield St.

Disadvantages

- No separate left-turn lanes for other accesses.
- Poor lane utilization, which results in issues downstream.

Safety

Advantages

- Left-turn lanes provided at N. Westfield St intersection.
- Buffer provided between roadway and sidewalk.

Disadvantages

- Higher number of conflict points and crash potential.
- Vehicle speed differential.

Access

Advantages

- Provides full access to all roadways and driveways along corridor.

Disadvantages

- No refuge for a two-stage crossing.

Feasibility

Advantages

- Moderate costs.
- Minimal right-of-way impacts.
- Sufficient pedestrian accommodations.

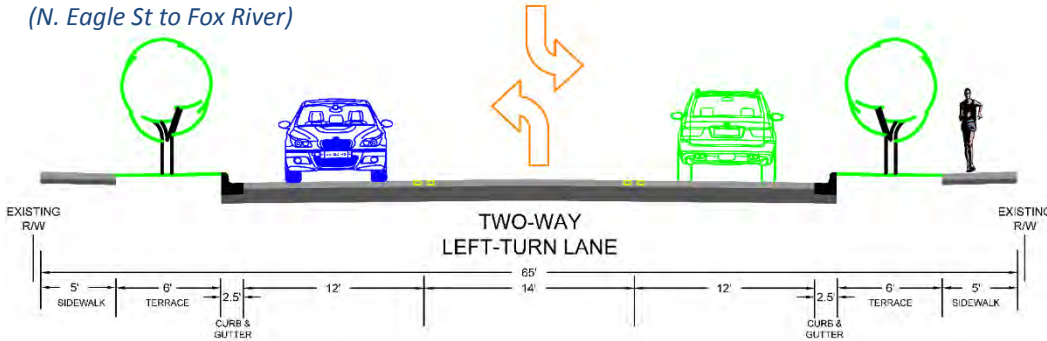
Disadvantages

- Requires extra right-of-way near N. Westfield St intersection for left-turn lanes.
- Minimal opportunity for streetscape improvements.

Alt 2: Two-Way Left-Turn Lane (TWLTL)

Three-Lane TWLTL*

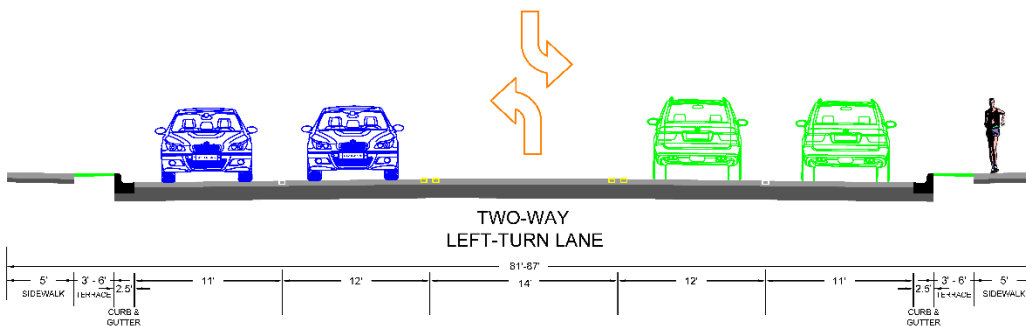
(N. Eagle St to Fox River)



* Three-lane TWLTL will not provide adequate capacity for through vehicles west of Eagle Street.

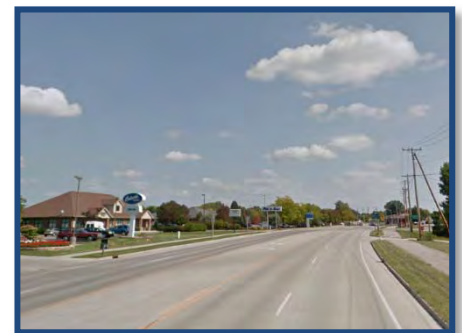
Five-Lane TWLTL

(N. Koeller St to N. Eagle St)



Example:

N Sherman Ave south of Aberg Ave – looking north (Madison, WI)



Example:

W Pioneer Rd west of S Main St – looking east (Fond Du Lac, WI)

PERFORMANCE MEASURES

Operations

Advantages

- Provides separate left-turn lane for all access points, reducing through traffic delays.
- Better lane utilization.

Disadvantages

- Reduced capacity in 3-lane section.
- Poor operations at N. Sawyer St intersection due to limited capacity.

Safety

Advantages

- Reduction in conflict points.
- Potential reduction in overall crashes compared to four-lane undivided section.
- Reduces speed differential.

Disadvantages

- Possible left-turn conflict in middle lane.

Access

Advantages

- Provides full access to all roadways and driveways along corridor.
- Provides turning refuge along Oshkosh Ave.
- Easier for side-street traffic.

Feasibility

Advantages

- Sufficient pedestrian accommodations.
- 3-lane section: no right-of-way impacts.

Disadvantages

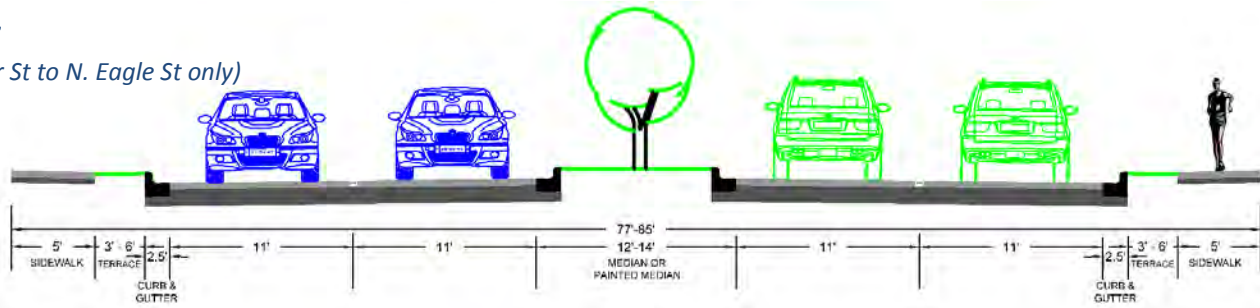
- 3-lane section: requires transition between roadway sections to the east and west.
- 5-lane section: high cost and right-of-way acquisition required.

Alt 3: Four-Lane Divided

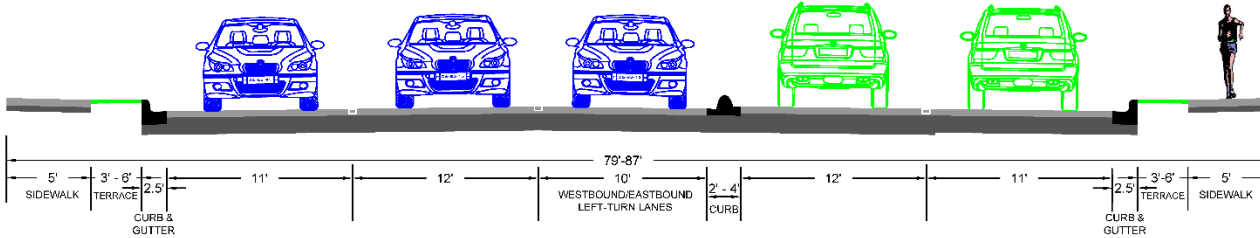
(N. Koeller St to N. Eagle St Only)

Corridor

(N. Koeller St to N. Eagle St only)



At N. Westfield St Intersection



Example: Monona Drive at St Teresa Terrace – looking north (Monona, WI)



Example: Monona Drive at E Dean Ave – looking north (Monona, WI)

PERFORMANCE MEASURES

Operations

Advantages

- Optimal capacity for through vehicles.
- Left-turn lanes at major access points only.

Disadvantages

- Increased travel time for vehicles that want to turn left where there is no median opening.

Safety

Advantages

- Safest corridor alternative.
- Reduces head-on, angle, and rear-end crash expectancy.
- Reduce vehicle-to-vehicle conflicts.

Disadvantages

- Results in U-turn maneuvers for driveway access.

Access

Advantages

- Provides access control along corridor.

Disadvantages

- Results in right-in/right-out access at most driveways.

Feasibility

Advantages

- Opportunities for aesthetic improvements.
- Sufficient pedestrian accommodations.
- Easy transition between roadway sections.

Disadvantages

- High cost.
- Right-of-way acquisition required.

APPENDIX D

Intersection Improvement Alternatives



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Efficient relief of traffic backups after lift bridge operations.

Disadvantages

- Does not meet current MUTCD standards.

Safety

Disadvantages

- Intersection confusion.
- Unacceptable pedestrian accommodations.
- Increased number of conflict points.

Access

Advantages

- Creates gaps in traffic downstream.

Disadvantages

- Does not provide connectivity between roadways north & south of Oshkosh Ave.
- No direct access to Rainbow Dr. from N. Sawyer or EB Oshkosh Ave.

Feasibility

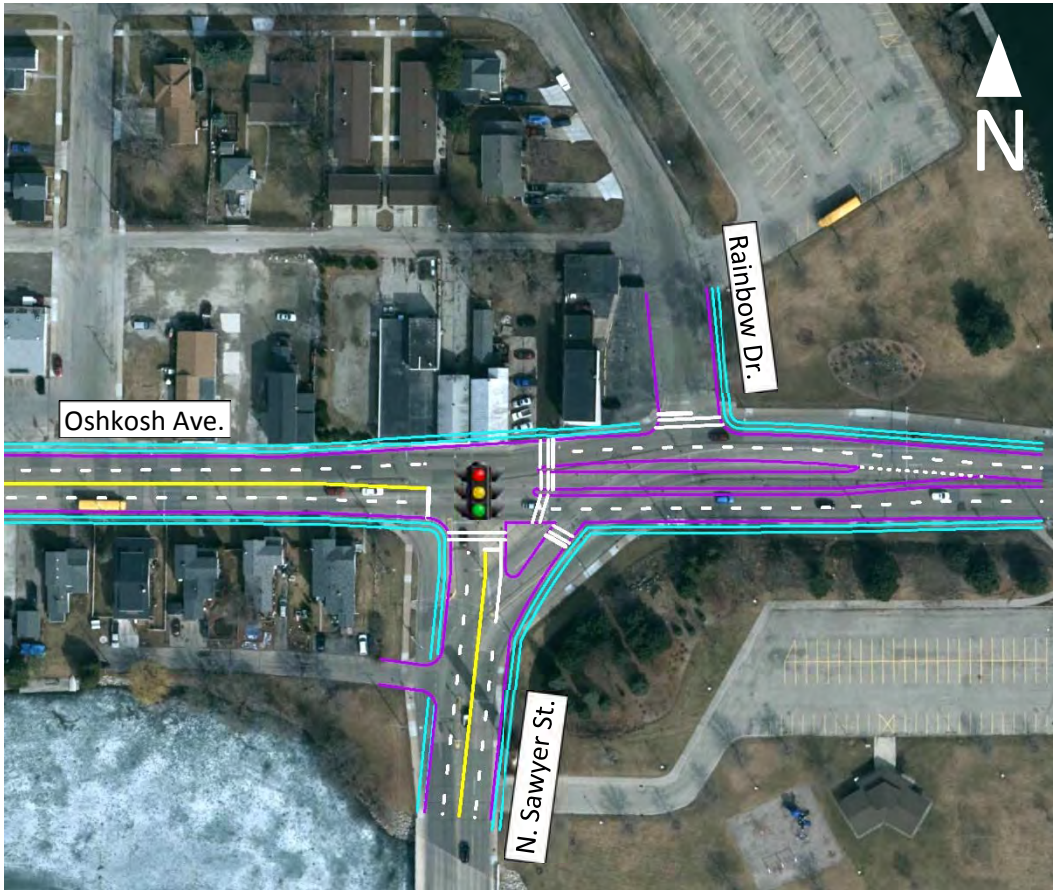
Advantages

- No cost.
- Fits in existing right-of-way.
- Compatible with lift bridge operations.

Disadvantages

- Complex intersection with multiple signals/traffic control devices for turning movements.
- Does not meet current intersection control and pedestrian standards.

Alt. 1: Single Traffic Signal



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Efficient relief of traffic backups after lift bridge operations.

Safety

Advantages

- Standard signalized design improves driver expectancy.
- Provides conventional pedestrian accommodations.
- Fewer conflict points.

Access

Advantages

- Creates gaps in traffic downstream.

Disadvantages

- Does not provide connectivity between roadways north & south of Oshkosh Ave.
- No direct access to Rainbow Dr. from N. Sawyer or EB Oshkosh Ave.

Feasibility

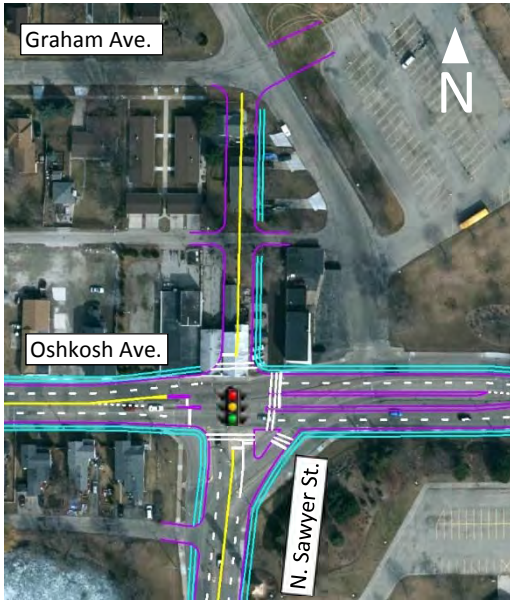
Advantages

- Low cost and minimal right-of-way acquisition.
- Simplifies intersection.
- Compatible with lift bridge operations.

Disadvantages

- Access restrictions to Rainbow Park and Rainbow Dr.

Alt. 2: Extension of N. Sawyer St



Alt. 2A

Extension of N. Sawyer St to Graham Ave

Advantages

- More traditional intersection design which is more pedestrian friendly.

Disadvantages

- Requires acquisition of the two duplexes north of the alley.

Alt. 2B

Extension of N. Sawyer St to Alley

Advantages

- Does not require acquisition of the two duplexes.

Disadvantages

- Requires more vehicle maneuvering in a tight space. Intersection to north ~175ft from Oshkosh Ave.

Alt. 2C

Extension of N. Sawyer St south of Graham Ave

Advantages

- Requires less impacts to the two duplexes property.

Disadvantages

- Slight intersection skew, creating less desirable left-turning movements for NB & EB vehicles.

PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Efficient relief of traffic backups after lift bridge operations.

Disadvantages

- Difficult left-turn maneuvers for larger vehicles.
- Limited EB left-turn storage.

Safety

Advantages

- Standard signalized design improves driver expectancy.
- Provides conventional pedestrian accommodations.

Disadvantages

- Offset/skew of N. Sawyer St.

Access

Advantages

- Combines the Rainbow Dr. and Sawyer St roadway accesses to a single intersection.
- Provides direct access to/from Rainbow Park in all directions.
- Creates gaps in traffic downstream.

Feasibility

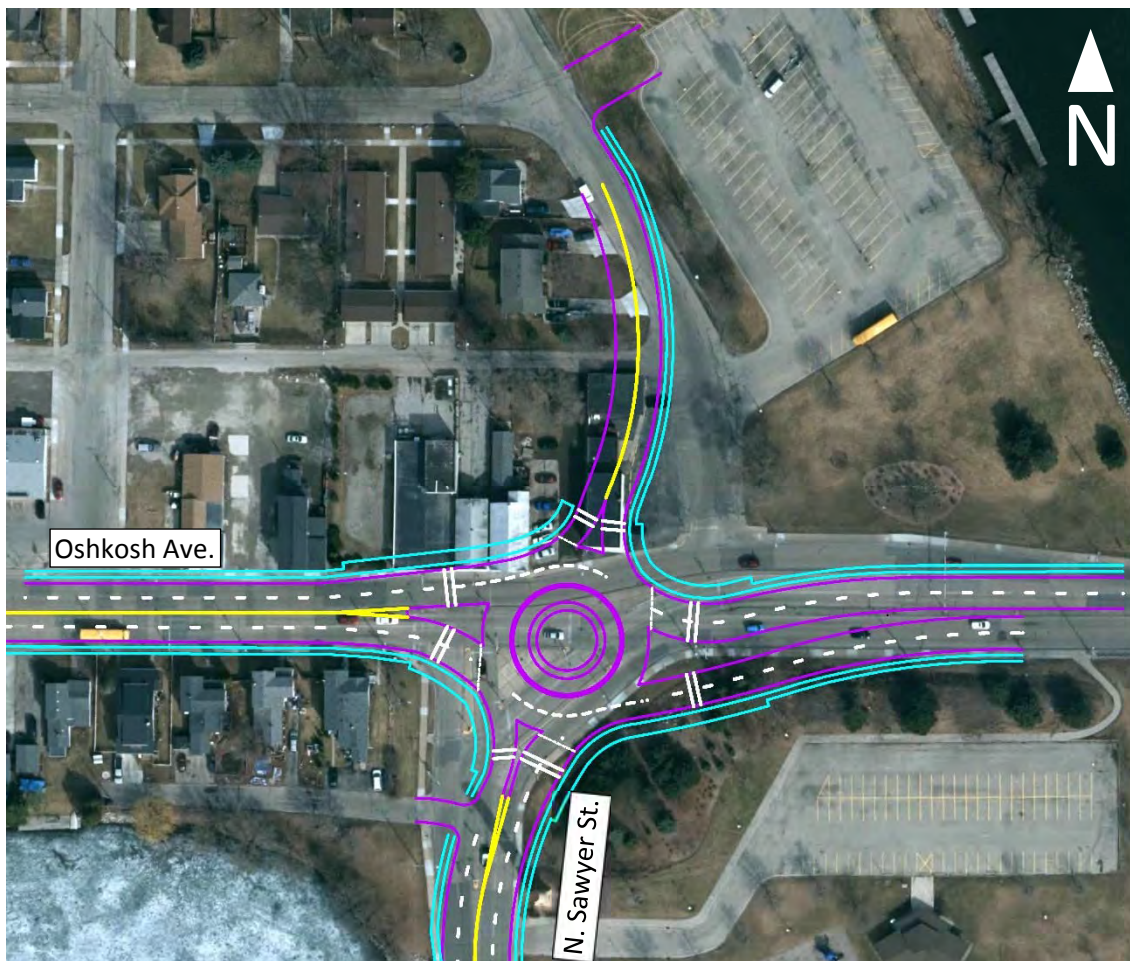
Advantages

- Full access to Rainbow Park.
- Reduces Rainbow Park traffic through neighborhood.
- Compatible with lift bridge operations.

Disadvantages

- High cost.
- Additional right-of-way acquisition required.

Alt. 3: Roundabout



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.

Disadvantages

- Unstable traffic operations during and after lift bridge operations.
- Difficult turning maneuvers for larger vehicles.

Safety

Advantages

- Reduces conflict points.
- Decrease in angle crashes.
- Reduction in high severity crashes.

Disadvantages

- Less friendly for multimodal accommodations.

Access

Advantages

- Combines the Rainbow Dr. and N. Sawyer St roadway accesses to a single intersection.
- Provides direct access to/from Rainbow Park in all directions.

Disadvantages

- Does not create gaps in traffic downstream.

Feasibility

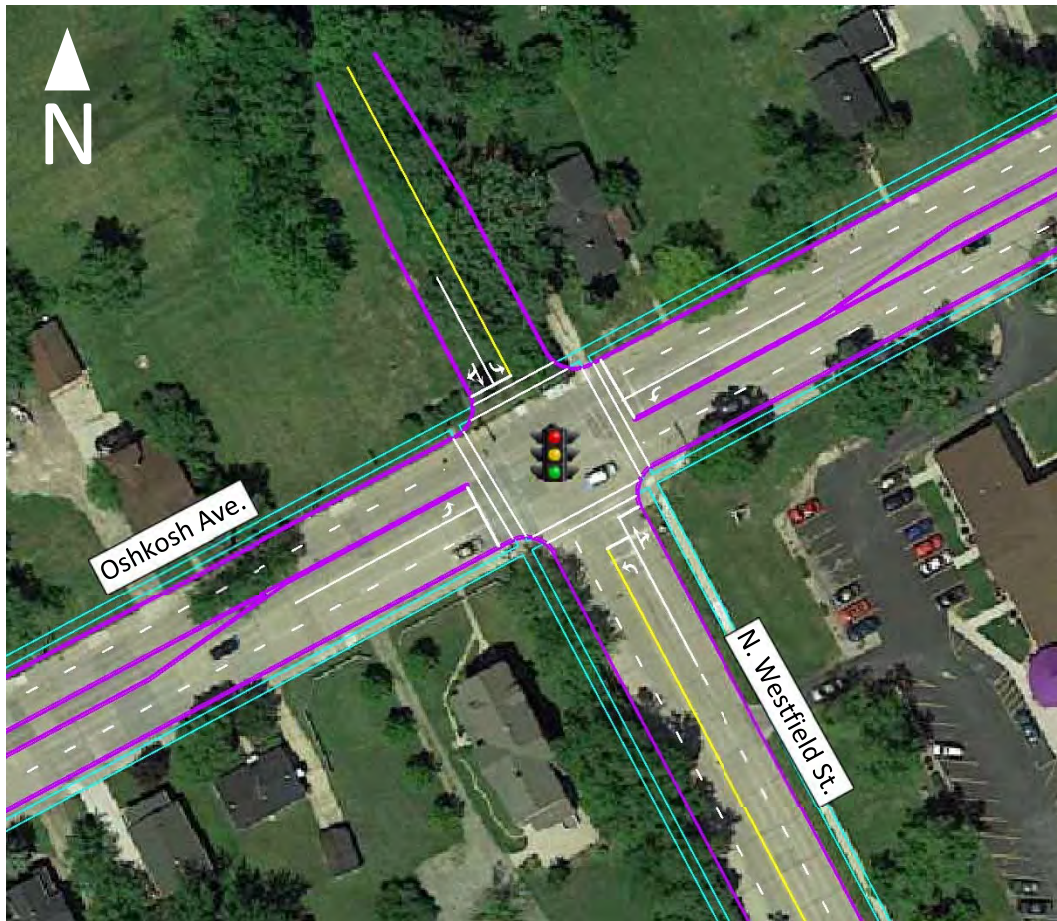
Advantages

- Full access to Rainbow Park.
- Reduces Rainbow Park traffic through neighborhood.
- Corridor consistency.

Disadvantages

- High cost and additional right-of-way required.
- Not compatible with lift bridge operations.
- Challenging design with south approach constraints.

Alt. 1: Traffic Signal



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Provides left-turn lanes on Oshkosh Ave.

Safety

Advantages

- Provides conventional pedestrian accommodations.
- Left-turns separated from through vehicles along Oshkosh Ave.

Disadvantages

- Increased conflict points compared to roundabout.

Access

Advantages

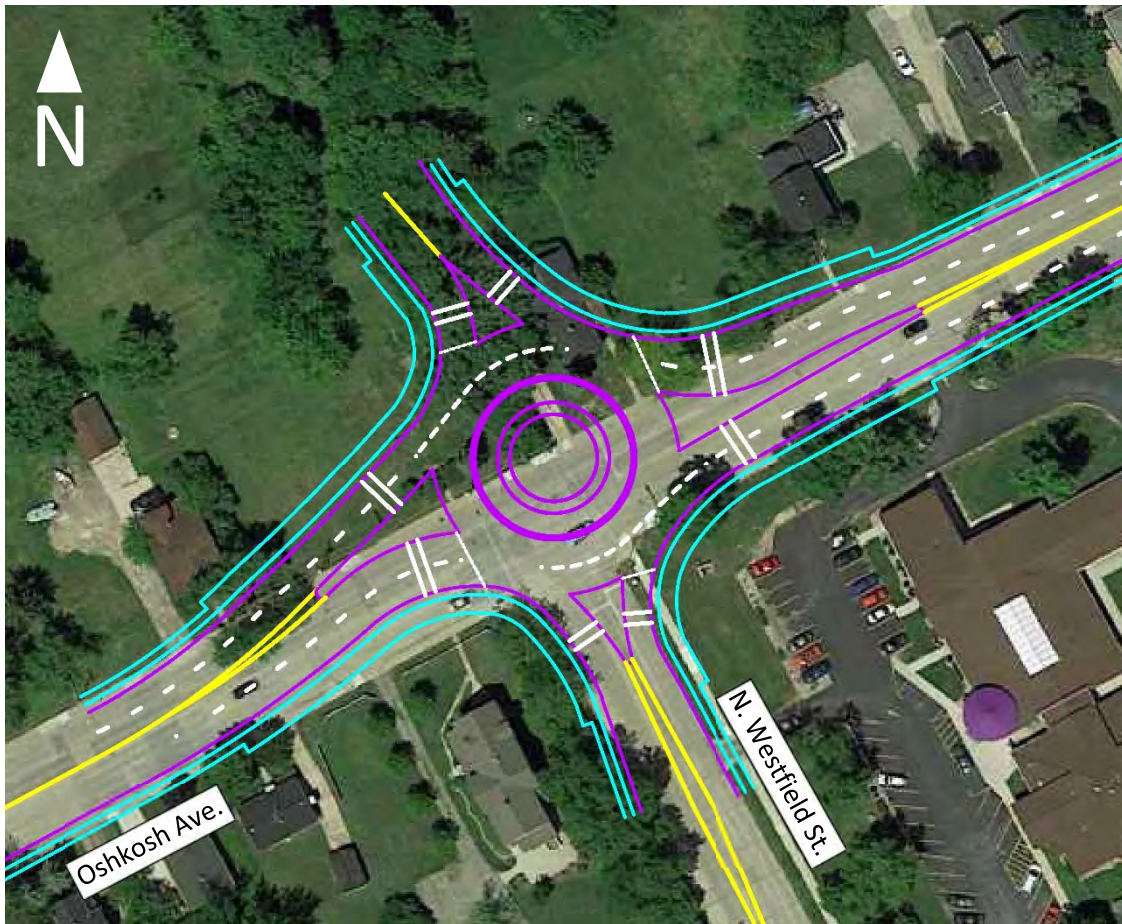
- Provides full access.
- Signal creates gaps in traffic downstream.

Feasibility

Advantages

- Lower cost and right-of-way requirements compared to roundabout alternative.
- Provides pedestrian signals.

Alt. 2: Roundabout



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.

Disadvantages

- Difficult turning maneuvers for larger vehicles.

Safety

Advantages

- Reduces conflict points.
- Decrease in angle crashes.
- Reduction in high severity crashes.

Disadvantages

- Less friendly multimodal accommodations.

Access

Advantages

- Provides full access.

Disadvantages

- Does not create gaps in traffic downstream.

Feasibility

Advantages

- Corridor consistency.

Disadvantages

- Higher cost.
- Significant right-of-way required to the north.



PERFORMANCE MEASURES

Operations

Disadvantages

- Unacceptable operations for SB approach during PM peak in 30-year outlook.
- Difficult turning maneuvers for larger vehicles.
- Possible queuing issues on west approach during AM peak in 30-year outlook.

Safety

Advantages

- Reduces conflict points.
- Decrease in angle crashes.
- Reduction in high severity crashes.

Disadvantages

- Less friendly multimodal accommodations.

Access

Advantages

- Provides full access.

Disadvantages

- Does not create gaps in traffic downstream.

Feasibility

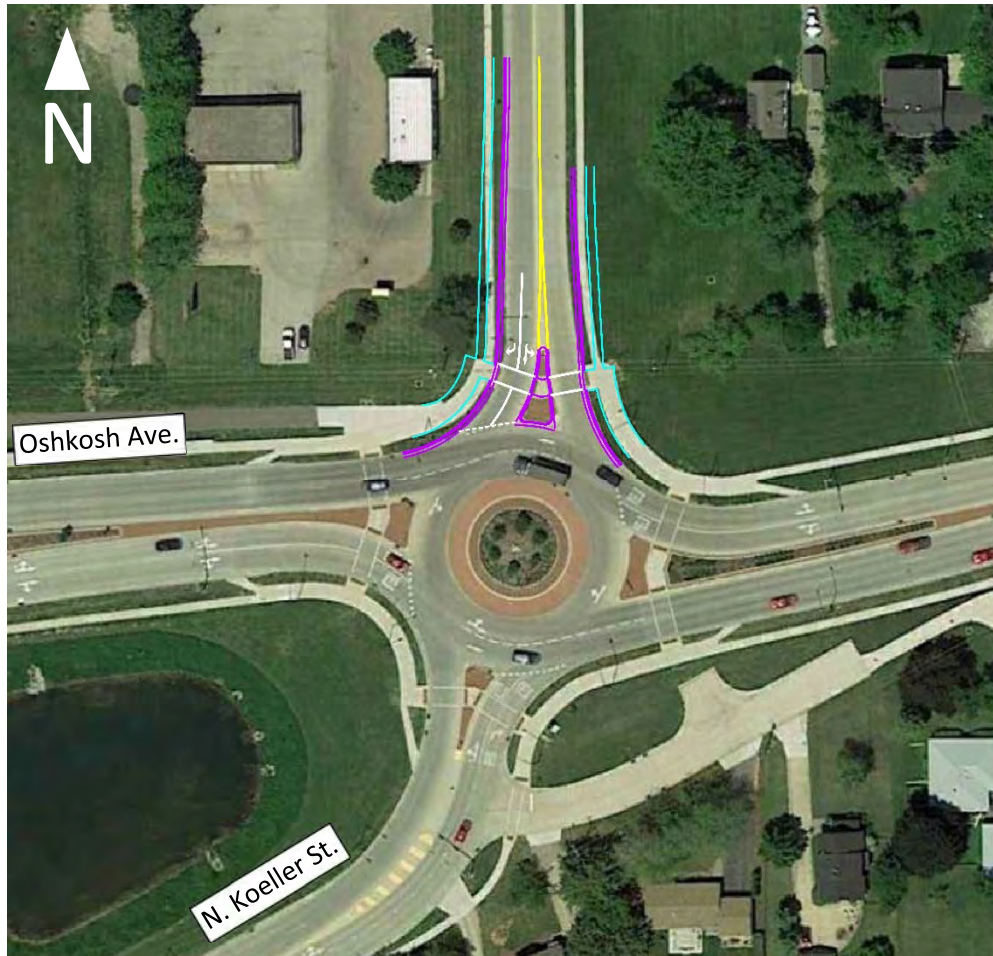
Advantages

- No cost.
- No right-of-way impacts.

Disadvantages

- Does not provide adequate intersection capacity.
- Possible interaction issues with I-41 roundabouts as these roundabouts reach capacity.

Alt. 1: Roundabout with Improvements



PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.

Disadvantages

- Difficult turning maneuvers for larger vehicles.
- Possible queuing issues on west approach during AM peak in 30-year outlook.

Safety

Advantages

- Reduces conflict points.
- Decrease in angle crashes.
- Reduction in high severity crashes.

Disadvantages

- Less friendly multimodal accommodations.

Access

Advantages

- Provides full access.

Disadvantages

- Does not create gaps in traffic downstream.

Feasibility

Advantages

- Provides adequate intersection capacity.

Disadvantages

- Additional costs.
- Some right-of-way impacts.
- Possible interaction issues with I-41 roundabouts as these roundabouts reach capacity.



*Intersection location is approximate.

PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Provides free-flow movement for public streets.

Disadvantages

- Creates additional delay to Oshkosh Corp. Employees leaving at end of work day.

Safety

Advantages

- Better distinction of private roadway.

Disadvantages

- More stops for a main movement.

Access

Advantages

- Creates better access to the public streets.

Disadvantages

- Requires stopping all employees leaving Oshkosh Corp.

Feasibility

Advantages

- Provides better access to public streets.
- Better distinction of public and private roadways.

Disadvantages

- More delay to vehicles exiting Oshkosh Corporation at end of work day.



*Intersection Location is approximate.

PERFORMANCE MEASURES

Operations

Advantages

- Acceptable LOS for all movements.
- Provides free-flow movement for Oshkosh Corp. Driveway

Disadvantages

- Creates additional delay to N. Westfield Street.

Safety

Advantages

- Less stops for a main movement.

Disadvantages

- Less distinction of private roadway, which may create confusion to non-Oshkosh Corp people. No good way for vehicles to turn around.

Access

Advantages

- Creates better access to Oshkosh Corp. Driveway.

Disadvantages

- Creates additional stops on a public street.

Feasibility

Advantages

- Better access to Oshkosh Corporation

Disadvantages

- Possible confusion to non-Oshkosh Corporation roadway users. Less distinction of private roadway.

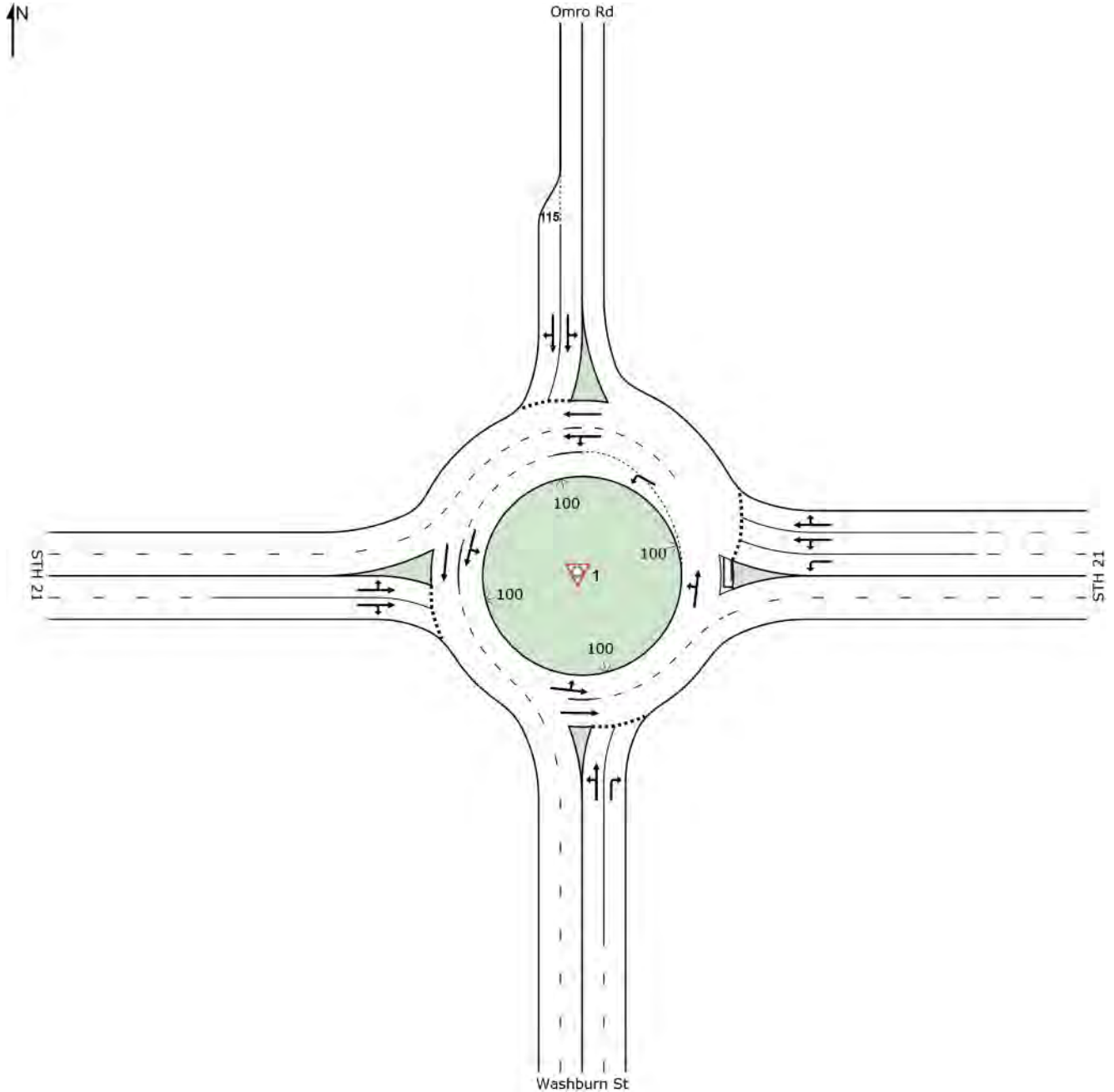
APPENDIX E

Existing Transportation System Background
Traffic Operational Analysis

SITE LAYOUT

 Site: 1 [STH 21 & Washburn AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



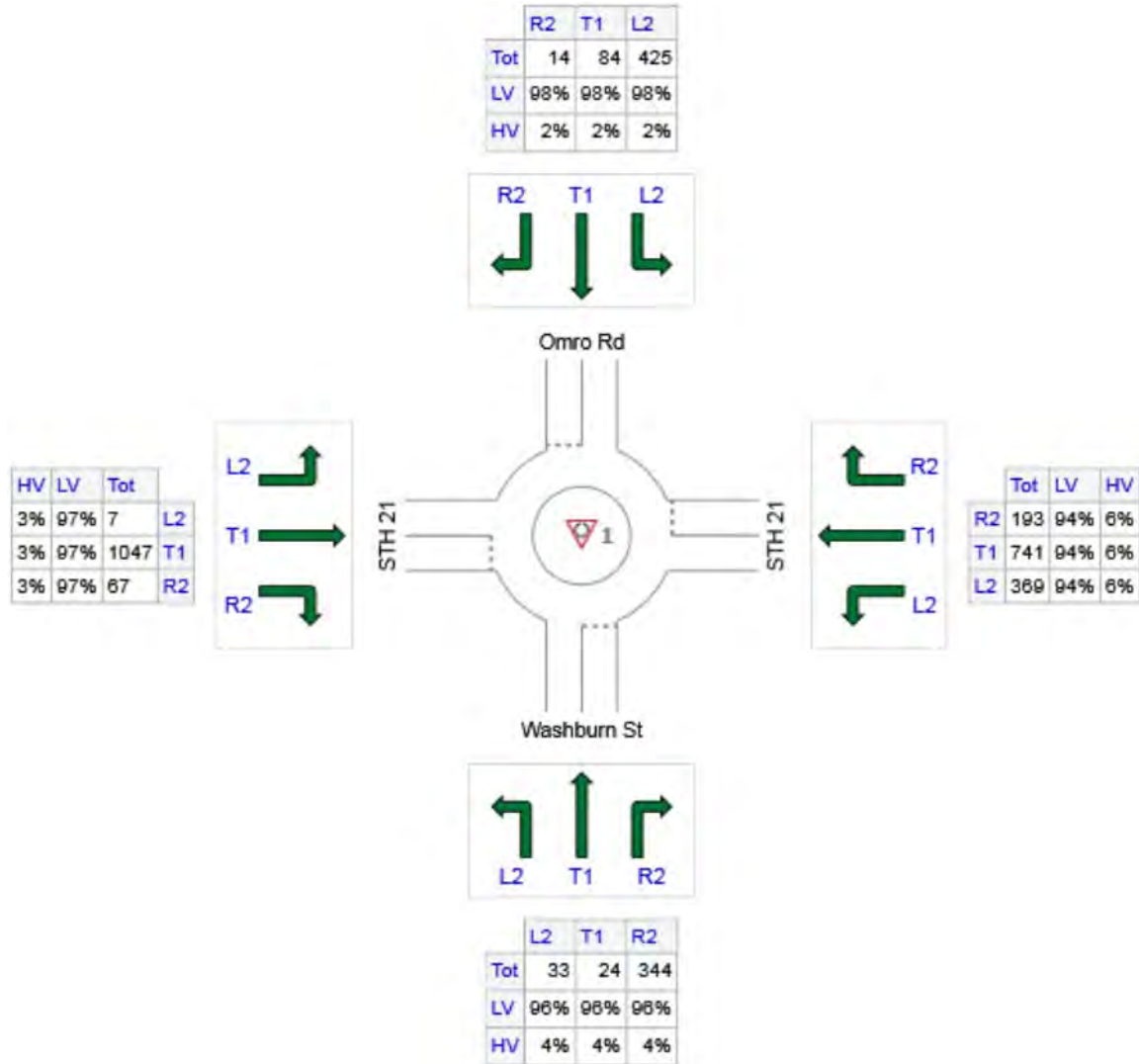
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	401	385	16
E: STH 21	1303	1225	78
N: Omro Rd	523	513	10
W: STH 21	1121	1087	34
Total	3348	3210	138

MOVEMENT SUMMARY

 Site: 1 [STH 21 & Washburn AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	35	4.0	0.154	11.7	LOS B	0.4	10.7	0.72	0.72	29.0
8	T1	25	4.0	0.154	11.7	LOS B	0.4	10.7	0.72	0.72	28.8
18	R2	362	4.0	0.929	62.1	LOS E	8.7	224.7	0.95	1.67	17.4
Approach		422	4.0	0.929	54.9	LOS D	8.7	224.7	0.92	1.53	18.5
East: STH 21											
1	L2	388	6.0	0.338	6.4	LOS A	1.4	35.7	0.19	0.09	32.3
6	T1	780	6.0	0.428	7.6	LOS A	1.9	51.1	0.22	0.11	34.3
16	R2	203	6.0	0.428	7.6	LOS A	1.9	51.1	0.22	0.11	32.9
Approach		1372	6.0	0.428	7.3	LOS A	1.9	51.1	0.21	0.10	33.5
North: Omro Rd											
7	L2	447	2.0	0.891	46.0	LOS D	9.0	227.5	0.92	1.49	21.1
4	T1	88	2.0	0.205	10.0	LOS B	0.6	15.1	0.65	0.65	33.2
14	R2	15	2.0	0.205	10.0	LOS B	0.6	15.1	0.65	0.65	32.0
Approach		551	2.0	0.891	39.3	LOS D	9.0	227.5	0.87	1.33	22.6
West: STH 21											
5	L2	7	3.0	0.944	48.9	LOS D	15.2	389.9	0.92	1.75	21.4
2	T1	1102	3.0	0.944	48.9	LOS D	15.2	389.9	0.92	1.75	21.3
12	R2	71	3.0	0.944	48.9	LOS D	15.2	389.9	0.92	1.75	20.8
Approach		1180	3.0	0.944	48.9	LOS D	15.2	389.9	0.92	1.75	21.3
All Vehicles		3524	4.1	0.944	31.9	LOS C	15.2	389.9	0.64	1.02	24.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	60	4.0	390	0.154	100	11.7	LOS B	0.4	10.7	Full	1600	0.0	0.0
Lane 2 ^d	362	4.0	390	0.929	100	62.1	LOS E	8.7	224.7	Full	1600	0.0	0.0
Approach	422	4.0		0.929		54.9	LOS D	8.7	224.7				
East: STH 21													
Lane 1	388	6.0	1149	0.338	79 ⁵	6.4	LOS A	1.4	35.7	Full	1600	0.0	0.0
Lane 2	492	6.0	1149	0.428	100	7.6	LOS A	1.9	51.1	Full	1600	0.0	0.0
Lane 3 ^d	492	6.0	1149	0.428	100	7.6	LOS A	1.9	51.1	Full	1600	0.0	0.0
Approach	1372	6.0		0.428		7.3	LOS A	1.9	51.1				
North: Omro Rd													
Lane 1 ^d	447	2.0	502	0.891	100	46.0	LOS D	9.0	227.5	Full	1600	0.0	0.0
Lane 2	103	2.0	502	0.205	23 ⁵	10.0	LOS B	0.6	15.1	Short	115	0.0	NA
Approach	551	2.0		0.891		39.3	LOS D	9.0	227.5				
West: STH 21													
Lane 1	590	3.0	625	0.944	100	48.9	LOS D	15.2	389.9	Full	1600	0.0	0.0
Lane 2 ^d	590	3.0	625	0.944	100	48.9	LOS D	15.2	389.9	Full	1600	0.0	0.0
Approach	1180	3.0		0.944		48.9	LOS D	15.2	389.9				
Intersection	3524	4.1		0.944		31.9	LOS C	15.2	389.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

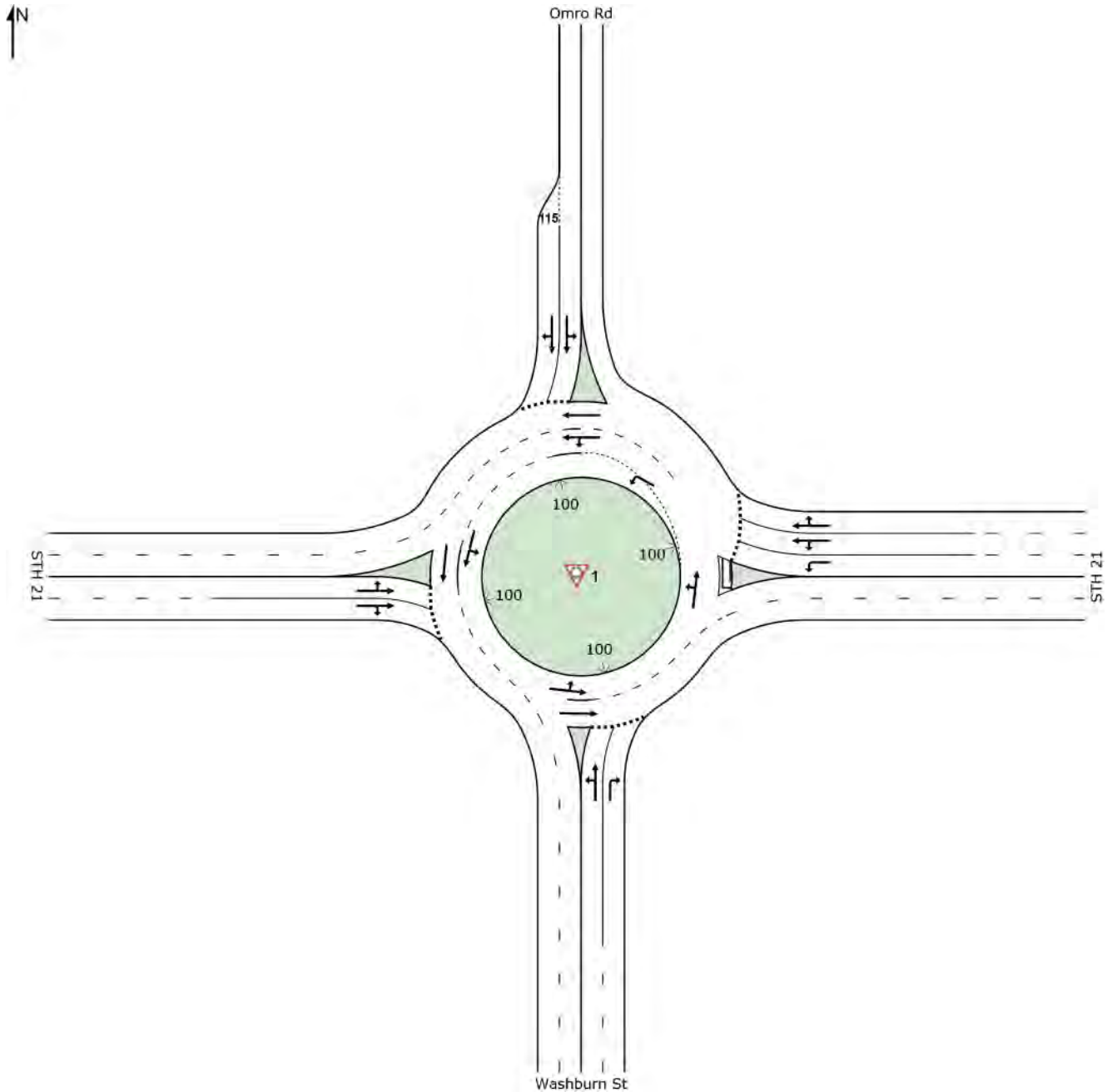
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



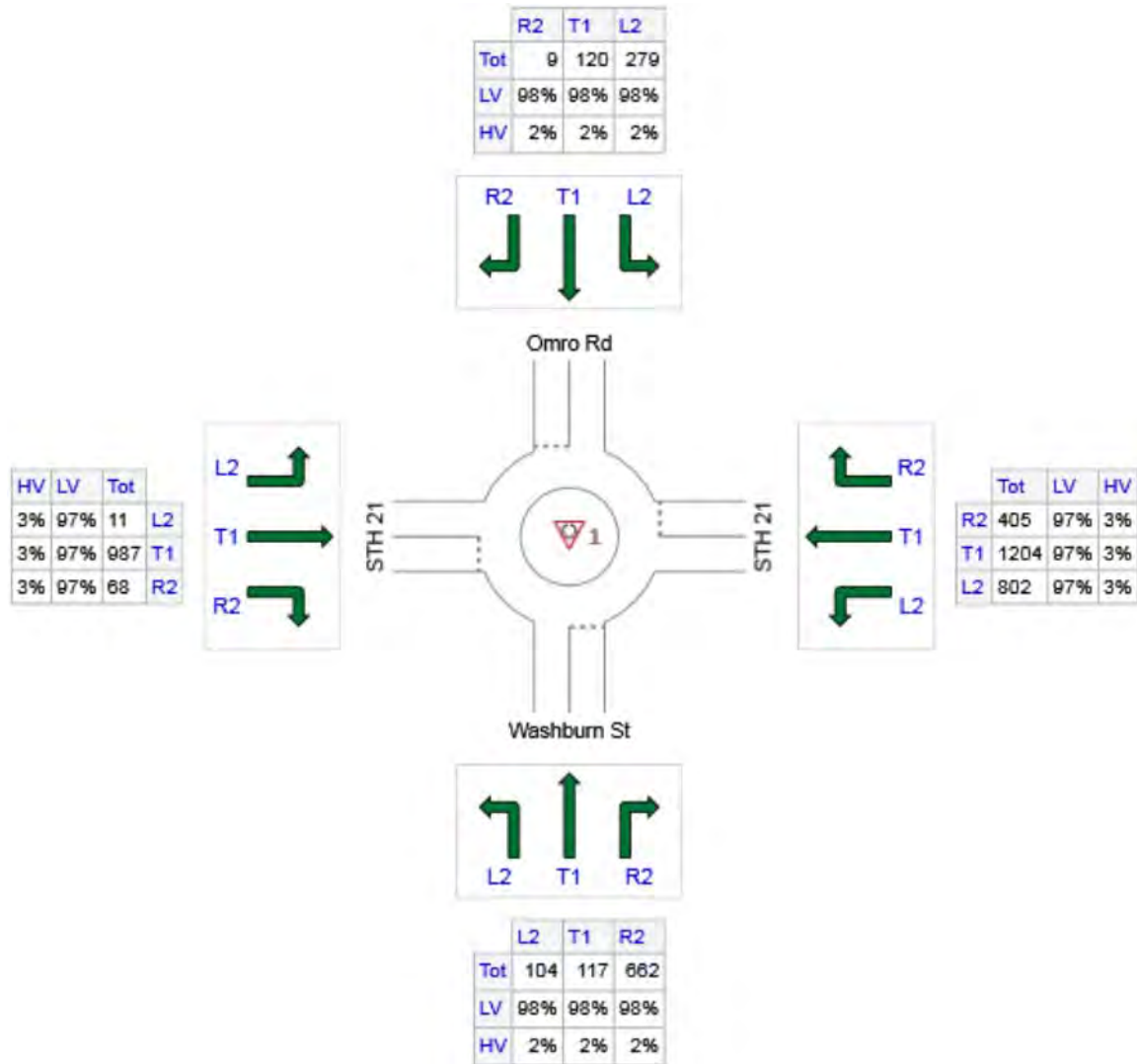
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 1 [STH 21 & Washburn PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	883	865	18
E: STH 21	2411	2339	72
N: Omro Rd	408	400	8
W: STH 21	1066	1034	32
Total	4768	4638	130

MOVEMENT SUMMARY

 Site: 1 [STH 21 & Washburn PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	88	2.0	0.332	11.2	LOS B	1.2	29.5	0.65	0.70	29.4
8	T1	99	2.0	0.332	11.2	LOS B	1.2	29.5	0.65	0.70	29.1
18	R2	557	2.0	0.993	63.4	LOS E	17.8	451.4	0.98	2.12	17.3
Approach		744	2.0	0.993	50.3	LOS D	17.8	451.4	0.90	1.76	19.3
East: STH 21											
1	L2	676	3.0	0.633	12.1	LOS B	5.6	144.2	0.51	0.46	30.1
6	T1	1015	3.0	0.634	12.2	LOS B	5.7	146.0	0.52	0.46	32.1
16	R2	341	3.0	0.634	12.2	LOS B	5.7	146.0	0.52	0.46	30.9
Approach		2031	3.0	0.634	12.2	LOS B	5.7	146.0	0.51	0.46	31.2
North: Omro Rd											
7	L2	223	2.0	0.663	32.8	LOS C	2.9	74.2	0.89	1.09	23.9
4	T1	95	2.0	0.304	16.8	LOS B	0.9	23.3	0.80	0.85	30.2
14	R2	7	2.0	0.304	16.8	LOS B	0.9	23.3	0.80	0.85	29.3
Approach		325	2.0	0.663	27.8	LOS C	2.9	74.2	0.86	1.01	25.5
West: STH 21											
5	L2	9	3.0	0.776	27.6	LOS C	6.4	163.4	0.82	1.17	26.5
2	T1	858	3.0	0.776	27.6	LOS C	6.4	163.4	0.82	1.17	26.5
12	R2	59	3.0	0.776	27.6	LOS C	6.4	163.4	0.82	1.17	25.7
Approach		927	3.0	0.776	27.6	LOS C	6.4	163.4	0.82	1.17	26.4
All Vehicles		4027	2.7	0.993	24.0	LOS C	17.8	451.4	0.68	0.91	26.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	186	2.0	561	0.332	100	11.2	LOS B	1.2	29.5	Full	1600	0.0	0.0
Lane 2 ^d	557	2.0	561	0.993	100	63.4	LOS E	17.8	451.4	Full	1600	0.0	0.0
Approach	744	2.0		0.993		50.3	LOS D	17.8	451.4				
East: STH 21													
Lane 1	676	3.0	1069	0.633	100 ⁵	12.1	LOS B	5.6	144.2	Full	1600	0.0	0.0
Lane 2	678	3.0	1069	0.634	100	12.2	LOS B	5.7	146.0	Full	1600	0.0	0.0
Lane 3 ^d	678	3.0	1069	0.634	100	12.2	LOS B	5.7	146.0	Full	1600	0.0	0.0
Approach	2031	3.0		0.634		12.2	LOS B	5.7	146.0				
North: Omro Rd													
Lane 1 ^d	223	2.0	336	0.663	100	32.8	LOS C	2.9	74.2	Full	1600	0.0	0.0
Lane 2	102	2.0	336	0.304	46 ⁵	16.8	LOS B	0.9	23.3	Short	115	0.0	NA
Approach	325	2.0		0.663		27.8	LOS C	2.9	74.2				
West: STH 21													
Lane 1	464	3.0	598	0.776	100	27.6	LOS C	6.4	163.4	Full	1600	0.0	0.0
Lane 2 ^d	464	3.0	598	0.776	100	27.6	LOS C	6.4	163.4	Full	1600	0.0	0.0
Approach	927	3.0		0.776		27.6	LOS C	6.4	163.4				
Intersection	4027	2.7		0.993		24.0	LOS C	17.8	451.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

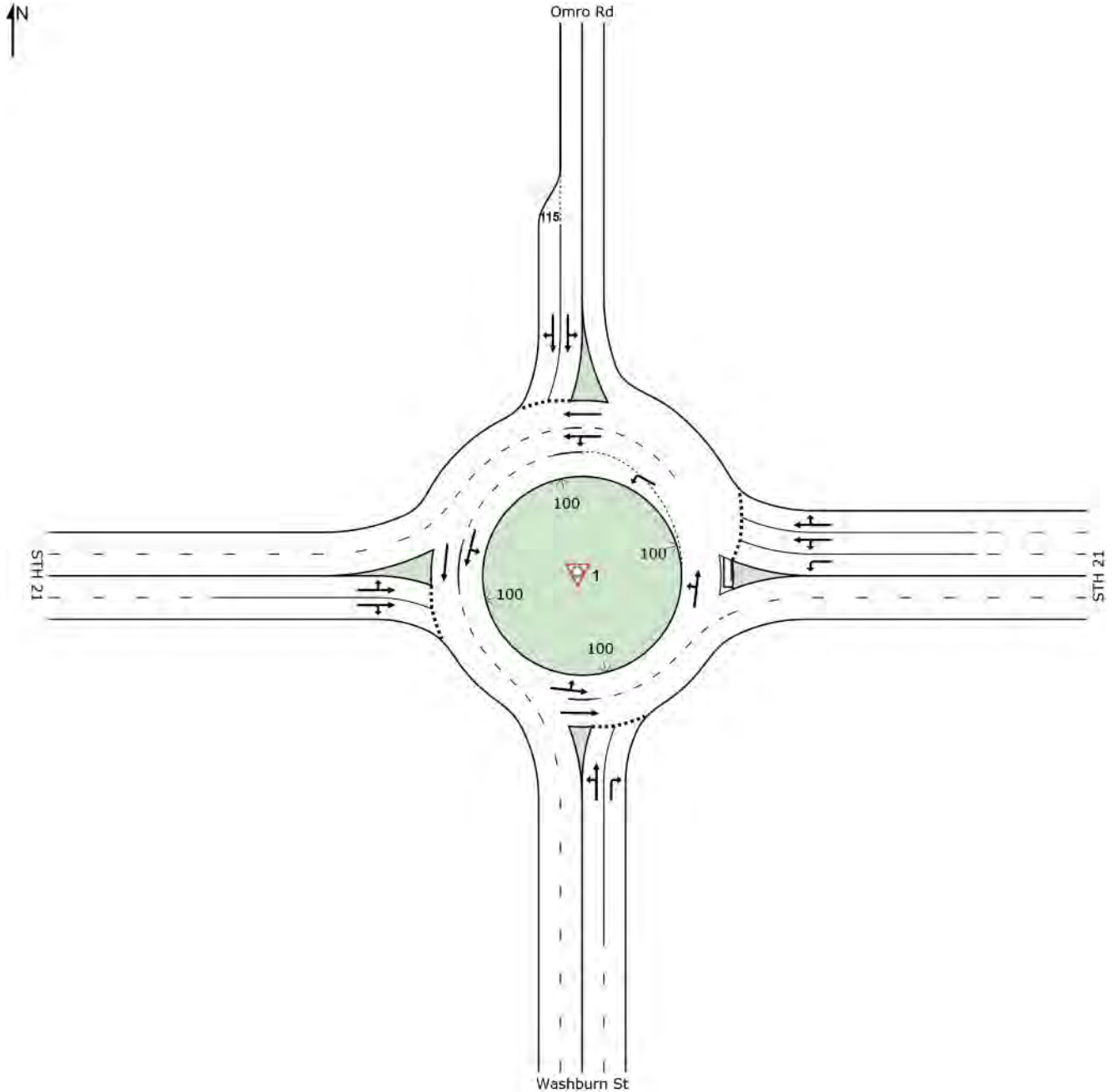
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



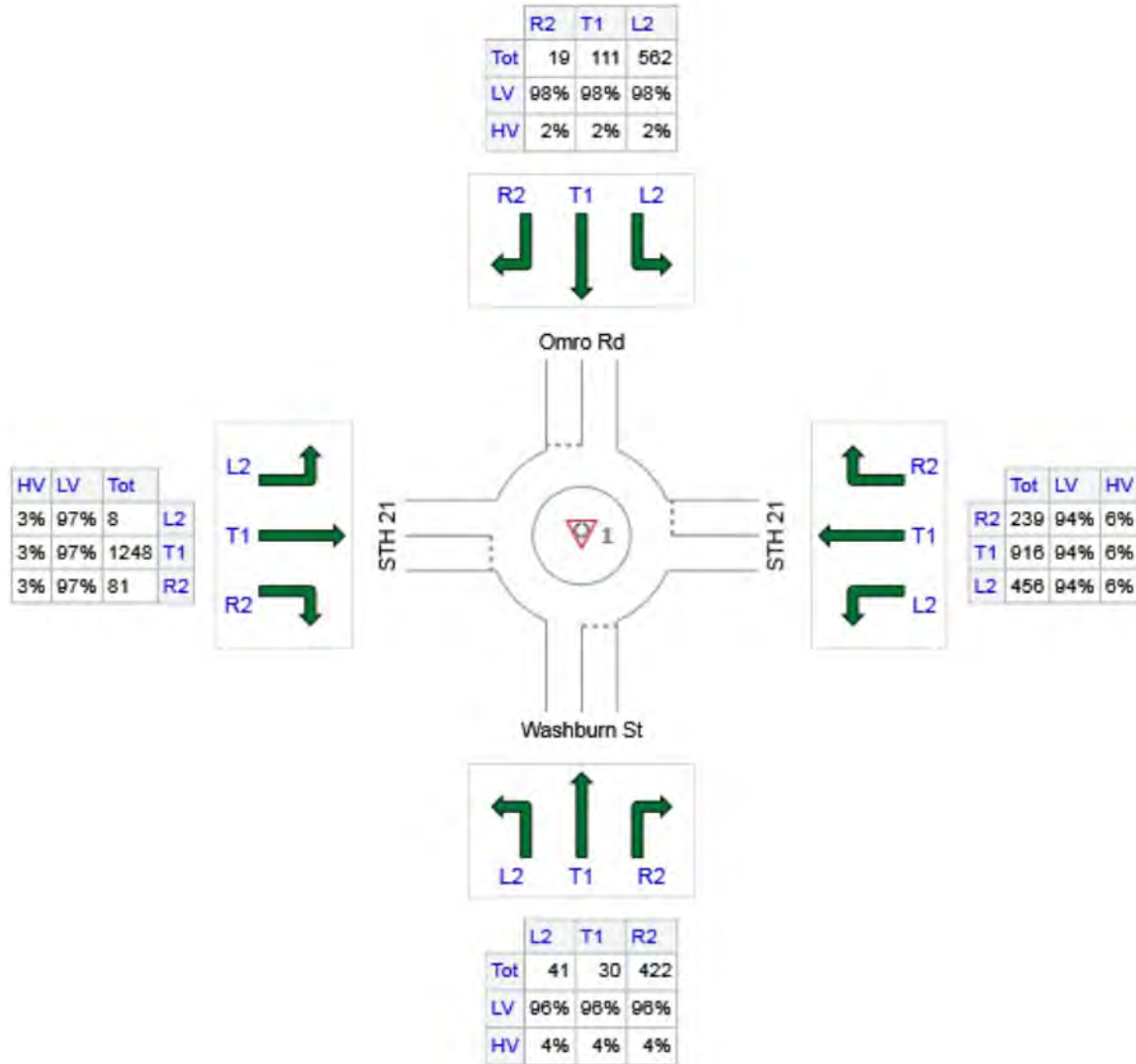
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	493	473	20
E: STH 21	1611	1514	97
N: Omro Rd	692	678	14
W: STH 21	1337	1297	40
Total	4133	3963	170

MOVEMENT SUMMARY

 Site: 1 [STH 21 & Washburn AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	43	4.0	0.185	11.9	LOS B	0.5	13.0	0.72	0.72	28.9
8	T1	32	4.0	0.185	11.9	LOS B	0.5	13.0	0.72	0.72	28.7
18	R2	444	4.0	1.102	107.2	LOS F	22.8	587.2	1.00	2.65	12.9
Approach		519	4.0	1.102	93.5	LOS F	22.8	587.2	0.96	2.37	14.1
East: STH 21											
1	L2	480	6.0	0.423	7.6	LOS A	1.9	49.7	0.24	0.13	31.8
6	T1	964	6.0	0.535	9.4	LOS A	2.9	74.8	0.28	0.15	33.4
16	R2	252	6.0	0.535	9.4	LOS A	2.9	74.8	0.28	0.15	32.1
Approach		1696	6.0	0.535	8.9	LOS A	2.9	74.8	0.27	0.15	32.7
North: Omro Rd											
7	L2	592	2.0	1.464	247.7	LOS F	66.6	1692.1	1.00	4.33	7.6
4	T1	117	2.0	0.339	15.1	LOS B	1.1	28.1	0.76	0.82	30.9
14	R2	20	2.0	0.339	15.1	LOS B	1.1	28.1	0.76	0.82	29.9
Approach		728	2.0	1.464	204.0	LOS F	66.6	1692.1	0.95	3.67	8.8
West: STH 21											
5	L2	8	3.0	1.194	126.9	LOS F	48.5	1240.7	1.00	3.47	12.4
2	T1	1314	3.0	1.194	126.9	LOS F	48.5	1240.7	1.00	3.47	12.4
12	R2	85	3.0	1.194	126.9	LOS F	48.5	1240.7	1.00	3.47	12.2
Approach		1407	3.0	1.194	126.9	LOS F	48.5	1240.7	1.00	3.47	12.4
All Vehicles		4351	4.1	1.464	89.8	LOS F	66.6	1692.1	0.70	2.08	15.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	75	4.0	403	0.185	100	11.9	LOS B	0.5	13.0	Full	1600	0.0	0.0
Lane 2 ^d	444	4.0	403	1.102	100	107.2	LOS F	22.8	587.2	Full	1600	0.0	0.0
Approach	519	4.0		1.102		93.5	LOS F	22.8	587.2				
East: STH 21													
Lane 1	480	6.0	1136	0.423	79 ⁵	7.6	LOS A	1.9	49.7	Full	1600	0.0	0.0
Lane 2	608	6.0	1136	0.535	100	9.4	LOS A	2.9	74.8	Full	1600	0.0	0.0
Lane 3 ^d	608	6.0	1136	0.535	100	9.4	LOS A	2.9	74.8	Full	1600	0.0	0.0
Approach	1696	6.0		0.535		8.9	LOS A	2.9	74.8				
North: Omro Rd													
Lane 1 ^d	592	2.0	404	1.464	100	247.7	LOS F	66.6	1692.1	Full	1600	0.0	6.7
Lane 2	137	2.0	404	0.339	23 ⁵	15.1	LOS B	1.1	28.1	Short	115	0.0	NA
Approach	728	2.0		1.464		204.0	LOS F	66.6	1692.1				
West: STH 21													
Lane 1	704	3.0	589	1.194	100	126.9	LOS F	48.5	1240.7	Full	1600	0.0	0.0
Lane 2 ^d	704	3.0	589	1.194	100	126.9	LOS F	48.5	1240.7	Full	1600	0.0	0.0
Approach	1407	3.0		1.194		126.9	LOS F	48.5	1240.7				
Intersection	4351	4.1		1.464		89.8	LOS F	66.6	1692.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

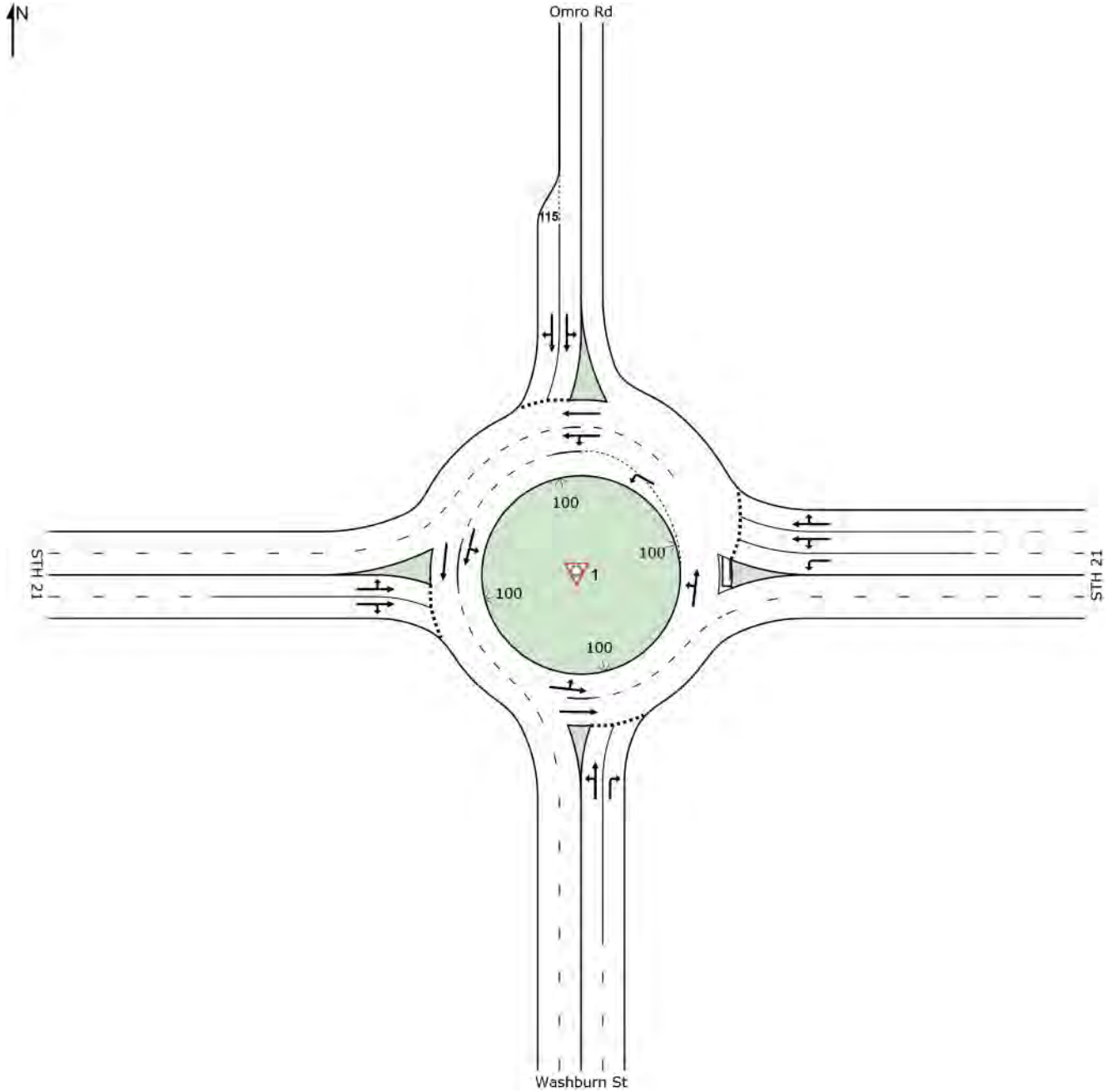
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



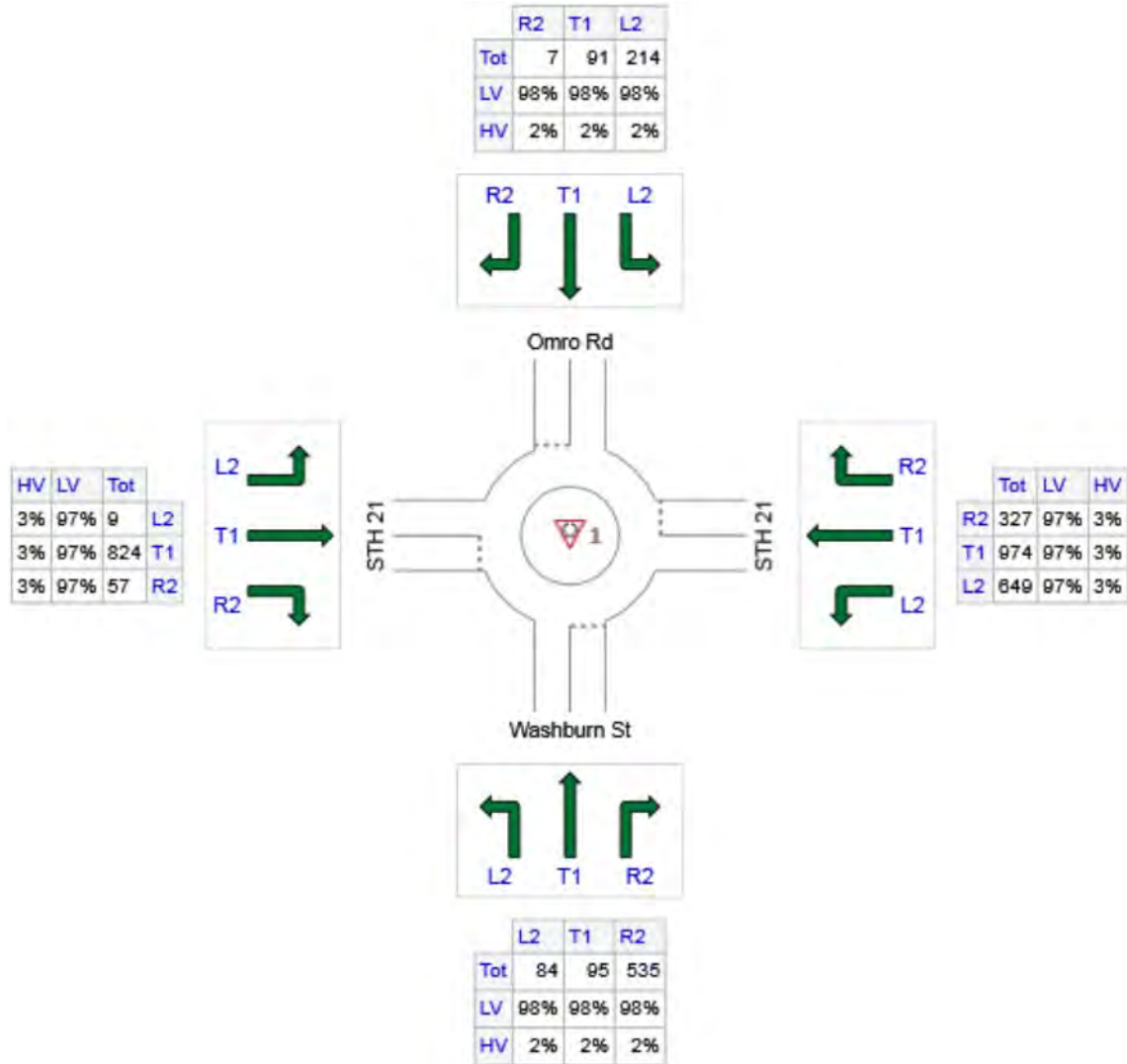
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 1 [STH 21 & Washburn PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	714	700	14
E: STH 21	1950	1892	59
N: Omro Rd	312	306	6
W: STH 21	890	863	27
Total	3866	3760	106

MOVEMENT SUMMARY

 Site: 1 [STH 21 & Washburn PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	108	2.0	0.445	14.7	LOS B	1.8	45.5	0.72	0.83	28.1
8	T1	122	2.0	0.445	14.7	LOS B	1.8	45.5	0.72	0.83	27.9
18	R2	690	2.0	1.334	186.5	LOS F	64.0	1626.4	1.00	4.53	8.9
Approach		920	2.0	1.334	143.5	LOS F	64.0	1626.4	0.93	3.60	10.8
East: STH 21											
1	L2	835	3.0	0.810	20.5	LOS C	19.2	491.0	0.78	1.08	27.2
6	T1	1254	3.0	0.813	20.7	LOS C	19.5	498.3	0.78	1.09	28.8
16	R2	422	3.0	0.813	20.7	LOS C	19.5	498.3	0.78	1.09	27.7
Approach		2511	3.0	0.813	20.6	LOS C	19.5	498.3	0.78	1.08	28.0
North: Omro Rd											
7	L2	291	2.0	1.181	157.4	LOS F	20.3	515.0	1.00	2.37	10.6
4	T1	125	2.0	0.546	33.7	LOS C	1.9	47.7	0.90	1.03	24.8
14	R2	9	2.0	0.546	33.7	LOS C	1.9	47.7	0.90	1.03	24.1
Approach		425	2.0	1.181	118.3	LOS F	20.3	515.0	0.97	1.95	12.9
West: STH 21											
5	L2	11	3.0	1.088	93.8	LOS F	26.8	685.7	1.00	2.57	15.1
2	T1	1028	3.0	1.088	93.8	LOS F	26.8	685.7	1.00	2.57	15.1
12	R2	71	3.0	1.088	93.8	LOS F	26.8	685.7	1.00	2.57	14.8
Approach		1110	3.0	1.088	93.8	LOS F	26.8	685.7	1.00	2.57	15.1
All Vehicles		4967	2.7	1.334	68.1	LOS E	64.0	1626.4	0.87	1.96	17.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	230	2.0	517	0.445	100	14.7	LOS B	1.8	45.5	Full	1600	0.0	0.0
Lane 2 ^d	690	2.0	517	1.334	100	186.5	LOS F	64.0	1626.4	Full	1600	0.0	5.5
Approach	920	2.0		1.334		143.5	LOS F	64.0	1626.4				
East: STH 21													
Lane 1	835	3.0	1031	0.810	100 ⁵	20.5	LOS C	19.2	491.0	Full	1600	0.0	0.0
Lane 2	838	3.0	1031	0.813	100	20.7	LOS C	19.5	498.3	Full	1600	0.0	0.0
Lane 3 ^d	838	3.0	1031	0.813	100	20.7	LOS C	19.5	498.3	Full	1600	0.0	0.0
Approach	2511	3.0		0.813		20.6	LOS C	19.5	498.3				
North: Omro Rd													
Lane 1 ^d	291	2.0	246	1.181	100	157.4	LOS F	20.3	515.0	Full	1600	0.0	0.0
Lane 2	134	2.0	246	0.546	46 ⁵	33.7	LOS C	1.9	47.7	Short	115	0.0	NA
Approach	425	2.0		1.181		118.3	LOS F	20.3	515.0				
West: STH 21													
Lane 1	555	3.0	510	1.088	100	93.8	LOS F	26.8	685.7	Full	1600	0.0	0.0
Lane 2 ^d	555	3.0	510	1.088	100	93.8	LOS F	26.8	685.7	Full	1600	0.0	0.0
Approach	1110	3.0		1.088		93.8	LOS F	26.8	685.7				
Intersection	4967	2.7		1.334		68.1	LOS E	64.0	1626.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

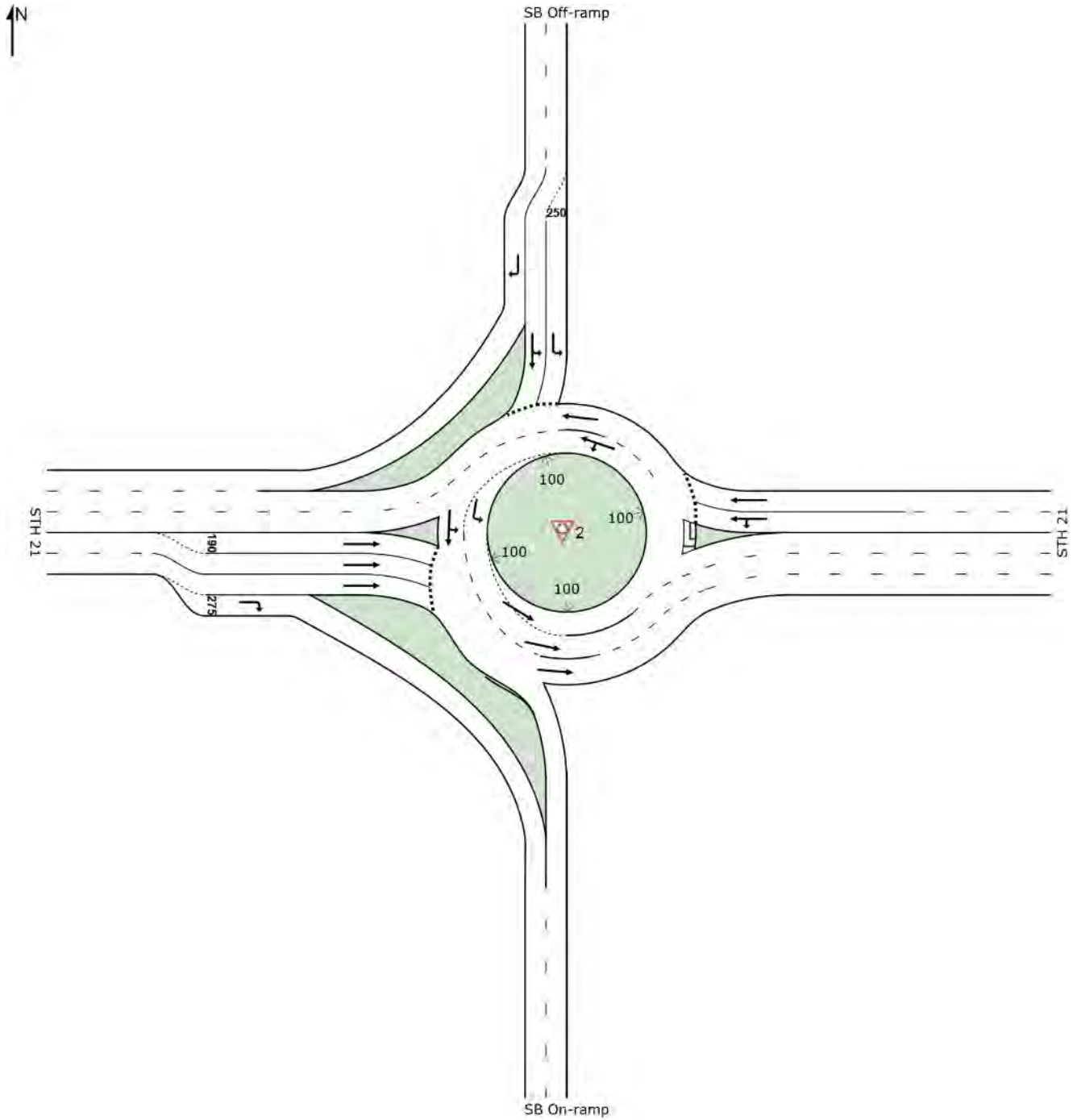
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 2 [STH 21 & SB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



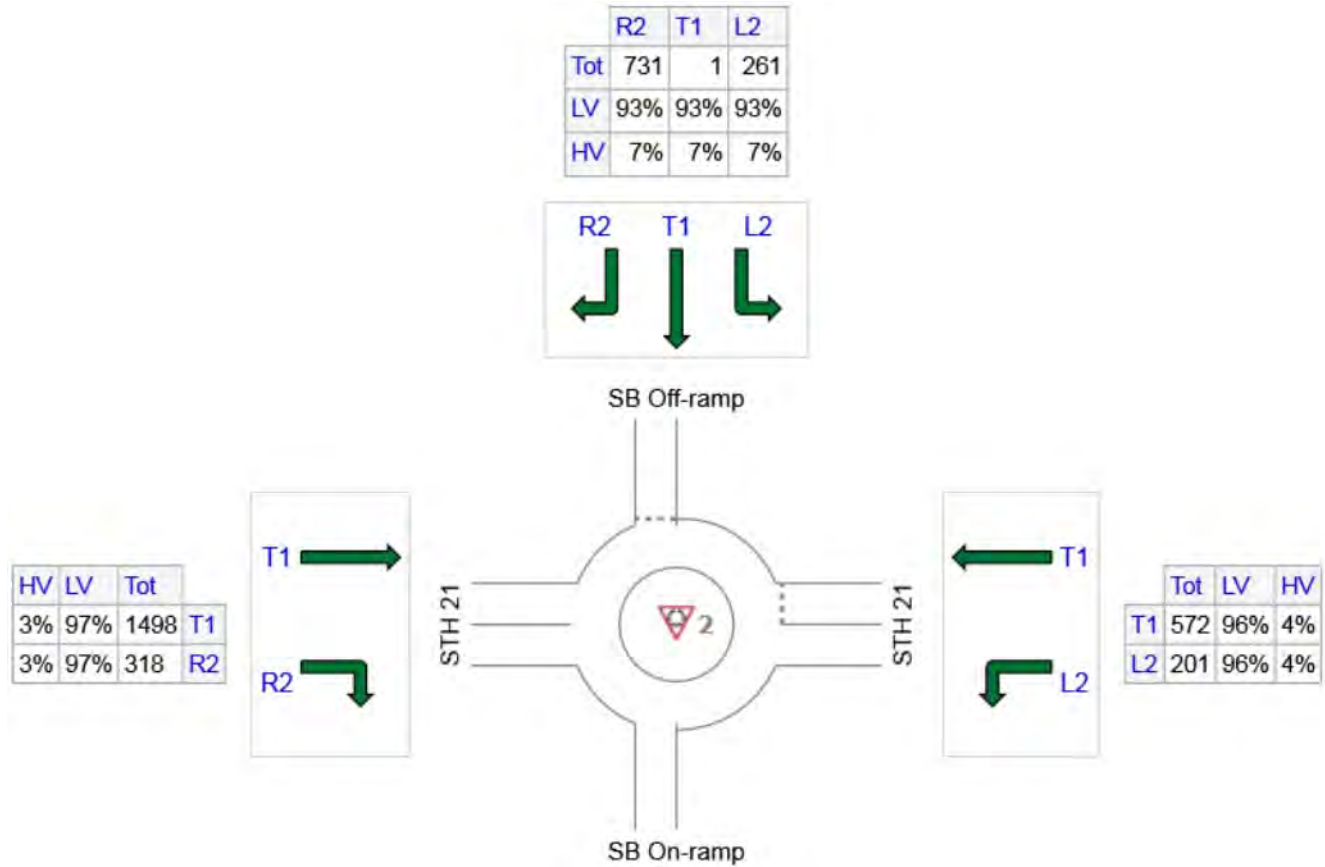
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 2 [STH 21 & SB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	773	742	31
N: SB Off-ramp	993	923	70
W: STH 21	1816	1762	54
Total	3582	3427	155

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: STH 21											
1	L2	216	4.0	0.336	6.1	LOS A	0.0	0.0	0.00	0.00	37.0
6	T1	615	4.0	0.336	6.1	LOS A	0.0	0.0	0.00	0.00	38.1
Approach		831	4.0	0.336	6.1	LOS A	0.0	0.0	0.00	0.00	37.8
North: SB Off-ramp											
7	L2	281	7.0	0.219	8.2	LOS A	0.6	16.7	0.54	0.54	31.5
4	T1	1	7.0	0.219	8.2	LOS A	0.6	16.7	0.54	0.54	31.5
14	R2	786	7.0	0.502	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		1068	7.0	0.502	2.3	LOS A	0.6	16.7	0.14	0.14	35.5
West: STH 21											
2	T1	1611	3.0	0.629	14.2	LOS B	5.3	135.4	0.65	0.86	31.3
12	R2	342	3.0	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		1953	3.0	0.629	11.7	LOS B	5.3	135.4	0.54	0.71	32.2
All Vehicles		3852	4.3	0.629	7.9	LOS A	5.3	135.4	0.31	0.40	34.2

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Cap.	v/c	%	sec		Veh	Dist		ft	%	%
	veh/h	%	veh/h						ft				
East: STH 21													
Lane 1	416	4.0	1237	0.336	100	6.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	416	4.0	1237	0.336	100	6.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	831	4.0		0.336		6.1	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	141	7.0	644	0.219	100	8.2	LOS A	0.6	16.7	Short	250	0.0	NA
Lane 2 ^d	141	7.0	644	0.219	100	8.2	LOS A	0.6	16.7	Full	1600	0.0	0.0
Lane 3	786	7.0	1565	0.502	100	0.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1068	7.0		0.502		2.3	LOS A	0.6	16.7				
West: STH 21													
Lane 1	537	3.0	854	0.629	100	14.2	LOS B	5.3	135.4	Short	190	0.0	NA
Lane 2	537	3.0	854	0.629	100	14.2	LOS B	5.3	135.4	Full	1600	0.0	0.0
Lane 3 ^d	537	3.0	854	0.629	100	14.2	LOS B	5.3	135.4	Full	1600	0.0	0.0
Lane 4	342	3.0	1626	0.210	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	1953	3.0		0.629		11.7	LOS B	5.3	135.4				
Intersection	3852	4.3		0.629		7.9	LOS A	5.3	135.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

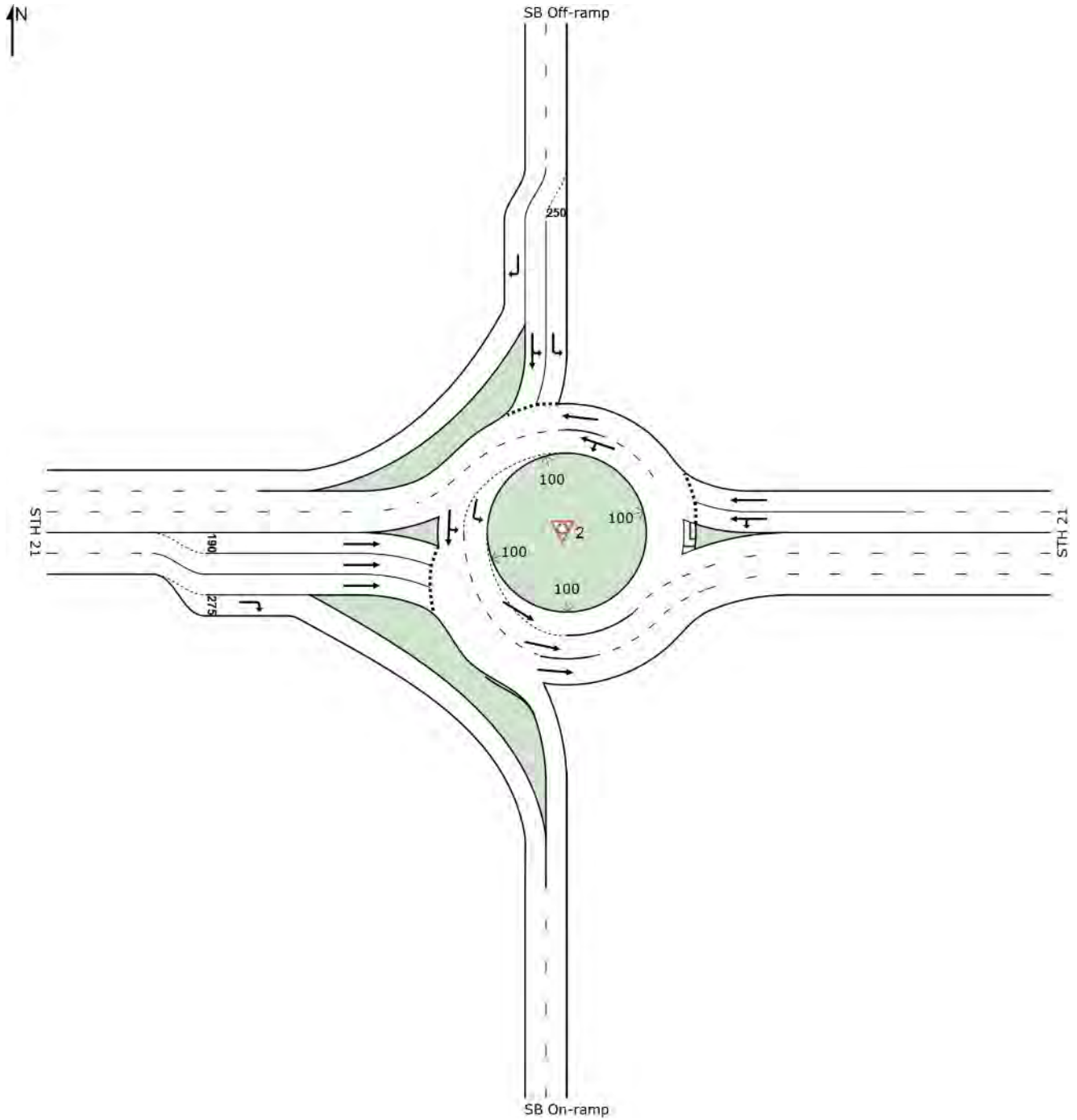
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



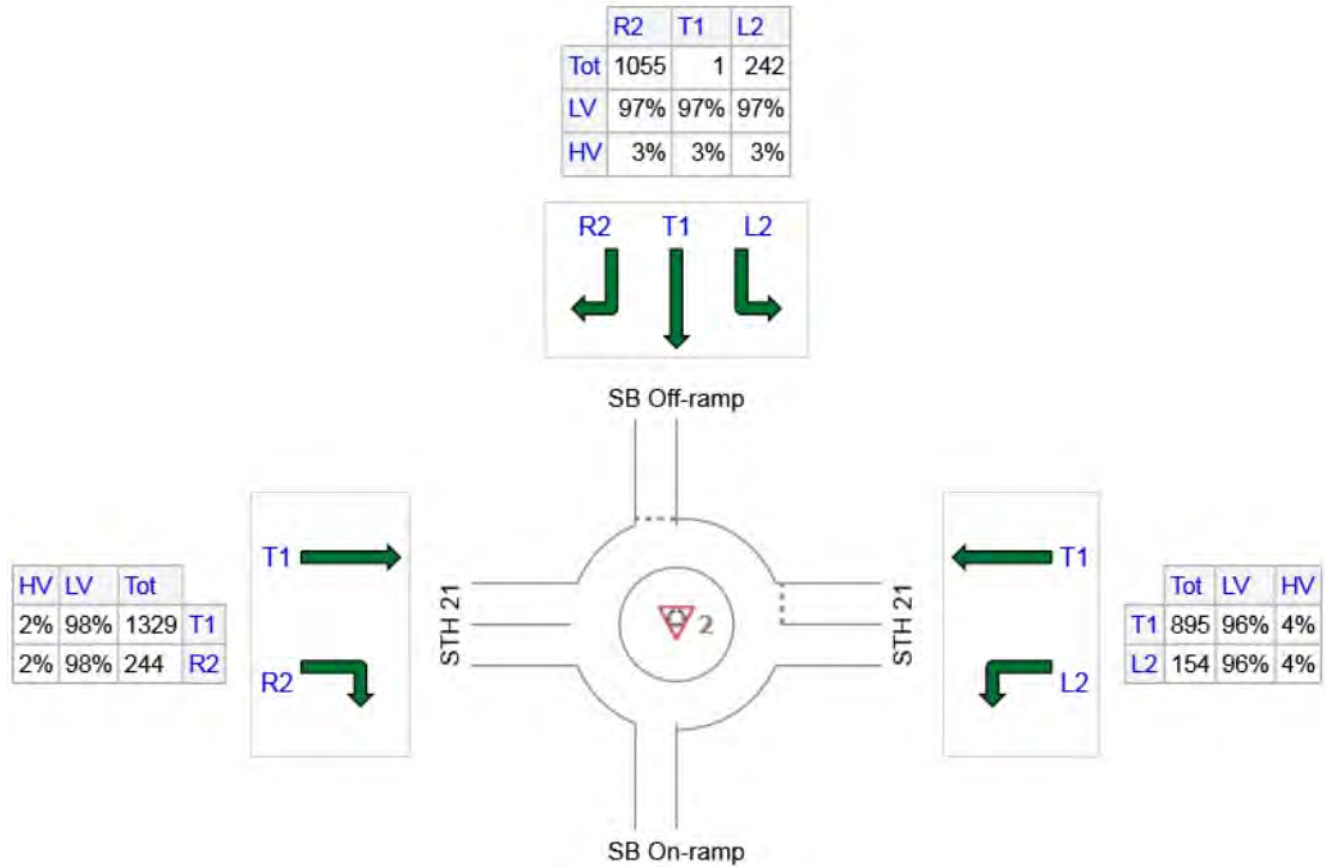
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	160	4.0	0.442	7.4	LOS A	0.0	0.0	0.00	0.00	37.8	
6	T1	932	4.0	0.442	7.4	LOS A	0.0	0.0	0.00	0.00	38.3	
Approach		1093	4.0	0.442	7.4	LOS A	0.0	0.0	0.00	0.00	38.2	
North: SB Off-ramp												
7	L2	252	3.0	0.230	9.6	LOS A	0.7	17.3	0.62	0.62	31.1	
4	T1	1	3.0	0.230	9.6	LOS A	0.7	17.3	0.62	0.62	31.0	
14	R2	1099	3.0	0.676	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		1352	3.0	0.676	2.0	LOS A	0.7	17.3	0.12	0.12	35.9	
West: STH 21												
2	T1	1384	2.0	0.498	10.2	LOS B	3.0	76.1	0.53	0.61	33.1	
12	R2	254	2.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		1639	2.0	0.498	8.6	LOS A	3.0	76.1	0.45	0.51	33.7	
All Vehicles		4083	2.9	0.676	6.0	LOS A	3.0	76.1	0.22	0.24	35.5	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	546	4.0	1237	0.442	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	546	4.0	1237	0.442	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1093	4.0		0.442		7.4	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	127	3.0	550	0.230	100	9.6	LOS A	0.7	17.3	Short	250	0.0	NA
Lane 2 ^d	127	3.0	550	0.230	100	9.6	LOS A	0.7	17.3	Full	1600	0.0	0.0
Lane 3	1099	3.0	1626	0.676	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1352	3.0		0.676		2.0	LOS A	0.7	17.3				
West: STH 21													
Lane 1	461	2.0	926	0.498	100	10.2	LOS B	3.0	76.1	Short	190	0.0	NA
Lane 2	461	2.0	926	0.498	100	10.2	LOS B	3.0	76.1	Full	1600	0.0	0.0
Lane 3 ^d	461	2.0	926	0.498	100	10.2	LOS B	3.0	76.1	Full	1600	0.0	0.0
Lane 4	254	2.0	1642	0.155	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	1639	2.0		0.498		8.6	LOS A	3.0	76.1				
Intersection	4083	2.9		0.676		6.0	LOS A	3.0	76.1				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

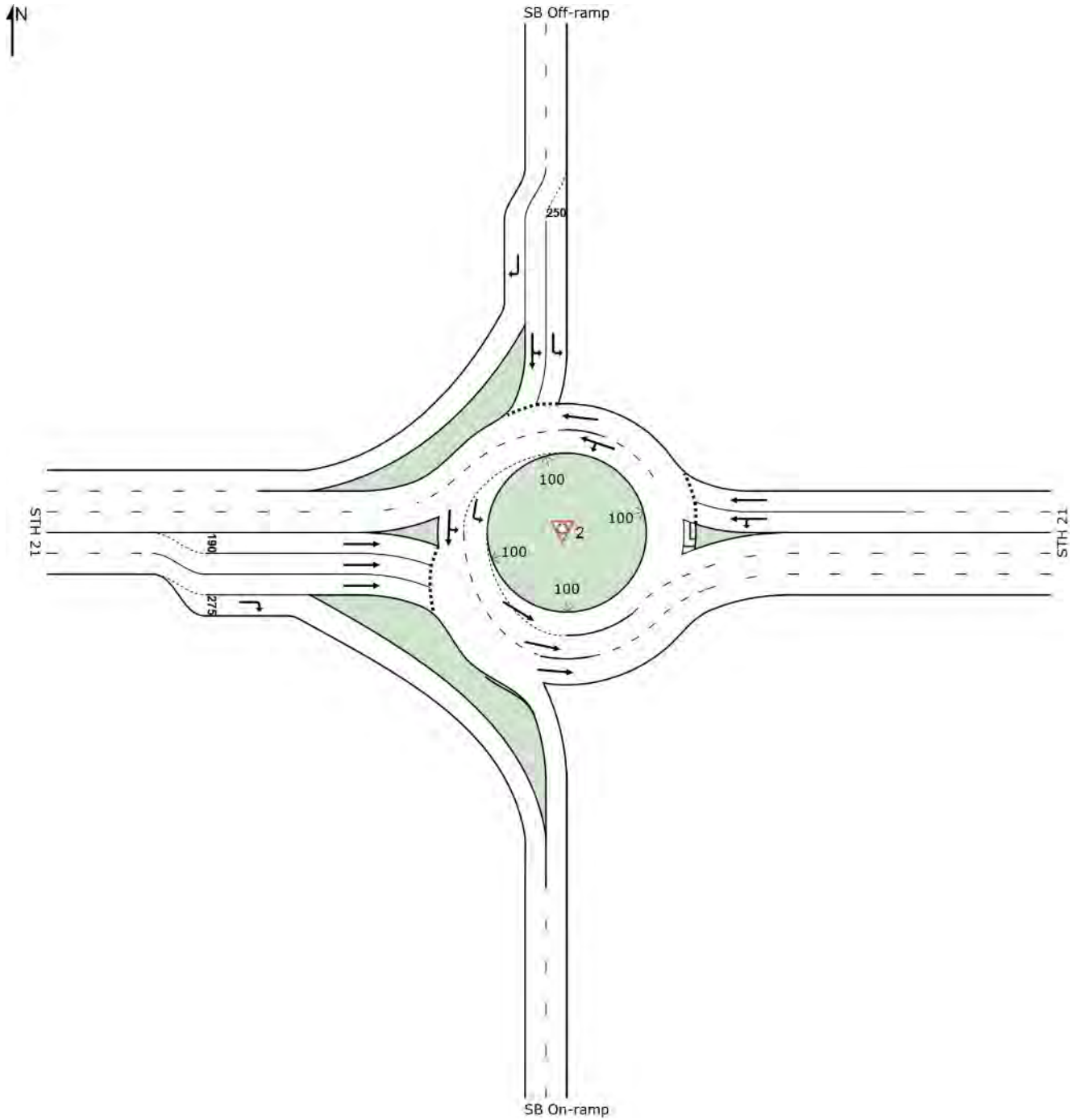
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



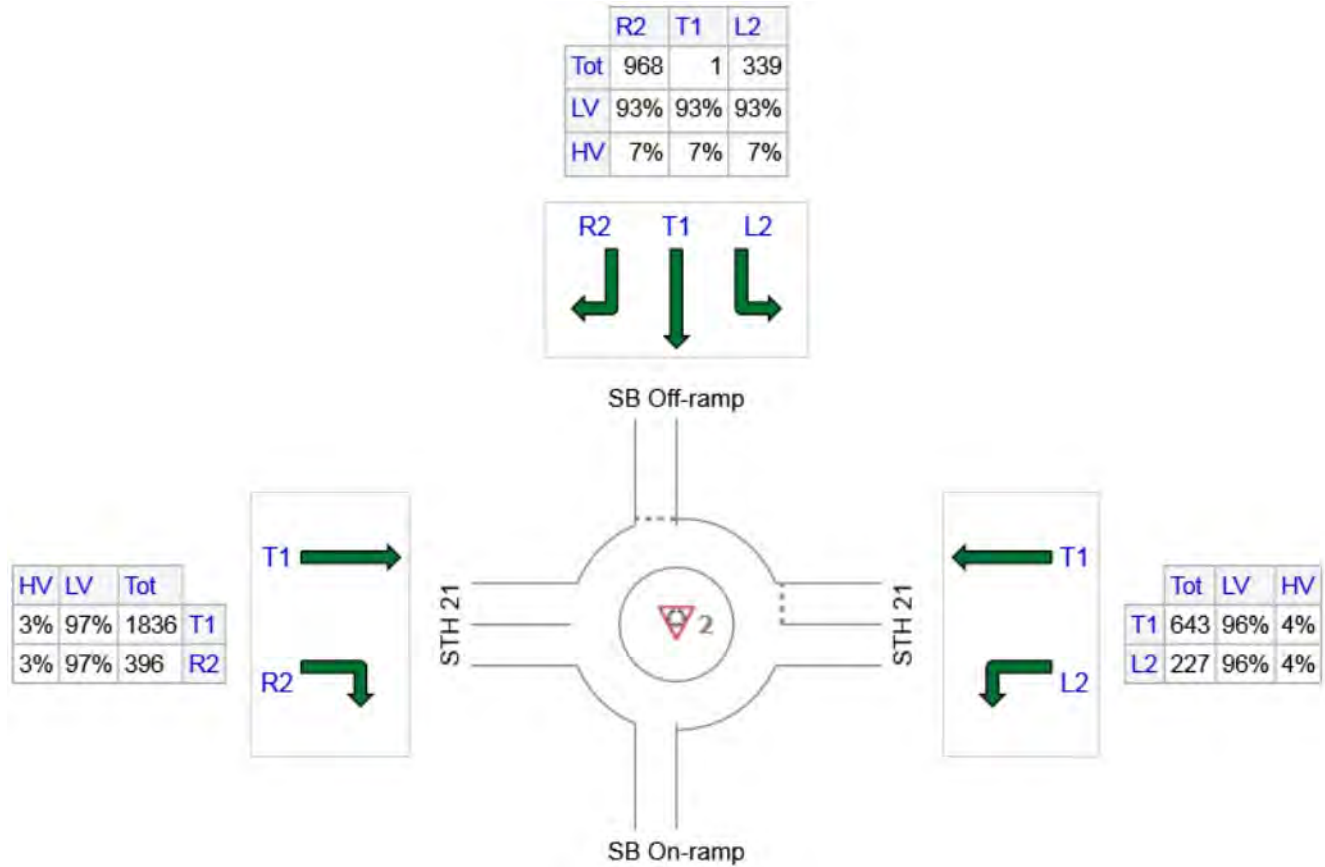
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 2 [STH 21 & SB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	870	835	35
N: SB Off-ramp	1308	1216	92
W: STH 21	2232	2165	67
Total	4410	4217	193

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	244	4.0	0.378	6.6	LOS A	0.0	0.0	0.00	0.00	37.0	
6	T1	691	4.0	0.378	6.6	LOS A	0.0	0.0	0.00	0.00	38.1	
Approach		935	4.0	0.378	6.6	LOS A	0.0	0.0	0.00	0.00	37.8	
North: SB Off-ramp												
7	L2	365	7.0	0.307	10.2	LOS B	1.0	26.2	0.59	0.62	30.7	
4	T1	1	7.0	0.307	10.2	LOS B	1.0	26.2	0.59	0.62	30.7	
14	R2	1041	7.0	0.665	0.0	LOS A	0.0	0.0	0.00	0.00	37.2	
Approach		1406	7.0	0.665	2.8	LOS A	1.0	26.2	0.15	0.16	35.2	
West: STH 21												
2	T1	1974	3.0	0.840	27.8	LOS C	12.2	311.5	0.86	1.37	26.4	
12	R2	426	3.0	0.262	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		2400	3.0	0.840	22.9	LOS C	12.2	311.5	0.71	1.13	27.8	
All Vehicles		4742	4.4	0.840	13.7	LOS B	12.2	311.5	0.40	0.62	31.4	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Cap.	v/c	%	sec		Veh	Dist		ft	%	%
	veh/h	%	veh/h						ft				
East: STH 21													
Lane 1	468	4.0	1237	0.378	100	6.6	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	468	4.0	1237	0.378	100	6.6	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	935	4.0		0.378		6.6	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	183	7.0	595	0.307	100	10.2	LOS B	1.0	26.2	Short	250	0.0	NA
Lane 2 ^d	183	7.0	595	0.307	100	10.2	LOS B	1.0	26.2	Full	1600	0.0	0.0
Lane 3	1041	7.0	1565	0.665	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1406	7.0		0.665		2.8	LOS A	1.0	26.2				
West: STH 21													
Lane 1	658	3.0	784	0.840	100	27.8	LOS C	12.2	311.5	Short	190	0.0	NA
Lane 2	658	3.0	784	0.840	100	27.8	LOS C	12.2	311.5	Full	1600	0.0	0.0
Lane 3 ^d	658	3.0	784	0.840	100	27.8	LOS C	12.2	311.5	Full	1600	0.0	0.0
Lane 4	426	3.0	1626	0.262	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	2400	3.0		0.840		22.9	LOS C	12.2	311.5				
Intersection	4742	4.4		0.840		13.7	LOS B	12.2	311.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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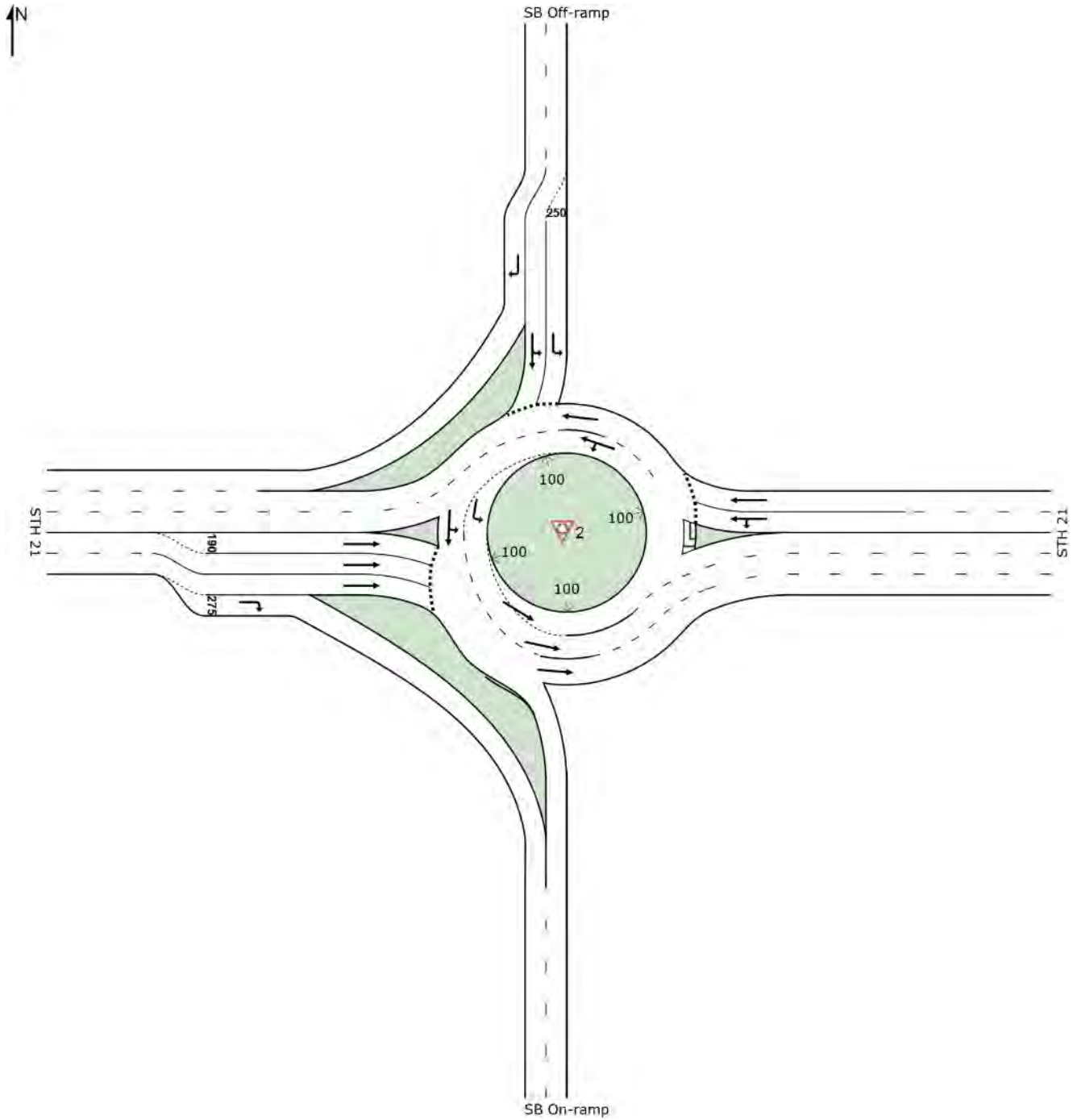
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SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



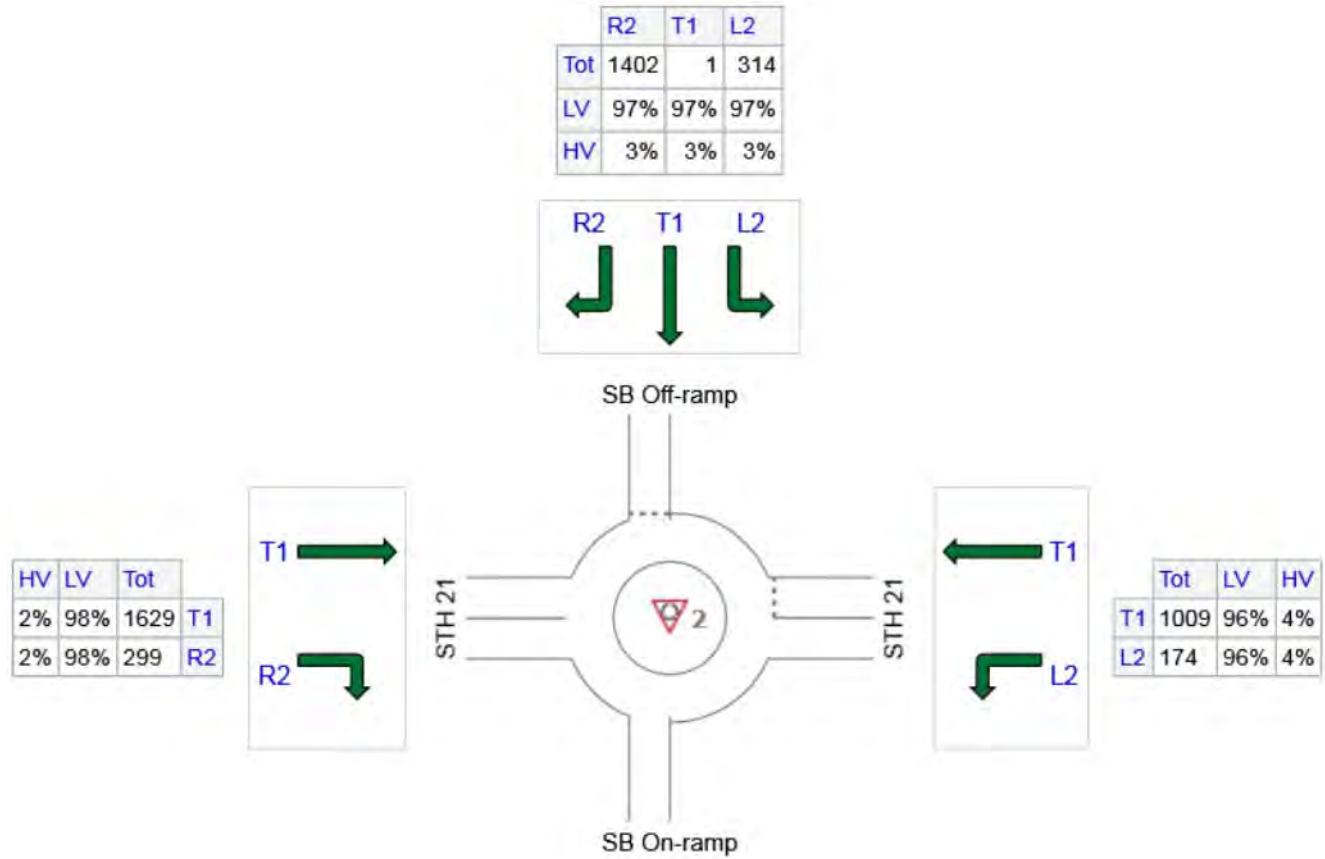
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	1183	1136	47
N: SB Off-ramp	1717	1665	52
W: STH 21	1928	1889	39
Total	4828	4691	137

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	181	4.0	0.498	8.3	LOS A	0.0	0.0	0.00	0.00	37.8	
6	T1	1051	4.0	0.498	8.3	LOS A	0.0	0.0	0.00	0.00	38.3	
Approach		1232	4.0	0.498	8.3	LOS A	0.0	0.0	0.00	0.00	38.2	
North: SB Off-ramp												
7	L2	327	3.0	0.331	12.5	LOS B	1.1	28.6	0.69	0.75	30.0	
4	T1	1	3.0	0.331	12.5	LOS B	1.1	28.6	0.69	0.75	29.9	
14	R2	1460	3.0	0.898	0.0	LOS A	0.0	0.0	0.00	0.00	36.7	
Approach		1789	3.0	0.898	3.0	LOS A	1.1	28.6	0.13	0.14	35.2	
West: STH 21												
2	T1	1697	2.0	0.656	15.1	LOS B	6.0	153.5	0.68	0.91	31.0	
12	R2	311	2.0	0.190	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		2008	2.0	0.656	12.7	LOS B	6.0	153.5	0.57	0.77	31.8	
All Vehicles		5029	2.8	0.898	7.9	LOS A	6.0	153.5	0.27	0.36	34.4	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	616	4.0	1237	0.498	100	8.3	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	616	4.0	1237	0.498	100	8.3	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1232	4.0		0.498		8.3	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	164	3.0	495	0.331	100	12.5	LOS B	1.1	28.6	Short	250	0.0	NA
Lane 2 ^d	164	3.0	495	0.331	100	12.5	LOS B	1.1	28.6	Full	1600	0.0	0.0
Lane 3	1460	3.0	1626	0.898	100	0.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1789	3.0		0.898		3.0	LOS A	1.1	28.6				
West: STH 21													
Lane 1	566	2.0	862	0.656	100	15.1	LOS B	6.0	153.5	Short	190	0.0	NA
Lane 2	566	2.0	862	0.656	100	15.1	LOS B	6.0	153.5	Full	1600	0.0	0.0
Lane 3 ^d	566	2.0	862	0.656	100	15.1	LOS B	6.0	153.5	Full	1600	0.0	0.0
Lane 4	311	2.0	1642	0.190	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	2008	2.0		0.656		12.7	LOS B	6.0	153.5				
Intersection	5029	2.8		0.898		7.9	LOS A	6.0	153.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

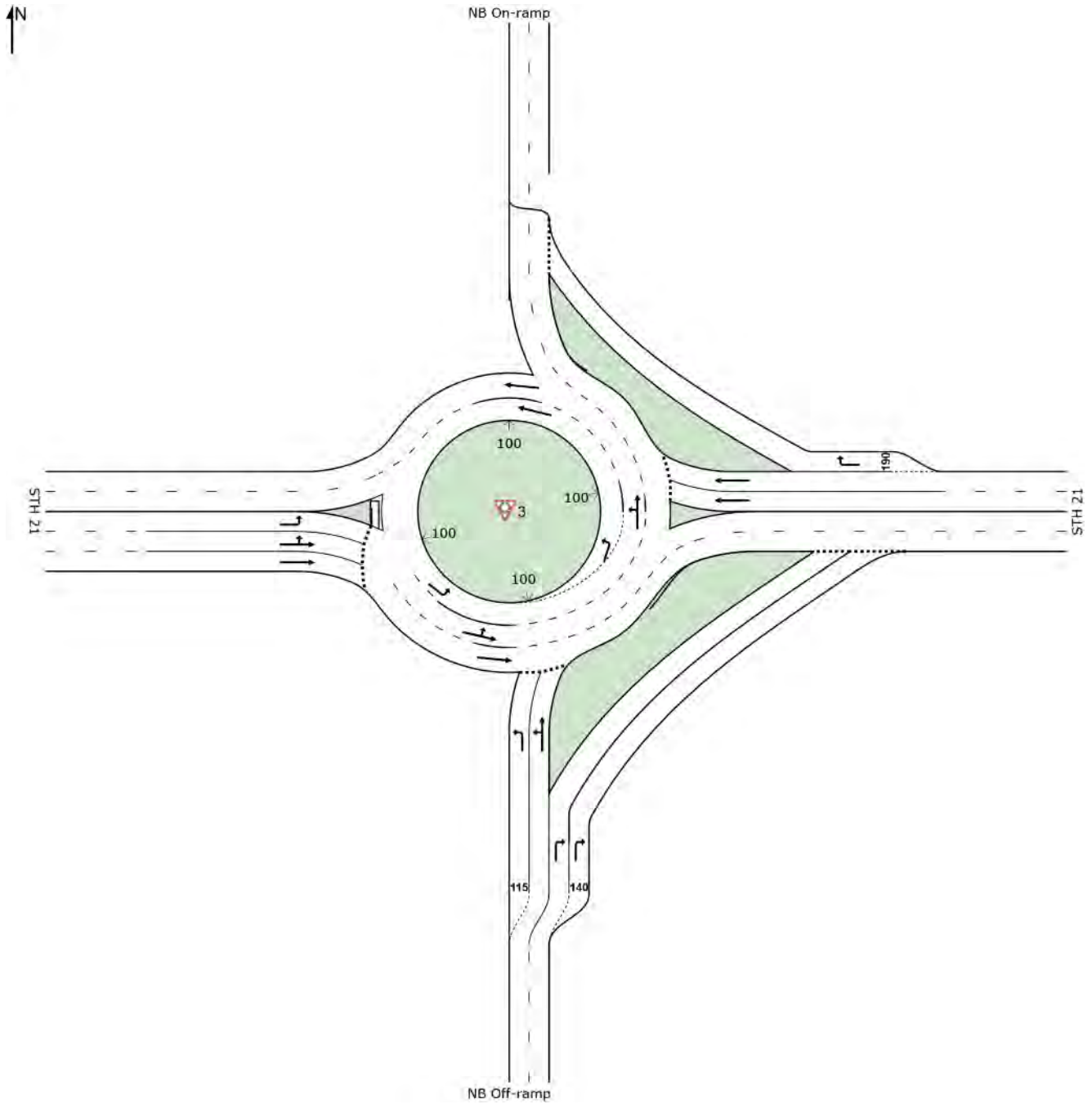
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 3 [STH 21 & NB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



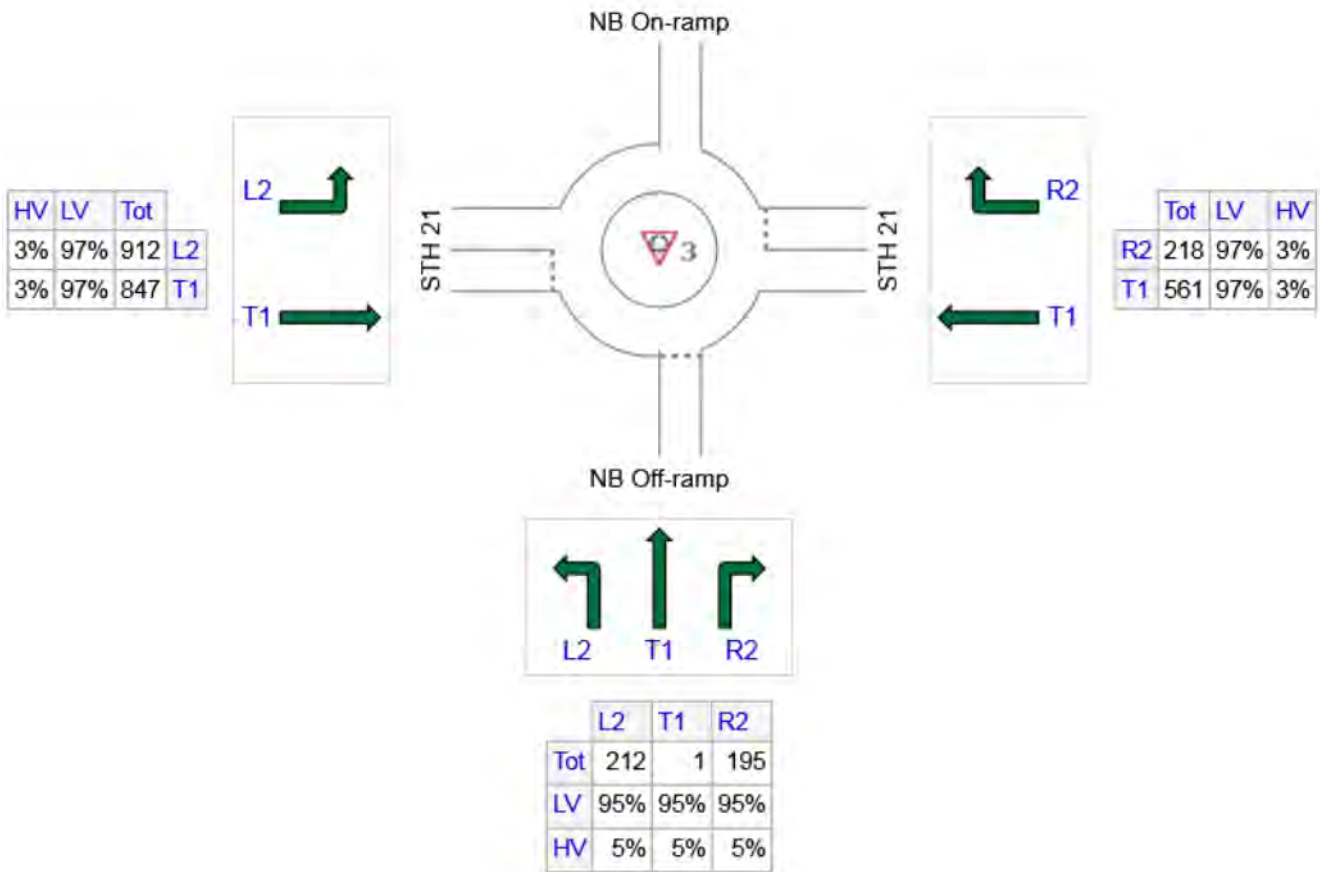
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	408	388	20
E: STH 21	779	756	23
W: STH 21	1759	1706	53
Total	2946	2849	97

MOVEMENT SUMMARY

 **Site: 3 [STH 21 & NB Ramps AM - 2025 Background Traffic]**

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	228	5.0	0.382	21.1	LOS C	1.2	30.7	0.83	0.91	27.0
8	T1	1	5.0	0.382	21.1	LOS C	1.2	30.7	0.83	0.91	26.9
18	R2	210	5.0	0.169	7.8	LOS A	0.5	12.5	0.54	0.54	32.8
Approach		439	5.0	0.382	14.8	LOS B	1.2	30.7	0.69	0.73	29.4
East: STH 21											
6	T1	603	3.0	0.596	20.0	LOS C	2.9	75.3	0.78	0.95	29.0
16	R2	234	3.0	0.390	11.7	LOS B	1.5	38.8	0.63	0.71	31.2
Approach		838	3.0	0.596	17.7	LOS B	2.9	75.3	0.74	0.88	29.6
West: STH 21											
5	L2	981	3.0	0.505	8.3	LOS A	0.0	0.0	0.00	0.00	36.0
2	T1	911	3.0	0.505	8.3	LOS A	0.0	0.0	0.00	0.00	38.1
Approach		1891	3.0	0.505	8.3	LOS A	0.0	0.0	0.00	0.00	37.0
All Vehicles		3168	3.3	0.596	11.7	LOS B	2.9	75.3	0.29	0.34	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	115	5.0	300	0.382	100	21.1	LOS C	1.2	30.7	Short	115	0.0	NA
Lane 2 ^d	115	5.0	300	0.382	100	21.1	LOS C	1.2	30.7	Full	1600	0.0	0.0
Lane 3	105	5.0	622	0.169	100	7.8	LOS A	0.5	12.5	Full	1600	0.0	0.0
Lane 4	105	5.0	622	0.169	100	7.8	LOS A	0.5	12.5	Short	140	0.0	NA
Approach	439	5.0		0.382		14.8	LOS B	1.2	30.7				
East: STH 21													
Lane 1	302	3.0	506	0.596	100	20.0	LOS C	2.9	75.3	Full	1600	0.0	0.0
Lane 2 ^d	302	3.0	506	0.596	100	20.0	LOS C	2.9	75.3	Full	1600	0.0	0.0
Lane 3	234	3.0	602	0.390	100	11.7	LOS B	1.5	38.8	Short	190	0.0	NA
Approach	838	3.0		0.596		17.7	LOS B	2.9	75.3				
West: STH 21													
Lane 1	630	3.0	1249	0.505	100	8.3	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	630	3.0	1249	0.505	100	8.3	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	630	3.0	1249	0.505	100	8.3	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1891	3.0		0.505		8.3	LOS A	0.0	0.0				
Intersection	3168	3.3		0.596		11.7	LOS B	2.9	75.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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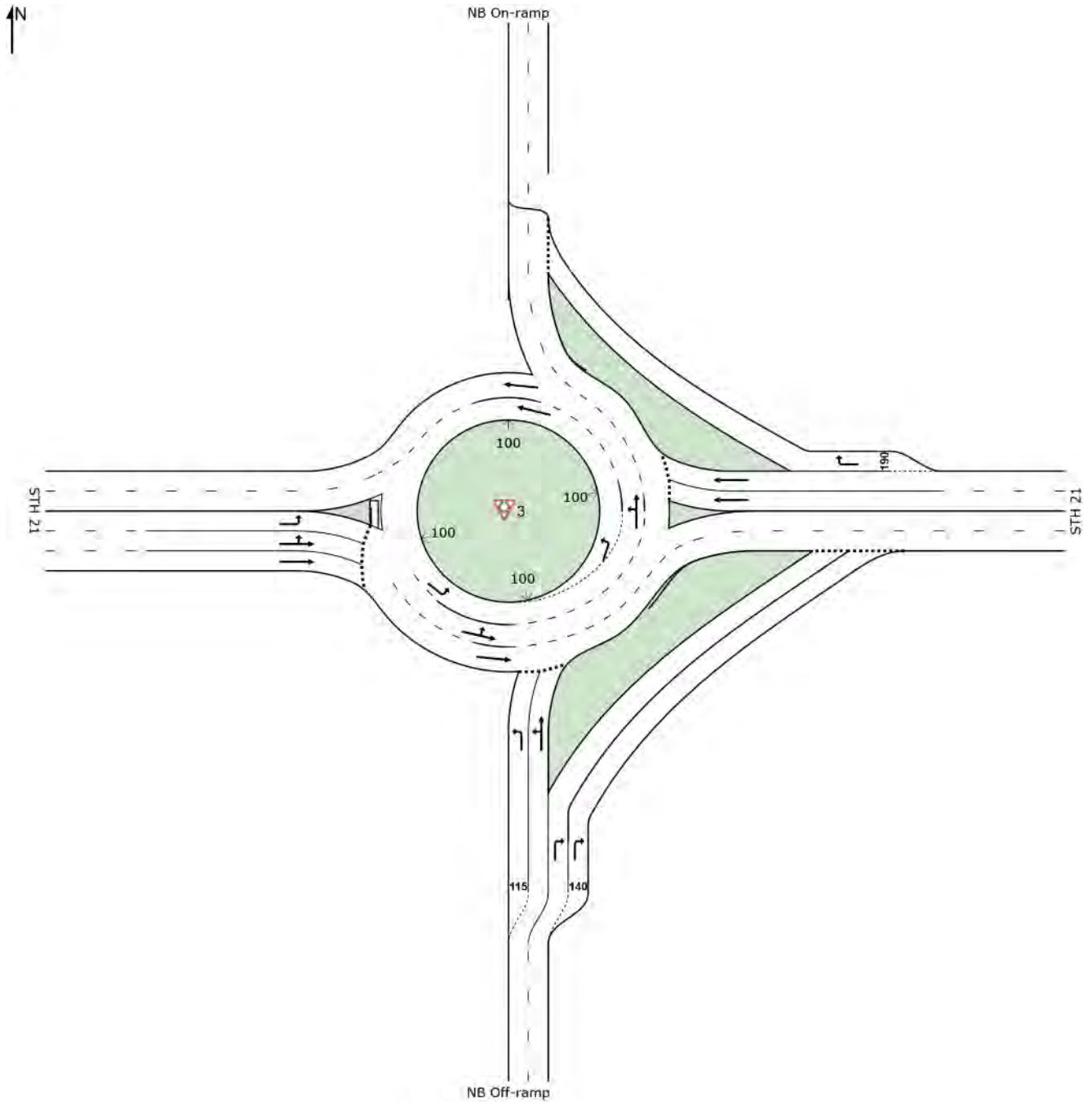
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SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



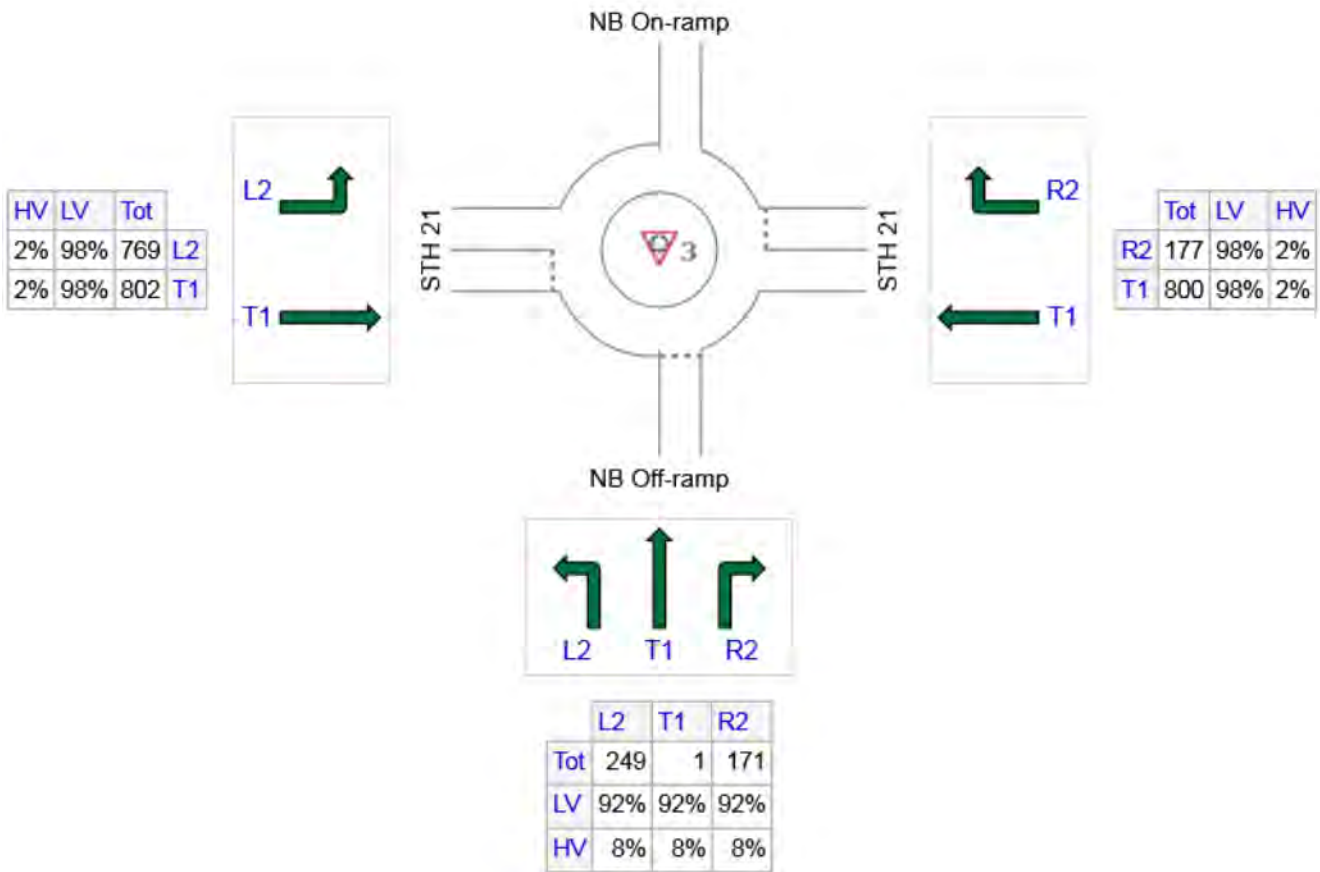
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	421	387	34
E: STH 21	977	957	20
W: STH 21	1571	1540	31
Total	2969	2884	85

MOVEMENT SUMMARY

 **Site: 3 [STH 21 & NB Ramps PM - 2025 Background Traffic]**

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	259	8.0	0.365	17.6	LOS B	1.1	30.2	0.78	0.86	28.0
8	T1	1	8.0	0.365	17.6	LOS B	1.1	30.2	0.78	0.86	28.0
18	R2	178	8.0	0.138	7.2	LOS A	0.4	10.1	0.51	0.51	33.0
Approach		439	8.0	0.365	13.4	LOS B	1.1	30.2	0.67	0.72	29.8
East: STH 21											
6	T1	833	2.0	0.730	25.2	LOS C	5.1	130.2	0.81	1.10	27.3
16	R2	184	2.0	0.264	8.3	LOS A	0.8	21.2	0.54	0.54	32.7
Approach		1018	2.0	0.730	22.1	LOS C	5.1	130.2	0.76	1.00	28.1
West: STH 21											
5	L2	801	2.0	0.433	7.2	LOS A	0.0	0.0	0.00	0.00	36.1
2	T1	835	2.0	0.433	7.2	LOS A	0.0	0.0	0.00	0.00	38.2
Approach		1636	2.0	0.433	7.2	LOS A	0.0	0.0	0.00	0.00	37.1
All Vehicles		3093	2.9	0.730	13.0	LOS B	5.1	130.2	0.35	0.43	32.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	130	8.0	357	0.365	100	17.6	LOS B	1.1	30.2	Short	115	0.0	NA
Lane 2 ^d	130	8.0	357	0.365	100	17.6	LOS B	1.1	30.2	Full	1600	0.0	0.0
Lane 3	89	8.0	644	0.138	100	7.2	LOS A	0.4	10.1	Full	1600	0.0	0.0
Lane 4	89	8.0	644	0.138	100	7.2	LOS A	0.4	10.1	Short	140	0.0	NA
Approach	439	8.0		0.365		13.4	LOS B	1.1	30.2				
East: STH 21													
Lane 1	417	2.0	570	0.730	100	25.2	LOS C	5.1	130.2	Full	1600	0.0	0.0
Lane 2 ^d	417	2.0	570	0.730	100	25.2	LOS C	5.1	130.2	Full	1600	0.0	0.0
Lane 3	184	2.0	698	0.264	100	8.3	LOS A	0.8	21.2	Short	190	0.0	NA
Approach	1018	2.0		0.730		22.1	LOS C	5.1	130.2				
West: STH 21													
Lane 1	545	2.0	1261	0.433	100	7.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	545	2.0	1261	0.433	100	7.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	545	2.0	1261	0.433	100	7.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1636	2.0		0.433		7.2	LOS A	0.0	0.0				
Intersection	3093	2.9		0.730		13.0	LOS B	5.1	130.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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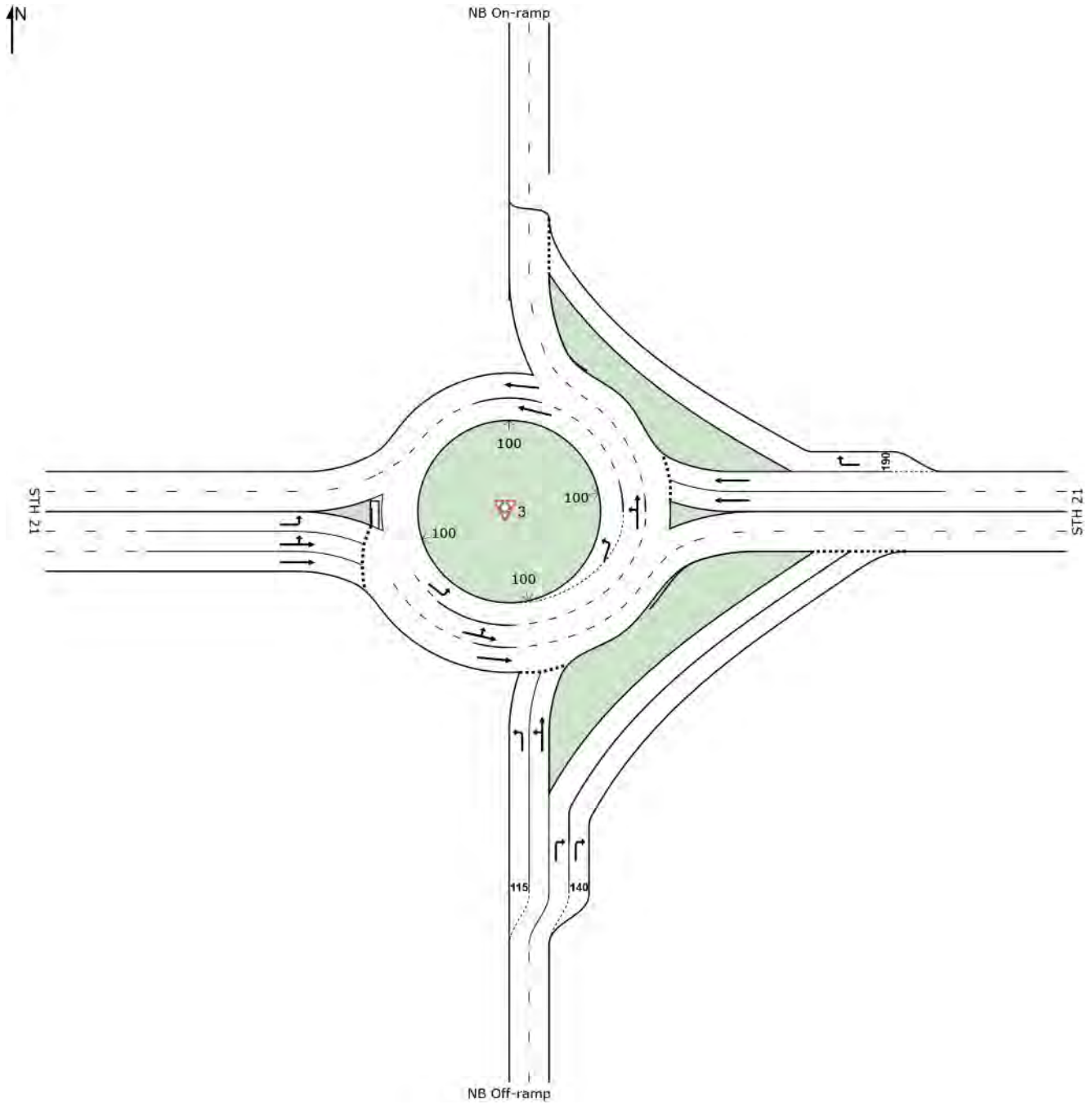
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SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



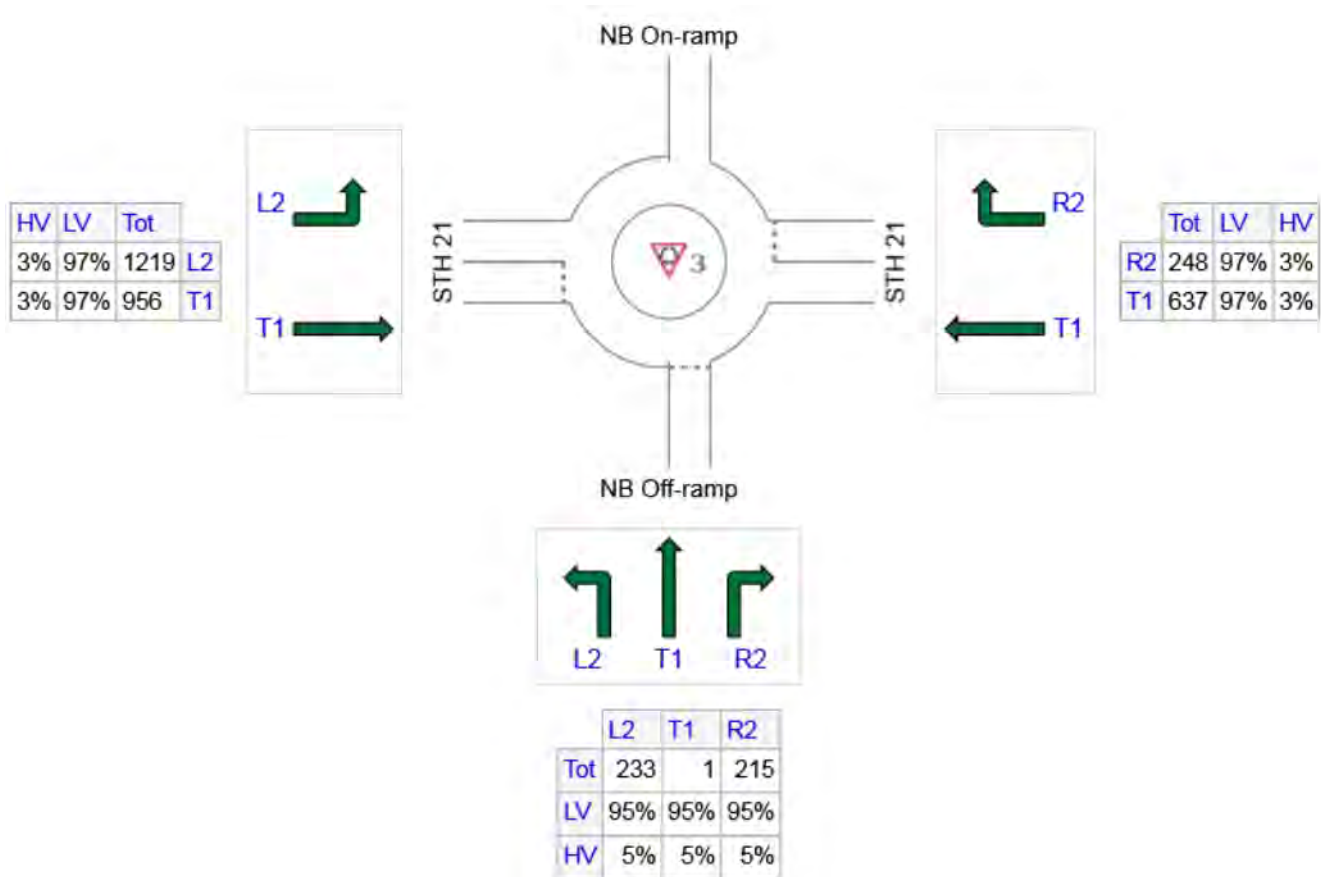
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	449	427	22
E: STH 21	885	858	27
W: STH 21	2175	2110	65
Total	3509	3395	114

MOVEMENT SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	251	5.0	0.585	40.8	LOS D	2.0	51.0	0.91	1.07	22.1
8	T1	1	5.0	0.585	40.8	LOS D	2.0	51.0	0.91	1.07	22.0
18	R2	231	5.0	0.203	8.9	LOS A	0.6	15.1	0.59	0.59	32.2
Approach		483	5.0	0.585	25.5	LOS C	2.0	51.0	0.76	0.84	25.8
East: STH 21											
6	T1	685	3.0	0.880	52.9	LOS D	6.8	174.9	0.94	1.44	20.6
16	R2	267	3.0	0.567	20.0	LOS C	2.6	65.7	0.79	0.94	27.9
Approach		952	3.0	0.880	43.7	LOS D	6.8	174.9	0.90	1.30	22.2
West: STH 21											
5	L2	1311	3.0	0.624	10.7	LOS B	0.0	0.0	0.00	0.00	35.9
2	T1	1028	3.0	0.624	10.7	LOS B	0.0	0.0	0.00	0.00	38.1
Approach		2339	3.0	0.624	10.7	LOS B	0.0	0.0	0.00	0.00	36.9
All Vehicles		3773	3.3	0.880	20.9	LOS C	6.8	174.9	0.32	0.43	30.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 3 [STH 21 & NB Ramps AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	126	5.0	215	0.585	100	40.8	LOS D	2.0	51.0	Short	115	0.0	NA
Lane 2 ^d	126	5.0	215	0.585	100	40.8	LOS D	2.0	51.0	Full	1600	0.0	0.0
Lane 3	116	5.0	570	0.203	100	8.9	LOS A	0.6	15.1	Full	1600	0.0	0.0
Lane 4	116	5.0	570	0.203	100	8.9	LOS A	0.6	15.1	Short	140	0.0	NA
Approach	483	5.0		0.585		25.5	LOS C	2.0	51.0				
East: STH 21													
Lane 1	342	3.0	389	0.880	100	52.9	LOS D	6.8	174.9	Full	1600	0.0	0.0
Lane 2 ^d	342	3.0	389	0.880	100	52.9	LOS D	6.8	174.9	Full	1600	0.0	0.0
Lane 3	267	3.0	471	0.567	100	20.0	LOS C	2.6	65.7	Short	190	0.0	NA
Approach	952	3.0		0.880		43.7	LOS D	6.8	174.9				
West: STH 21													
Lane 1	780	3.0	1249	0.624	100	10.7	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 2	780	3.0	1249	0.624	100	10.7	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	780	3.0	1249	0.624	100	10.7	LOS B	0.0	0.0	Full	1600	0.0	0.0
Approach	2339	3.0		0.624		10.7	LOS B	0.0	0.0				
Intersection	3773	3.3		0.880		20.9	LOS C	6.8	174.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

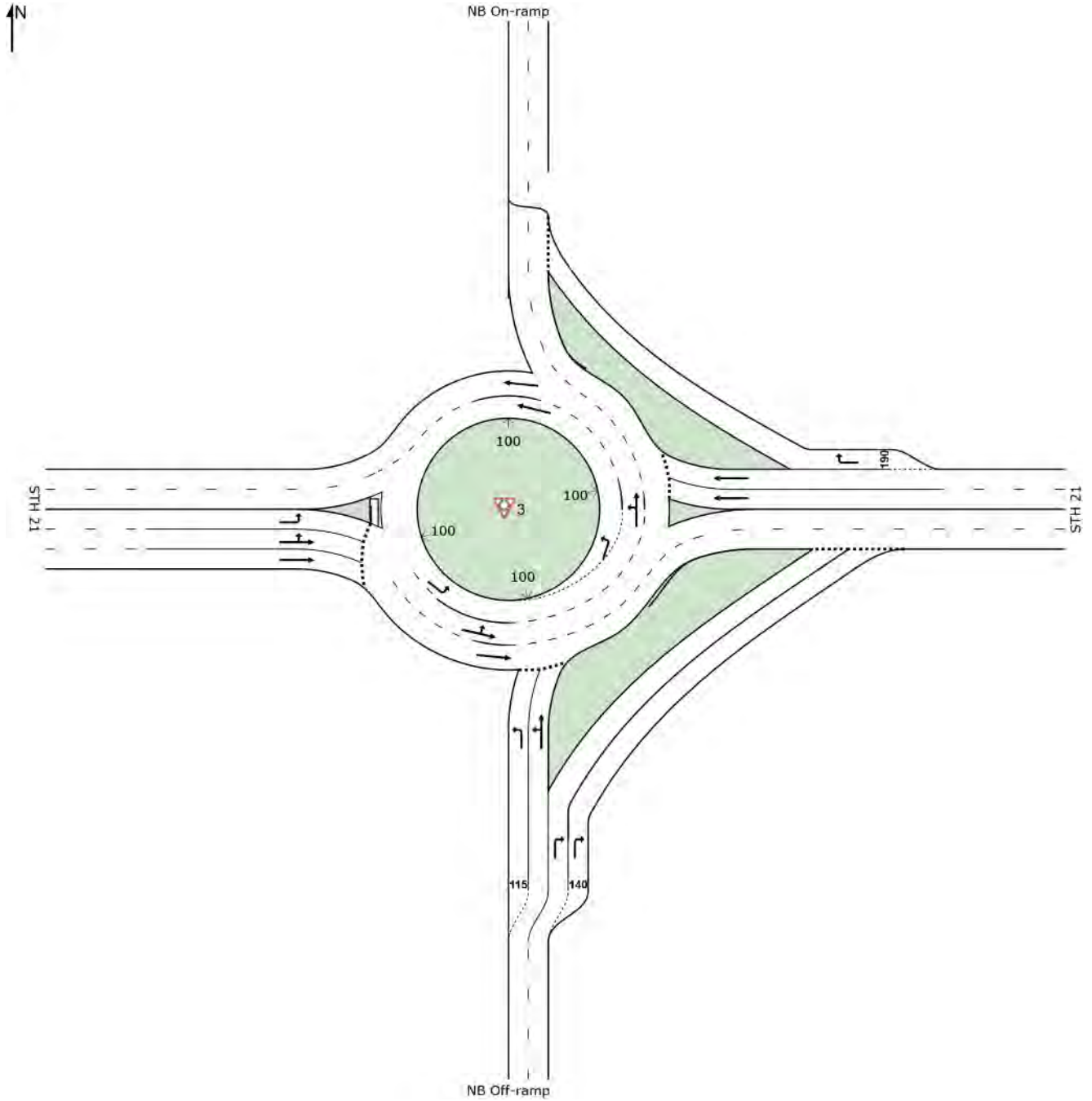
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 3 [STH 21 & NB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



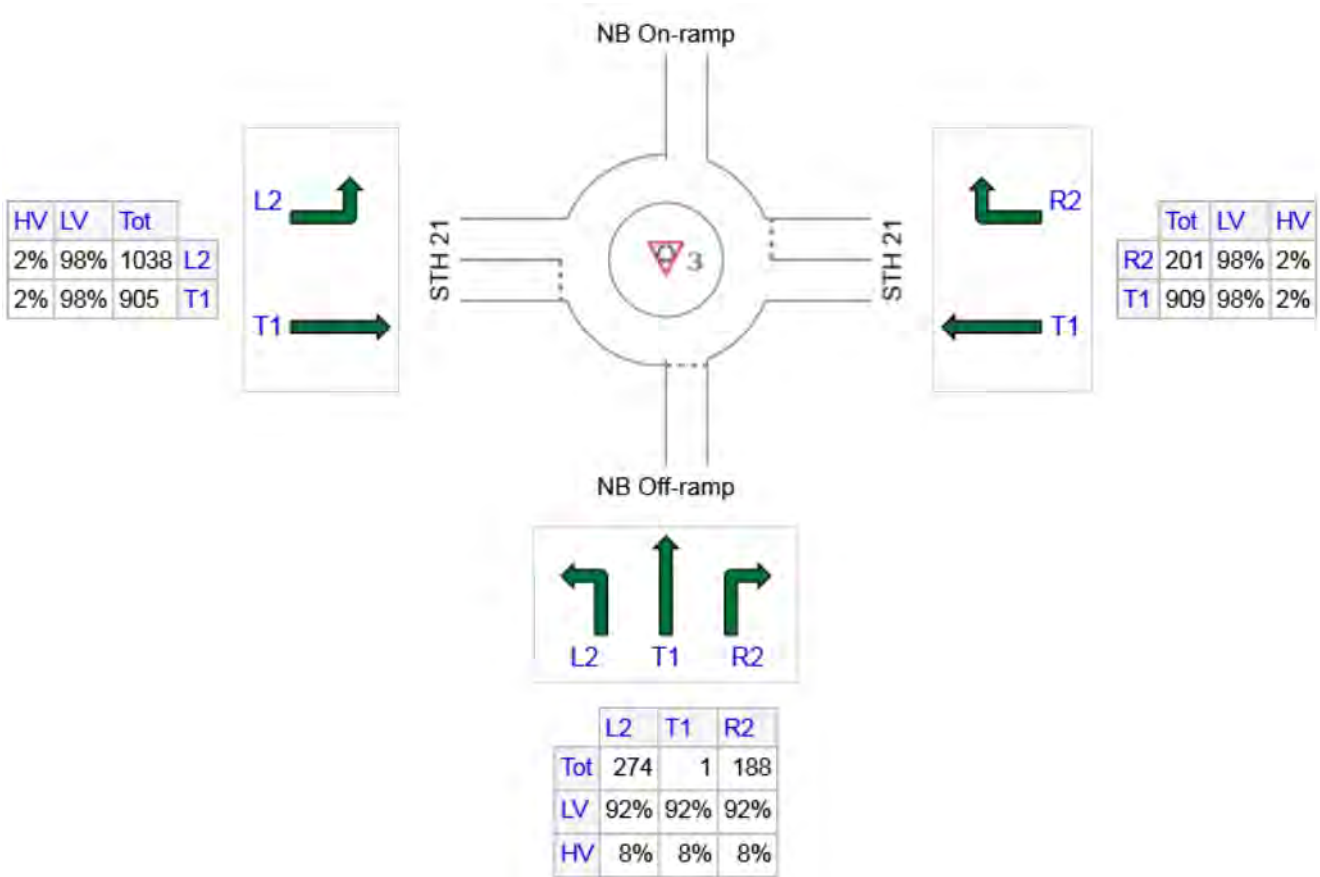
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	463	426	37
E: STH 21	1110	1088	22
W: STH 21	1943	1904	39
Total	3516	3418	98

MOVEMENT SUMMARY

 Site: 3 [STH 21 & NB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	285	8.0	0.534	30.5	LOS C	1.8	47.8	0.87	1.01	24.3
8	T1	1	8.0	0.534	30.5	LOS C	1.8	47.8	0.87	1.01	24.3
18	R2	196	8.0	0.165	8.1	LOS A	0.5	12.0	0.54	0.54	32.6
Approach		482	8.0	0.534	21.4	LOS C	1.8	47.8	0.74	0.82	27.0
East: STH 21											
6	T1	947	2.0	1.041	83.7	LOS F	18.7	475.9	1.00	2.19	16.2
16	R2	209	2.0	0.369	11.8	LOS B	1.4	34.8	0.66	0.72	31.1
Approach		1156	2.0	1.041	70.7	LOS E	18.7	475.9	0.94	1.92	17.7
West: STH 21											
5	L2	1081	2.0	0.535	8.8	LOS A	0.0	0.0	0.00	0.00	36.0
2	T1	943	2.0	0.535	8.8	LOS A	0.0	0.0	0.00	0.00	38.1
Approach		2024	2.0	0.535	8.8	LOS A	0.0	0.0	0.00	0.00	37.0
All Vehicles		3663	2.8	1.041	30.0	LOS C	18.7	475.9	0.39	0.72	26.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 3 [STH 21 & NB Ramps PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	143	8.0	268	0.534	100	30.5	LOS C	1.8	47.8	Short	115	0.0	NA
Lane 2 ^d	143	8.0	268	0.534	100	30.5	LOS C	1.8	47.8	Full	1600	0.0	0.0
Lane 3	98	8.0	595	0.165	100	8.1	LOS A	0.5	12.0	Full	1600	0.0	0.0
Lane 4	98	8.0	595	0.165	100	8.1	LOS A	0.5	12.0	Short	140	0.0	NA
Approach	482	8.0		0.534		21.4	LOS C	1.8	47.8				
East: STH 21													
Lane 1	473	2.0	455	1.041	100	83.7	LOS F	18.7	475.9	Full	1600	0.0	0.0
Lane 2 ^d	473	2.0	455	1.041	100	83.7	LOS F	18.7	475.9	Full	1600	0.0	0.0
Lane 3	209	2.0	568	0.369	100	11.8	LOS B	1.4	34.8	Short	190	0.0	NA
Approach	1156	2.0		1.041		70.7	LOS E	18.7	475.9				
West: STH 21													
Lane 1	675	2.0	1261	0.535	100	8.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	675	2.0	1261	0.535	100	8.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	675	2.0	1261	0.535	100	8.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	2024	2.0		0.535		8.8	LOS A	0.0	0.0				
Intersection	3663	2.8		1.041		30.0	LOS C	18.7	475.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

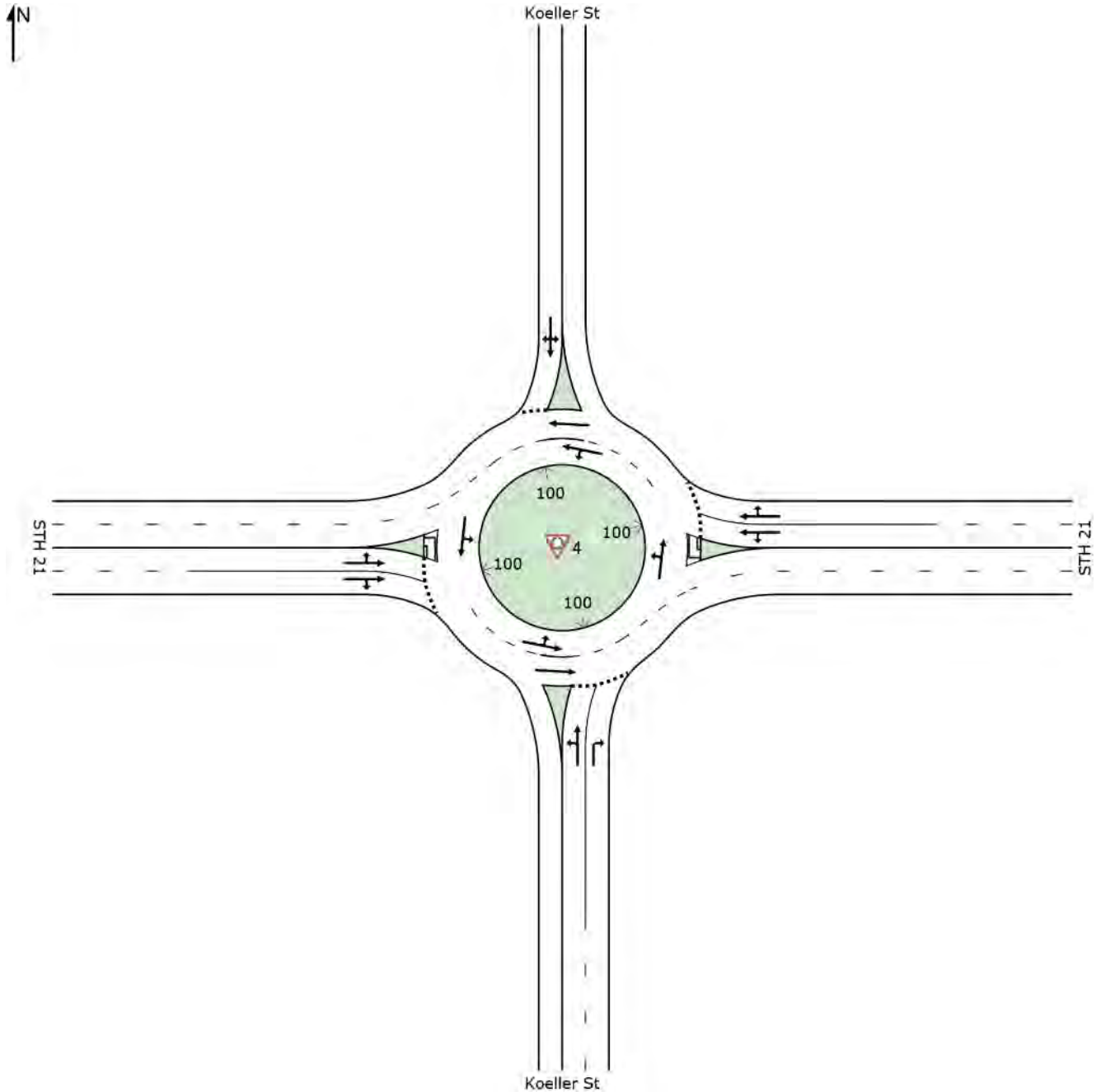
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

Site: 4 [STH 21 & Koeller AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



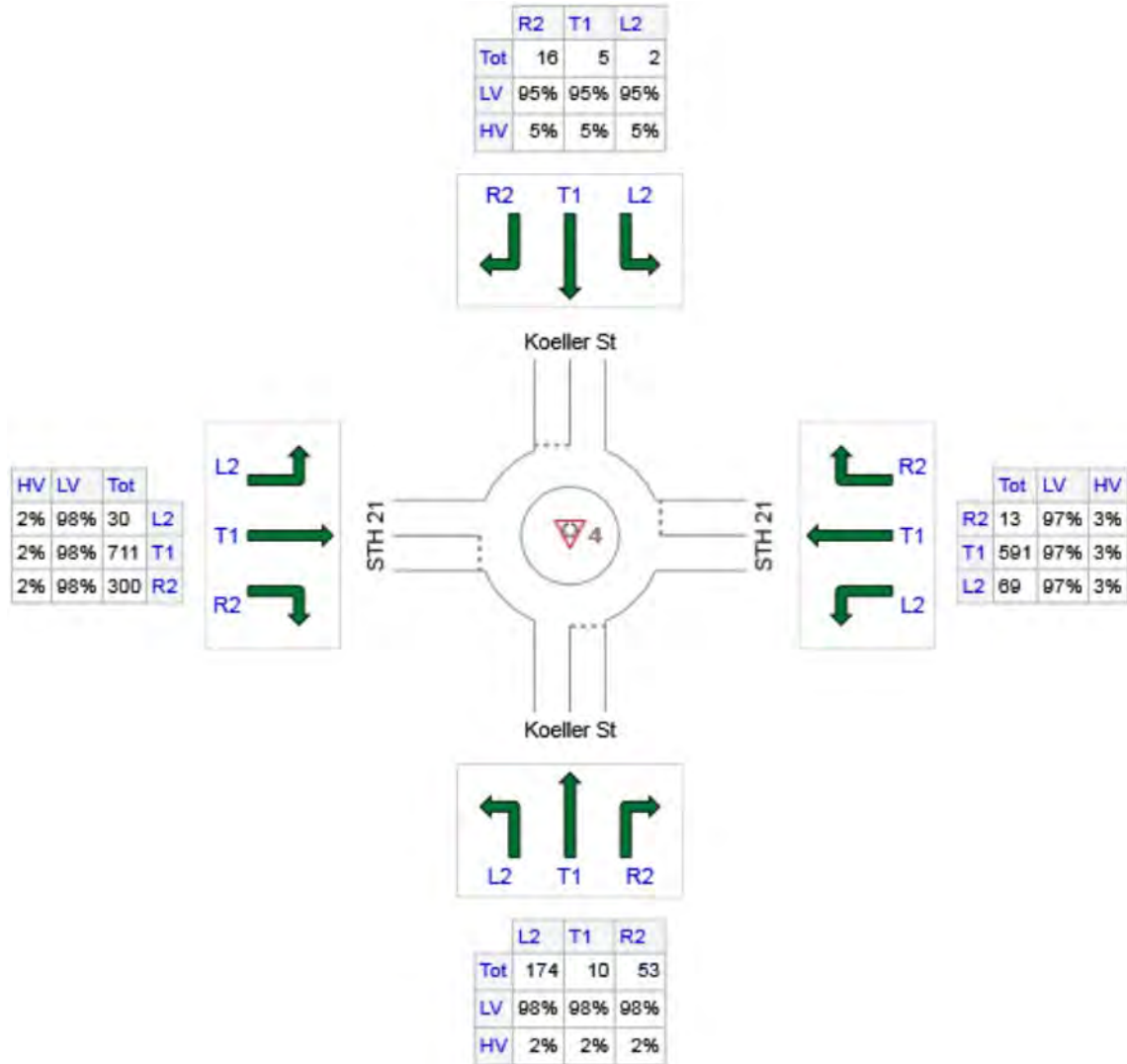
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	237	232	5
E: STH 21	673	653	20
N: Koeller St	23	22	1
W: STH 21	1041	1020	21
Total	1974	1927	47

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
South: Koeller St												
3	L2	198	2.0	0.309	9.2	LOS A	1.1	27.0	0.57	0.59	31.0	
8	T1	11	2.0	0.309	9.2	LOS A	1.1	27.0	0.57	0.59	30.9	
18	R2	60	2.0	0.089	6.3	LOS A	0.3	6.4	0.50	0.50	33.4	
Approach		269	2.0	0.309	8.6	LOS A	1.1	27.0	0.55	0.57	31.5	
East: STH 21												
1	L2	78	3.0	0.371	7.4	LOS A	1.5	39.1	0.39	0.30	33.6	
6	T1	672	3.0	0.371	7.4	LOS A	1.5	39.1	0.39	0.30	33.8	
16	R2	15	3.0	0.371	7.4	LOS A	1.5	39.1	0.39	0.30	33.0	
Approach		765	3.0	0.371	7.4	LOS A	1.5	39.1	0.39	0.30	33.7	
North: Koeller St												
7	L2	2	5.0	0.043	6.4	LOS A	0.1	3.0	0.52	0.51	34.3	
4	T1	6	5.0	0.043	6.4	LOS A	0.1	3.0	0.52	0.51	34.2	
14	R2	18	5.0	0.043	6.4	LOS A	0.1	3.0	0.52	0.51	33.2	
Approach		26	5.0	0.043	6.4	LOS A	0.1	3.0	0.52	0.51	33.5	
West: STH 21												
5	L2	34	2.0	0.503	8.6	LOS A	2.7	69.2	0.29	0.16	33.4	
2	T1	808	2.0	0.503	8.6	LOS A	2.7	69.2	0.29	0.16	33.3	
12	R2	341	2.0	0.503	8.6	LOS A	2.7	69.2	0.29	0.16	32.3	
Approach		1183	2.0	0.503	8.6	LOS A	2.7	69.2	0.29	0.16	33.0	
All Vehicles		2243	2.4	0.503	8.2	LOS A	2.7	69.2	0.36	0.26	33.1	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

 Site: 4 [STH 21 & Koeller AM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand	Flows		Deg.	Lane	Average	Level of	95% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Koeller St													
Lane 1 ^d	209	2.0	677	0.309	100	9.2	LOS A	1.1	27.0	Full	1600	0.0	0.0
Lane 2	60	2.0	677	0.089	100	6.3	LOS A	0.3	6.4	Full	1600	0.0	0.0
Approach	269	2.0		0.309		8.6	LOS A	1.1	27.0				
East: STH 21													
Lane 1	382	3.0	1029	0.371	100	7.4	LOS A	1.5	39.1	Full	1600	0.0	0.0
Lane 2 ^d	382	3.0	1029	0.371	100	7.4	LOS A	1.5	39.1	Full	1600	0.0	0.0
Approach	765	3.0		0.371		7.4	LOS A	1.5	39.1				
North: Koeller St													
Lane 1 ^d	26	5.0	606	0.043	100	6.4	LOS A	0.1	3.0	Full	1600	0.0	0.0
Approach	26	5.0		0.043		6.4	LOS A	0.1	3.0				
West: STH 21													
Lane 1	591	2.0	1176	0.503	100	8.6	LOS A	2.7	69.2	Full	1600	0.0	0.0
Lane 2 ^d	591	2.0	1176	0.503	100	8.6	LOS A	2.7	69.2	Full	1600	0.0	0.0
Approach	1183	2.0		0.503		8.6	LOS A	2.7	69.2				
Intersection	2243	2.4		0.503		8.2	LOS A	2.7	69.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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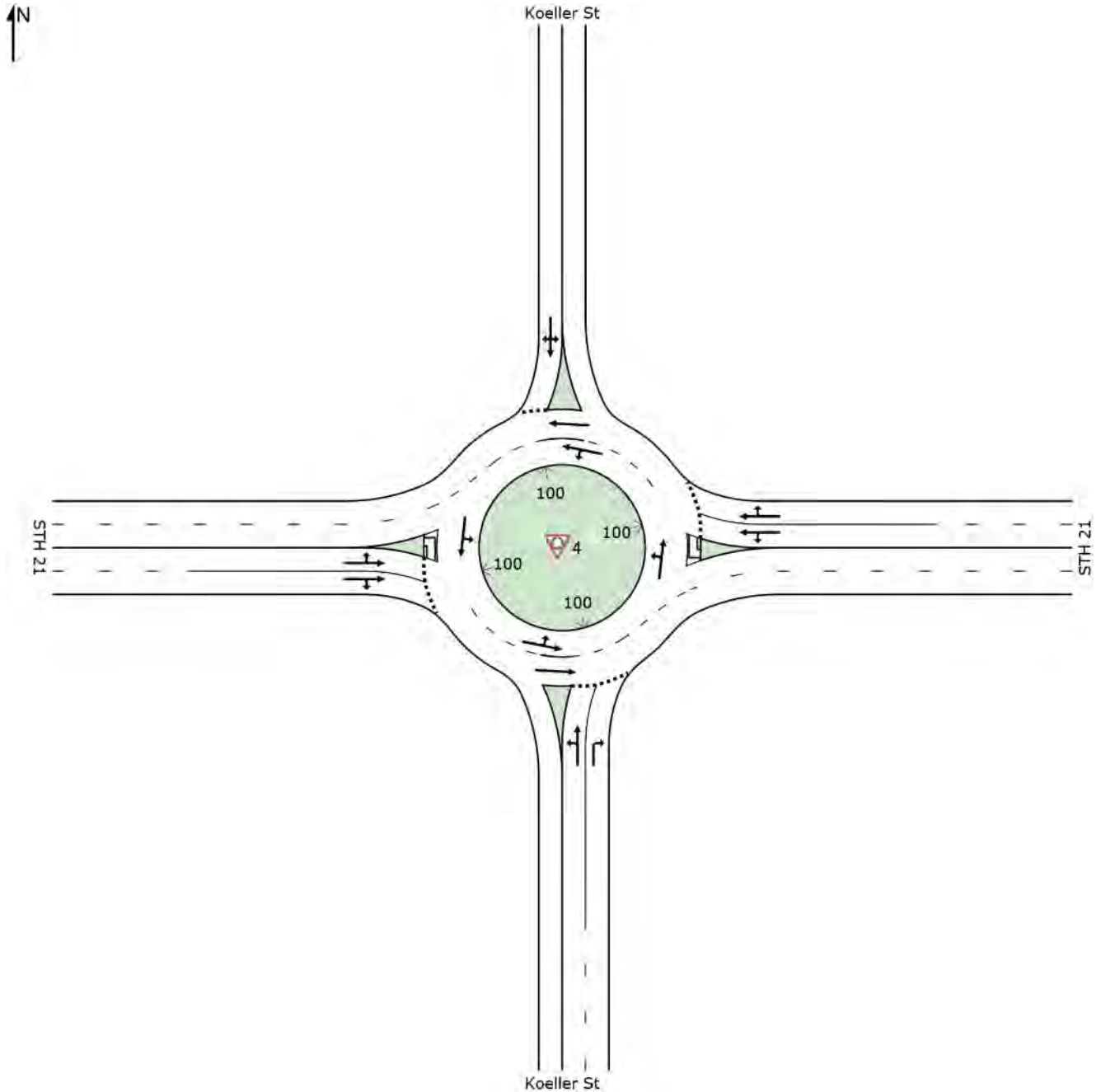
Organisation: KL ENGINEERING, INC. | Processed: Wednesday, February 07, 2018 12:36:49

Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

 Site: 4 [STH 21 & Koeller PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



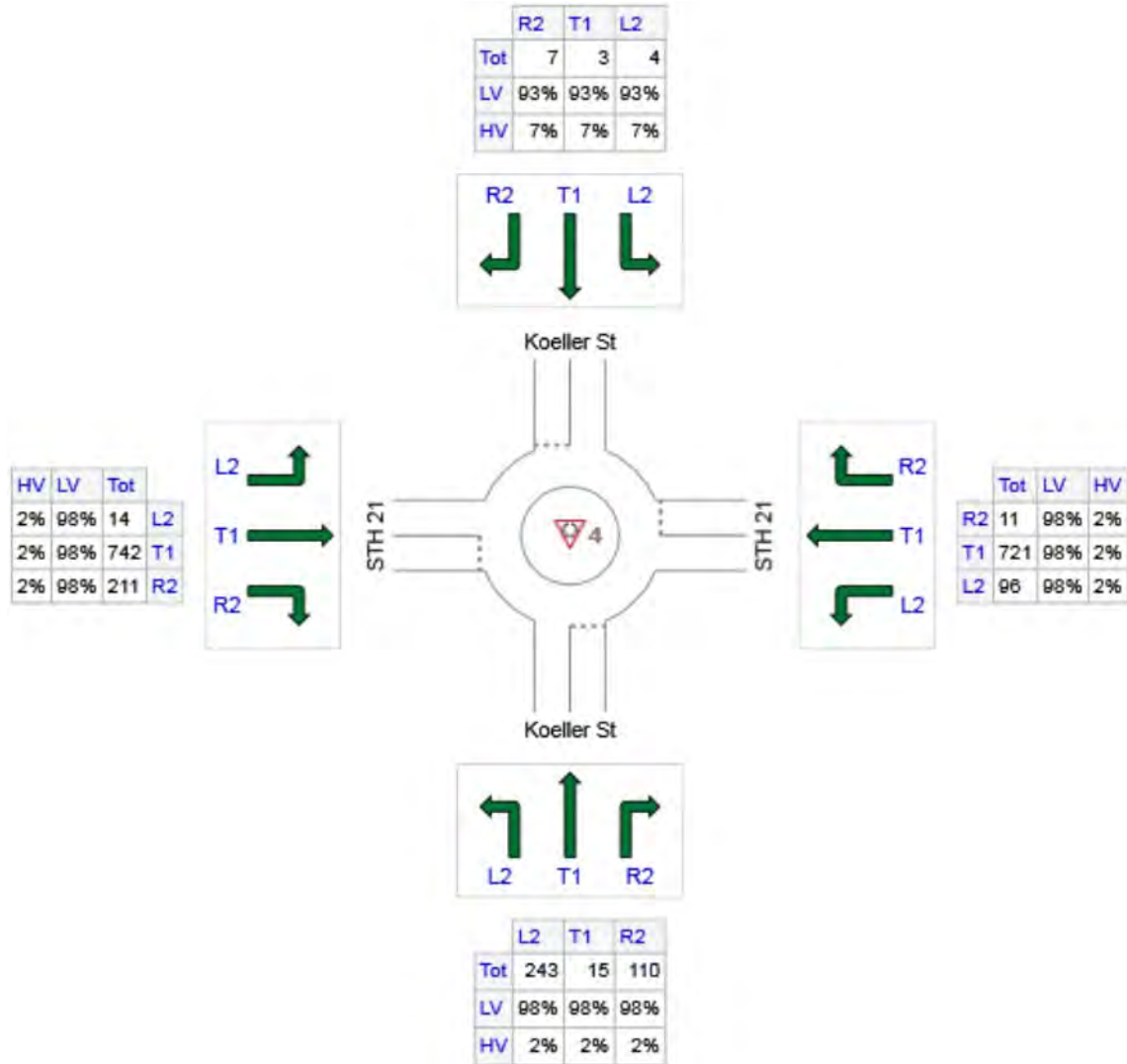
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	368	361	7
E: STH 21	828	811	17
N: Koeller St	14	13	1
W: STH 21	967	948	19
Total	2177	2133	44

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	248	2.0	0.370	9.8	LOS A	1.5	37.2	0.58	0.63	30.7
8	T1	15	2.0	0.370	9.8	LOS A	1.5	37.2	0.58	0.63	30.6
18	R2	112	2.0	0.158	6.8	LOS A	0.5	11.9	0.50	0.50	33.1
Approach		376	2.0	0.370	8.9	LOS A	1.5	37.2	0.55	0.59	31.4
East: STH 21											
1	L2	98	2.0	0.418	8.2	LOS A	1.8	46.0	0.44	0.36	33.1
6	T1	736	2.0	0.418	8.2	LOS A	1.8	46.0	0.44	0.36	33.4
16	R2	11	2.0	0.418	8.2	LOS A	1.8	46.0	0.44	0.36	32.6
Approach		845	2.0	0.418	8.2	LOS A	1.8	46.0	0.44	0.36	33.3
North: Koeller St											
7	L2	4	7.0	0.026	7.0	LOS A	0.1	1.8	0.56	0.54	33.4
4	T1	3	7.0	0.026	7.0	LOS A	0.1	1.8	0.56	0.54	33.4
14	R2	7	7.0	0.026	7.0	LOS A	0.1	1.8	0.56	0.54	32.4
Approach		14	7.0	0.026	7.0	LOS A	0.1	1.8	0.56	0.54	32.9
West: STH 21											
5	L2	14	2.0	0.425	7.5	LOS A	2.0	51.3	0.28	0.16	34.0
2	T1	757	2.0	0.425	7.5	LOS A	2.0	51.3	0.28	0.16	33.9
12	R2	215	2.0	0.425	7.5	LOS A	2.0	51.3	0.28	0.16	32.9
Approach		987	2.0	0.425	7.5	LOS A	2.0	51.3	0.28	0.16	33.7
All Vehicles		2221	2.0	0.425	8.0	LOS A	2.0	51.3	0.39	0.31	33.1

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

 Site: 4 [STH 21 & Koeller PM - 2025 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	263	2.0	712	0.370	100	9.8	LOS A	1.5	37.2	Full	1600	0.0	0.0
Lane 2	112	2.0	712	0.158	100	6.8	LOS A	0.5	11.9	Full	1600	0.0	0.0
Approach	376	2.0		0.370		8.9	LOS A	1.5	37.2				
East: STH 21													
Lane 1	422	2.0	1012	0.418	100	8.2	LOS A	1.8	46.0	Full	1600	0.0	0.0
Lane 2 ^d	422	2.0	1012	0.418	100	8.2	LOS A	1.8	46.0	Full	1600	0.0	0.0
Approach	845	2.0		0.418		8.2	LOS A	1.8	46.0				
North: Koeller St													
Lane 1 ^d	14	7.0	542	0.026	100	7.0	LOS A	0.1	1.8	Full	1600	0.0	0.0
Approach	14	7.0		0.026		7.0	LOS A	0.1	1.8				
West: STH 21													
Lane 1	493	2.0	1160	0.425	100	7.5	LOS A	2.0	51.3	Full	1600	0.0	0.0
Lane 2 ^d	493	2.0	1160	0.425	100	7.5	LOS A	2.0	51.3	Full	1600	0.0	0.0
Approach	987	2.0		0.425		7.5	LOS A	2.0	51.3				
Intersection	2221	2.0		0.425		8.0	LOS A	2.0	51.3				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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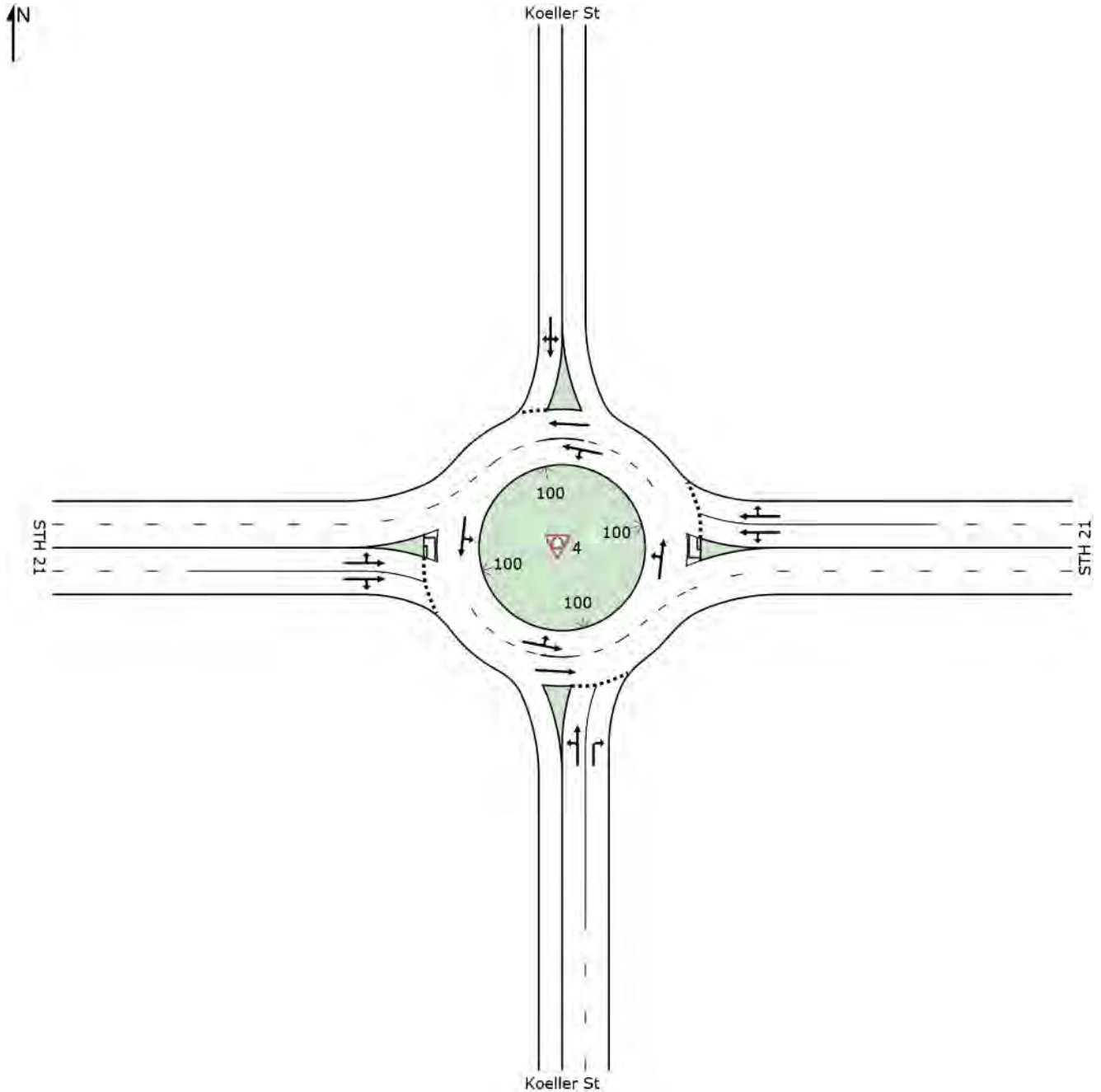
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SITE LAYOUT

 Site: 4 [STH 21 & Koeller AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



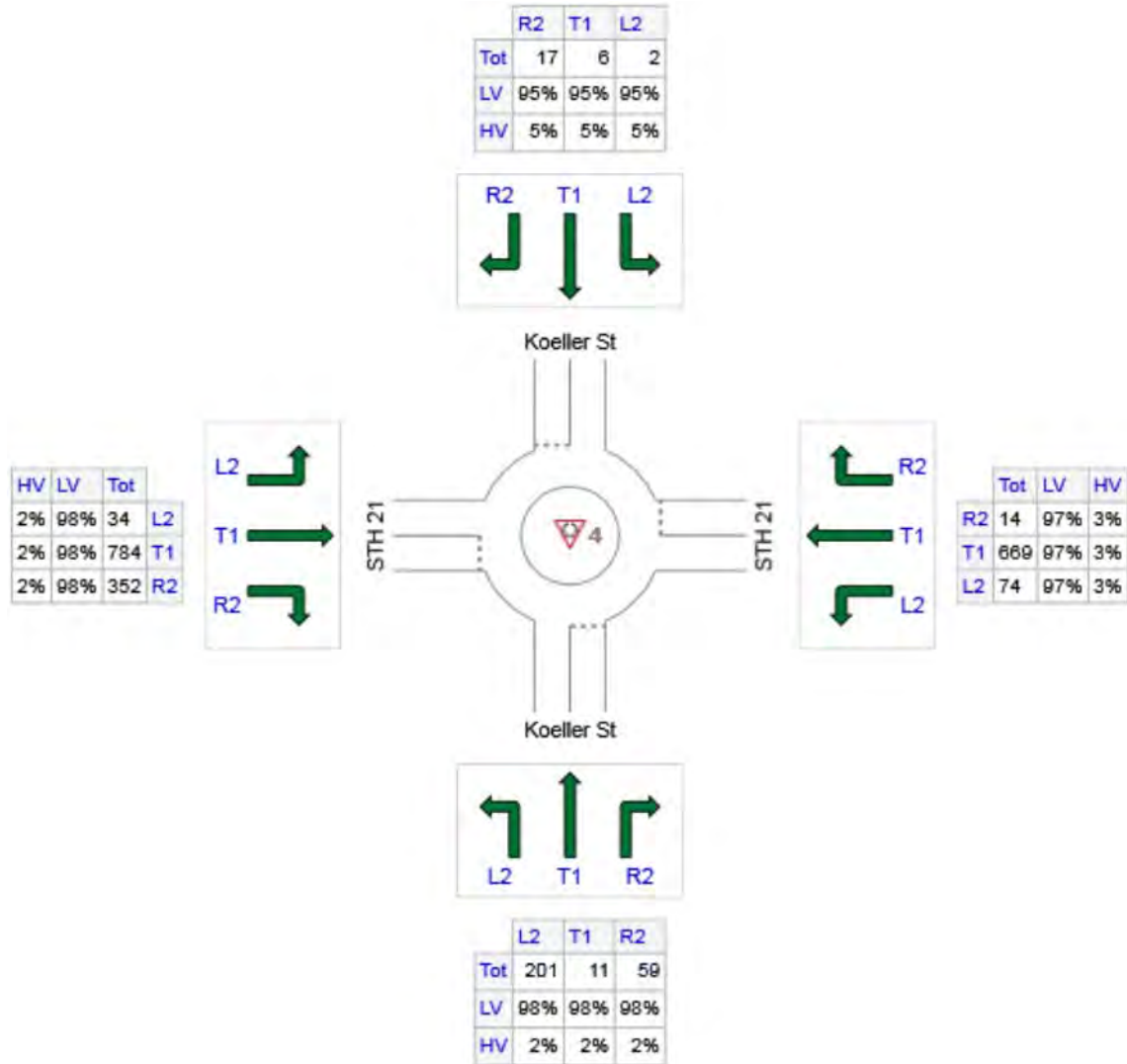
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	271	266	5
E: STH 21	757	734	23
N: Koeller St	25	24	1
W: STH 21	1170	1147	23
Total	2223	2170	53

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	228	2.0	0.380	11.0	LOS B	1.5	37.8	0.61	0.68	30.3
8	T1	13	2.0	0.380	11.0	LOS B	1.5	37.8	0.61	0.68	30.2
18	R2	67	2.0	0.106	6.9	LOS A	0.3	7.6	0.52	0.52	33.1
Approach		308	2.0	0.380	10.1	LOS B	1.5	37.8	0.59	0.64	30.8
East: STH 21											
1	L2	84	3.0	0.430	8.4	LOS A	1.9	47.7	0.44	0.37	33.1
6	T1	760	3.0	0.430	8.4	LOS A	1.9	47.7	0.44	0.37	33.3
16	R2	16	3.0	0.430	8.4	LOS A	1.9	47.7	0.44	0.37	32.5
Approach		860	3.0	0.430	8.4	LOS A	1.9	47.7	0.44	0.37	33.2
North: Koeller St											
7	L2	2	5.0	0.051	7.1	LOS A	0.1	3.6	0.56	0.56	33.9
4	T1	7	5.0	0.051	7.1	LOS A	0.1	3.6	0.56	0.56	33.9
14	R2	19	5.0	0.051	7.1	LOS A	0.1	3.6	0.56	0.56	32.9
Approach		28	5.0	0.051	7.1	LOS A	0.1	3.6	0.56	0.56	33.2
West: STH 21											
5	L2	39	2.0	0.568	9.9	LOS A	3.4	87.4	0.33	0.19	32.8
2	T1	891	2.0	0.568	9.9	LOS A	3.4	87.4	0.33	0.19	32.7
12	R2	400	2.0	0.568	9.9	LOS A	3.4	87.4	0.33	0.19	31.7
Approach		1330	2.0	0.568	9.9	LOS A	3.4	87.4	0.33	0.19	32.4
All Vehicles		2526	2.4	0.568	9.4	LOS A	3.4	87.4	0.41	0.31	32.5

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

 Site: 4 [STH 21 & Koeller AM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	241	2.0	635	0.380	100	11.0	LOS B	1.5	37.8	Full	1600	0.0	0.0
Lane 2	67	2.0	635	0.106	100	6.9	LOS A	0.3	7.6	Full	1600	0.0	0.0
Approach	308	2.0		0.380		10.1	LOS B	1.5	37.8				
East: STH 21													
Lane 1	430	3.0	1000	0.430	100	8.4	LOS A	1.9	47.7	Full	1600	0.0	0.0
Lane 2 ^d	430	3.0	1000	0.430	100	8.4	LOS A	1.9	47.7	Full	1600	0.0	0.0
Approach	860	3.0		0.430		8.4	LOS A	1.9	47.7				
North: Koeller St													
Lane 1 ^d	28	5.0	552	0.051	100	7.1	LOS A	0.1	3.6	Full	1600	0.0	0.0
Approach	28	5.0		0.051		7.1	LOS A	0.1	3.6				
West: STH 21													
Lane 1	665	2.0	1170	0.568	100	9.9	LOS A	3.4	87.4	Full	1600	0.0	0.0
Lane 2 ^d	665	2.0	1170	0.568	100	9.9	LOS A	3.4	87.4	Full	1600	0.0	0.0
Approach	1330	2.0		0.568		9.9	LOS A	3.4	87.4				
Intersection	2526	2.4		0.568		9.4	LOS A	3.4	87.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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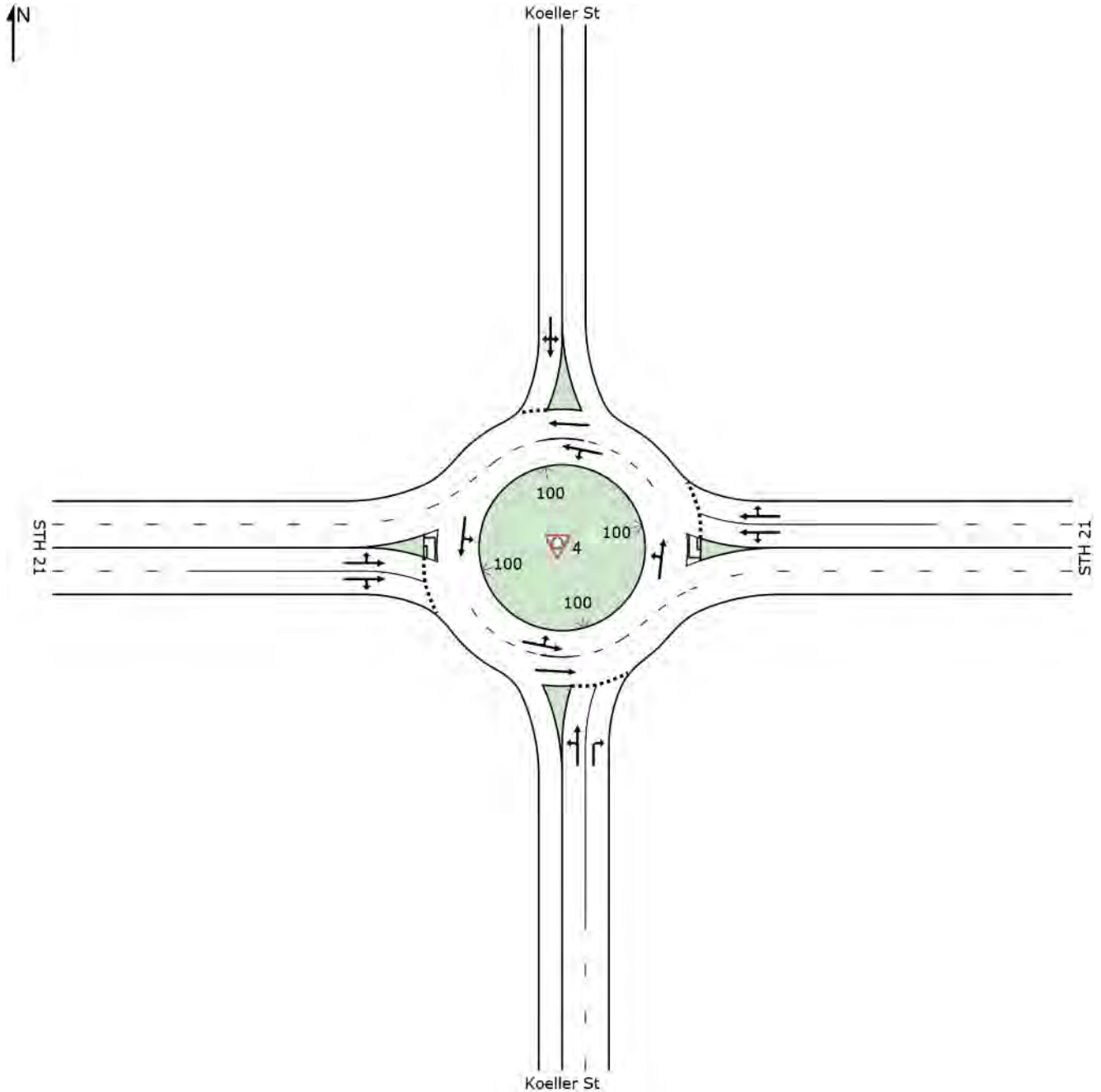
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SITE LAYOUT

 Site: 4 [STH 21 & Koeller PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout



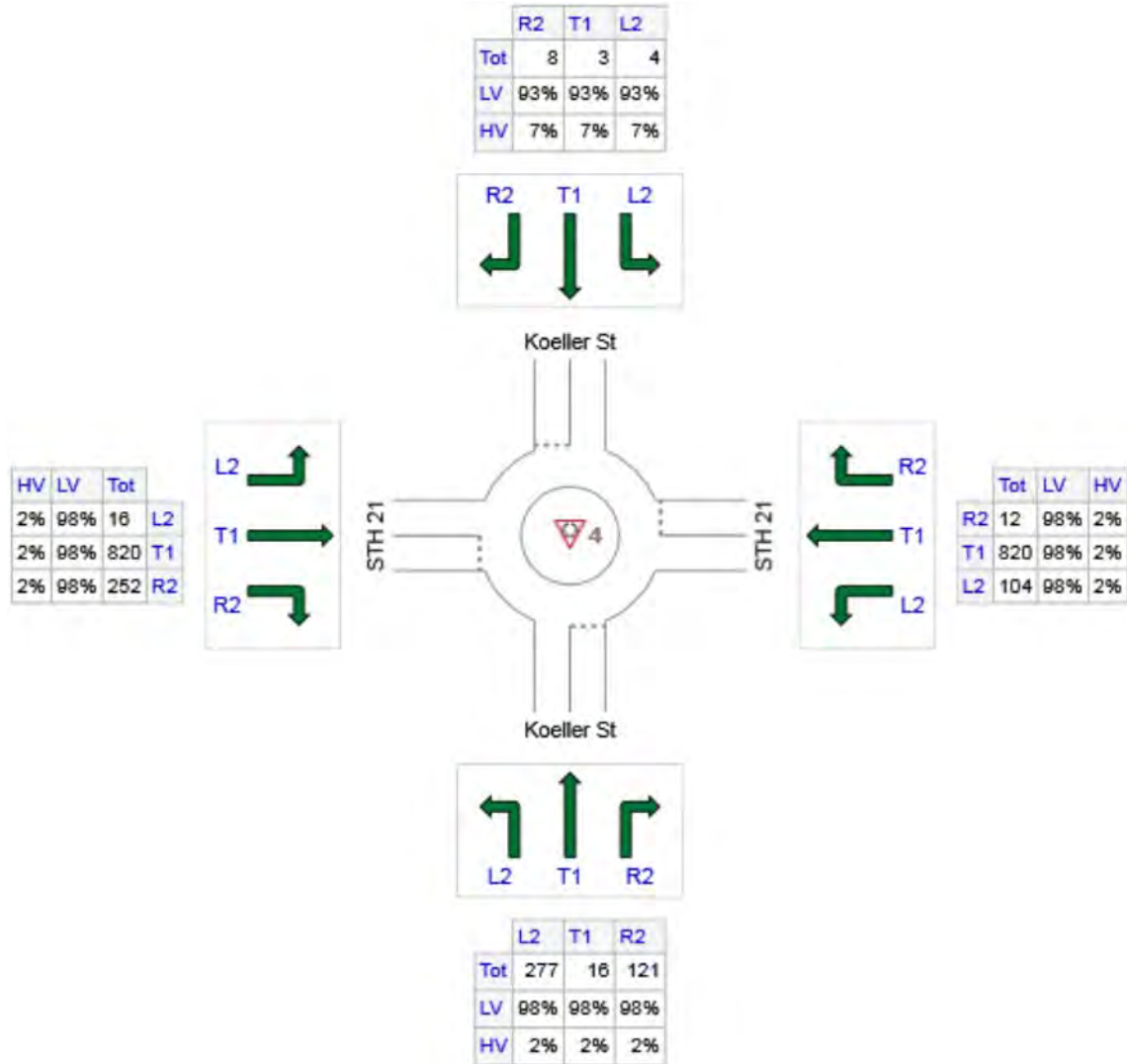
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	414	406	8
E: STH 21	936	917	19
N: Koeller St	15	14	1
W: STH 21	1088	1066	22
Total	2453	2403	50

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	283	2.0	0.446	11.8	LOS B	2.0	51.3	0.62	0.72	29.9
8	T1	16	2.0	0.446	11.8	LOS B	2.0	51.3	0.62	0.72	29.9
18	R2	123	2.0	0.184	7.5	LOS A	0.5	14.0	0.53	0.53	32.8
Approach		422	2.0	0.446	10.6	LOS B	2.0	51.3	0.60	0.66	30.7
East: STH 21											
1	L2	106	2.0	0.486	9.5	LOS A	2.7	68.8	0.50	0.48	32.5
6	T1	837	2.0	0.486	9.5	LOS A	2.7	68.8	0.50	0.48	32.7
16	R2	12	2.0	0.486	9.5	LOS A	2.7	68.8	0.50	0.48	32.0
Approach		955	2.0	0.486	9.5	LOS A	2.7	68.8	0.50	0.48	32.7
North: Koeller St											
7	L2	4	7.0	0.031	7.8	LOS A	0.1	2.1	0.60	0.60	33.1
4	T1	3	7.0	0.031	7.8	LOS A	0.1	2.1	0.60	0.60	33.0
14	R2	8	7.0	0.031	7.8	LOS A	0.1	2.1	0.60	0.60	32.1
Approach		15	7.0	0.031	7.8	LOS A	0.1	2.1	0.60	0.60	32.5
West: STH 21											
5	L2	16	2.0	0.482	8.4	LOS A	2.5	63.0	0.32	0.19	33.6
2	T1	837	2.0	0.482	8.4	LOS A	2.5	63.0	0.32	0.19	33.5
12	R2	257	2.0	0.482	8.4	LOS A	2.5	63.0	0.32	0.19	32.4
Approach		1110	2.0	0.482	8.4	LOS A	2.5	63.0	0.32	0.19	33.2
All Vehicles		2503	2.0	0.486	9.2	LOS A	2.7	68.8	0.44	0.38	32.6

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

 Site: 4 [STH 21 & Koeller PM - 2045 Background Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand	Flows		Deg.	Lane	Average	Level of	95% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Koeller St													
Lane 1 ^d	299	2.0	671	0.446	100	11.8	LOS B	2.0	51.3	Full	1600	0.0	0.0
Lane 2	123	2.0	671	0.184	100	7.5	LOS A	0.5	14.0	Full	1600	0.0	0.0
Approach	422	2.0		0.446		10.6	LOS B	2.0	51.3				
East: STH 21													
Lane 1	478	2.0	982	0.486	100	9.5	LOS A	2.7	68.8	Full	1600	0.0	0.0
Lane 2 ^d	478	2.0	982	0.486	100	9.5	LOS A	2.7	68.8	Full	1600	0.0	0.0
Approach	955	2.0		0.486		9.5	LOS A	2.7	68.8				
North: Koeller St													
Lane 1 ^d	15	7.0	487	0.031	100	7.8	LOS A	0.1	2.1	Full	1600	0.0	0.0
Approach	15	7.0		0.031		7.8	LOS A	0.1	2.1				
West: STH 21													
Lane 1	555	2.0	1152	0.482	100	8.4	LOS A	2.5	63.0	Full	1600	0.0	0.0
Lane 2 ^d	555	2.0	1152	0.482	100	8.4	LOS A	2.5	63.0	Full	1600	0.0	0.0
Approach	1110	2.0		0.482		8.4	LOS A	2.5	63.0				
Intersection	2503	2.0		0.486		9.2	LOS A	2.7	68.8				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↵	↵
Traffic Volume (vph)	709	57	58	603	50	35
Future Volume (vph)	709	57	58	603	50	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1048			790	629	
Travel Time (s)	23.8			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	861	0	0	743	56	39
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.32			0.34	0.24	0.16
Control Delay	3.8			4.1	32.8	12.4

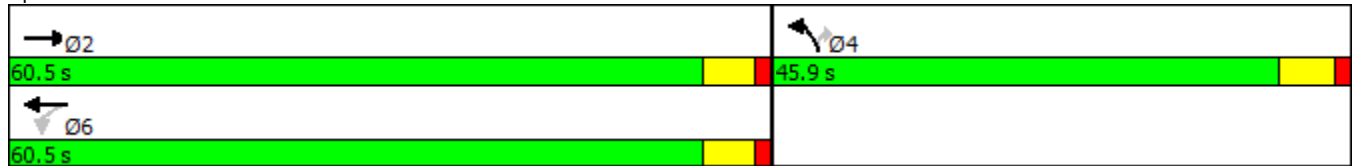


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.8			4.1	32.8	12.4
Queue Length 50th (ft)	63			56	24	0
Queue Length 95th (ft)	84			78	56	25
Internal Link Dist (ft)	968			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2717			2199	928	849
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.32			0.34	0.06	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	106.4
Actuated Cycle Length:	76.2
Natural Cycle:	40
Control Type:	Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2025 Background Traffic
AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖	↗		
Traffic Volume (veh/h)	709	57	58	603	50	35		
Future Volume (veh/h)	709	57	58	603	50	35		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1845	1863	1863		
Adj Flow Rate, veh/h	797	64	65	678	56	22		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	2	2	3	3	2	2		
Cap, veh/h	2453	197	211	2093	191	170		
Arrive On Green	0.74	0.74	0.74	0.74	0.11	0.11		
Sat Flow, veh/h	3412	266	208	2916	1774	1583		
Grp Volume(v), veh/h	425	436	357	386	56	22		
Grp Sat Flow(s),veh/h/ln	1770	1816	1446	1595	1774	1583		
Q Serve(g_s), s	6.1	6.1	0.0	6.2	2.2	0.9		
Cycle Q Clear(g_c), s	6.1	6.1	4.7	6.2	2.2	0.9		
Prop In Lane		0.15	0.18		1.00	1.00		
Lane Grp Cap(c), veh/h	1308	1342	1126	1179	191	170		
V/C Ratio(X)	0.32	0.32	0.32	0.33	0.29	0.13		
Avail Cap(c_a), veh/h	1308	1342	1126	1179	954	851		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	3.3	3.1	3.3	30.6	30.0		
Incr Delay (d2), s/veh	0.7	0.6	0.2	0.2	0.8	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	5.7	5.9	4.2	4.9	2.0	0.8		
LnGrp Delay(d),s/veh	4.0	4.0	3.3	3.5	31.4	30.4		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	861			743	78			
Approach Delay, s/veh	4.0			3.4	31.1			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		13.9		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		8.1		4.2		8.2		
Green Ext Time (p_c), s		15.8		0.2		15.8		
Intersection Summary								
HCM 2010 Ctrl Delay			5.0					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↵	↵
Traffic Volume (vph)	816	39	38	781	62	45
Future Volume (vph)	816	39	38	781	62	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1073			790	629	
Travel Time (s)	24.4			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	881	0	0	844	64	46
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.32			0.35	0.27	0.18
Control Delay	3.9			4.1	33.3	11.7

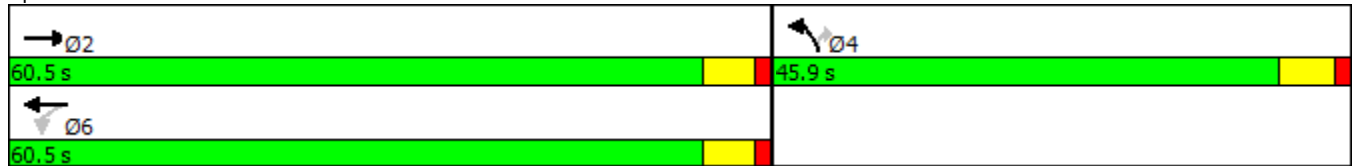


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.9			4.1	33.3	11.7
Queue Length 50th (ft)	65			65	28	0
Queue Length 95th (ft)	92			93	63	28
Internal Link Dist (ft)	993			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2724			2419	927	851
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.32			0.35	0.07	0.05

Intersection Summary











Area Type:	Other
Cycle Length:	106.4
Actuated Cycle Length:	76.3
Natural Cycle:	40
Control Type:	Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2025 Background Traffic
PM Peak

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	816	39	38	781	62	45		
Future Volume (veh/h)	816	39	38	781	62	45		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1863		
Adj Flow Rate, veh/h	841	40	39	805	64	28		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2525	120	122	2344	202	180		
Arrive On Green	0.73	0.73	0.73	0.73	0.11	0.11		
Sat Flow, veh/h	3533	164	94	3278	1774	1583		
Grp Volume(v), veh/h	433	448	432	412	64	28		
Grp Sat Flow(s),veh/h/ln	1770	1834	1677	1610	1774	1583		
Q Serve(g_s), s	6.4	6.4	0.0	6.9	2.5	1.2		
Cycle Q Clear(g_c), s	6.4	6.4	6.0	6.9	2.5	1.2		
Prop In Lane		0.09	0.09		1.00	1.00		
Lane Grp Cap(c), veh/h	1299	1346	1283	1182	202	180		
V/C Ratio(X)	0.33	0.33	0.34	0.35	0.32	0.16		
Avail Cap(c_a), veh/h	1299	1346	1283	1182	947	845		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.5	3.5	3.4	3.6	30.5	30.0		
Incr Delay (d2), s/veh	0.7	0.7	0.2	0.2	0.9	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.1	6.3	5.5	5.5	2.3	1.0		
LnGrp Delay(d),s/veh	4.2	4.2	3.6	3.7	31.4	30.3		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	881			844	92			
Approach Delay, s/veh	4.2			3.7	31.1			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		14.4		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		8.4		4.5		8.9		
Green Ext Time (p_c), s		17.3		0.3		17.2		
Intersection Summary								
HCM 2010 Ctrl Delay			5.3					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↵	↵
Traffic Volume (vph)	772	61	63	662	52	36
Future Volume (vph)	772	61	63	662	52	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1048			790	629	
Travel Time (s)	23.8			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	936	0	0	815	58	40
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.34			0.38	0.25	0.17
Control Delay	4.0			4.4	32.9	12.3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	4.0			4.4	32.9	12.3
Queue Length 50th (ft)	71			65	25	0
Queue Length 95th (ft)	95			91	58	26
Internal Link Dist (ft)	968			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2716			2149	928	849
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.34			0.38	0.06	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	106.4
Actuated Cycle Length:	76.3
Natural Cycle:	40
Control Type:	Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2045 Background Traffic
AM Peak

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↖	↗		
Traffic Volume (veh/h)	772	61	63	662	52	36		
Future Volume (veh/h)	772	61	63	662	52	36		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1845	1863	1863		
Adj Flow Rate, veh/h	867	69	71	744	58	24		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	2	2	3	3	2	2		
Cap, veh/h	2450	195	208	2064	194	173		
Arrive On Green	0.74	0.74	0.74	0.74	0.11	0.11		
Sat Flow, veh/h	3415	264	205	2883	1774	1583		
Grp Volume(v), veh/h	462	474	386	429	58	24		
Grp Sat Flow(s),veh/h/ln	1770	1816	1409	1595	1774	1583		
Q Serve(g_s), s	6.9	6.9	0.0	7.2	2.2	1.0		
Cycle Q Clear(g_c), s	6.9	6.9	5.2	7.2	2.2	1.0		
Prop In Lane		0.15	0.18		1.00	1.00		
Lane Grp Cap(c), veh/h	1305	1339	1096	1176	194	173		
V/C Ratio(X)	0.35	0.35	0.35	0.37	0.30	0.14		
Avail Cap(c_a), veh/h	1305	1339	1096	1176	952	849		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.5	3.5	3.2	3.5	30.6	30.0		
Incr Delay (d2), s/veh	0.8	0.7	0.2	0.2	0.8	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.5	6.7	4.7	5.7	2.1	0.8		
LnGrp Delay(d),s/veh	4.2	4.2	3.4	3.7	31.4	30.4		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	936			815	82			
Approach Delay, s/veh	4.2			3.6	31.1			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		14.1		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		8.9		4.2		9.2		
Green Ext Time (p_c), s		18.2		0.2		18.2		
Intersection Summary								
HCM 2010 Ctrl Delay			5.1					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	887	42	41	860	64	47
Future Volume (vph)	887	42	41	860	64	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	25	
Link Distance (ft)	1073			790	629	
Travel Time (s)	24.4			18.0	17.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	957	0	0	929	66	48
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	15.5		15.5	15.5	15.9	15.9
Total Split (s)	60.5		60.5	60.5	45.9	45.9
Total Split (%)	56.9%		56.9%	56.9%	43.1%	43.1%
Maximum Green (s)	55.0		55.0	55.0	40.0	40.0
Yellow Time (s)	4.0		4.0	4.0	4.4	4.4
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	1.4	1.4
Time Before Reduce (s)	0.0		0.0	0.0	15.0	15.0
Time To Reduce (s)	0.0		0.0	0.0	6.0	6.0
Recall Mode	Max		None	None	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
v/c Ratio	0.35			0.39	0.28	0.19
Control Delay	4.1			4.4	33.4	11.7



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	4.1			4.4	33.4	11.7
Queue Length 50th (ft)	73			74	29	0
Queue Length 95th (ft)	104			107	64	28
Internal Link Dist (ft)	993			710	549	
Turn Bay Length (ft)						
Base Capacity (vph)	2722			2393	926	851
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.35			0.39	0.07	0.06

Intersection Summary

Area Type: Other

Cycle Length: 106.4

Actuated Cycle Length: 76.4

Natural Cycle: 40











Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2045 Background Traffic
PM Peak

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	887	42	41	860	64	47		
Future Volume (veh/h)	887	42	41	860	64	47		
Number	2	12	1	6	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1863		
Adj Flow Rate, veh/h	914	43	42	887	66	29		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2523	119	119	2334	204	182		
Arrive On Green	0.73	0.73	0.73	0.73	0.11	0.11		
Sat Flow, veh/h	3535	162	91	3268	1774	1583		
Grp Volume(v), veh/h	470	487	473	456	66	29		
Grp Sat Flow(s),veh/h/ln	1770	1834	1664	1610	1774	1583		
Q Serve(g_s), s	7.2	7.2	0.0	7.9	2.6	1.2		
Cycle Q Clear(g_c), s	7.2	7.2	6.8	7.9	2.6	1.2		
Prop In Lane		0.09	0.09		1.00	1.00		
Lane Grp Cap(c), veh/h	1297	1345	1272	1181	204	182		
V/C Ratio(X)	0.36	0.36	0.37	0.39	0.32	0.16		
Avail Cap(c_a), veh/h	1297	1345	1272	1181	946	844		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.6	3.6	3.6	3.7	30.5	29.9		
Incr Delay (d2), s/veh	0.8	0.8	0.2	0.2	0.9	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.9	7.1	6.3	6.3	2.3	1.0		
LnGrp Delay(d),s/veh	4.4	4.4	3.8	3.9	31.4	30.3		
LnGrp LOS	A	A	A	A	C	C		
Approach Vol, veh/h	957			929	95			
Approach Delay, s/veh	4.4			3.8	31.1			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.5		14.5		60.5		
Change Period (Y+Rc), s		5.5		5.9		5.5		
Max Green Setting (Gmax), s		55.0		40.0		55.0		
Max Q Clear Time (g_c+I1), s		9.2		4.6		9.9		
Green Ext Time (p_c), s		19.9		0.3		19.8		
Intersection Summary								
HCM 2010 Ctrl Delay			5.4					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	674	108	0	500	153	0	
Future Volume (vph)	674	108	0	500	153	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	889	0	0	568	174	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5		5	
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0	10.0	
Minimum Split (s)	40.0				26.0	24.0	
Total Split (s)	50.0				19.0	21.0	
Total Split (%)	55.6%				21.1%	23%	
Maximum Green (s)	45.0				14.0	16.0	
Yellow Time (s)	3.5				3.5	3.5	
All-Red Time (s)	1.5				1.5	1.5	
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	
Vehicle Extension (s)	3.0				3.0	3.0	
Minimum Gap (s)	3.0				3.0	3.0	
Time Before Reduce (s)	0.0				0.0	0.0	
Time To Reduce (s)	0.0				0.0	0.0	
Recall Mode	Max				Max	Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.51			0.22	0.64		
Control Delay	15.8			4.1	19.6		

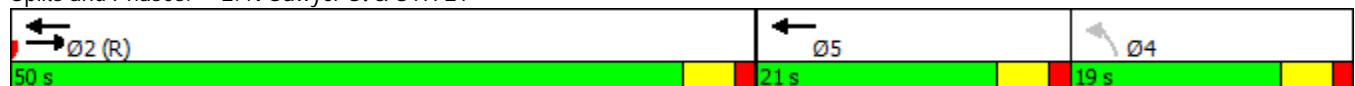


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.7	0.0		
Total Delay	15.8			4.7	19.6		
Queue Length 50th (ft)	164			44	5		
Queue Length 95th (ft)	209			59	#49		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1747			2570	272		
Starvation Cap Reductn	0			1574	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.51			0.57	0.64		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

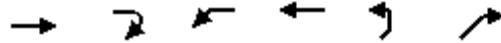
2025 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	674	0	190	500	0	172	
Future Volume (vph)	674	0	190	500	0	172	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	766	0	216	568	0	195	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		15.0			15.0	
Total Split (s)	50.0		19.0			21.0	
Total Split (%)	55.6%		21.1%			23%	
Maximum Green (s)	45.5		14.5			16.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.43		0.39	0.16		0.12	
Control Delay	2.7		36.3	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2025 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.1		0.0	0.0		0.0	
Total Delay	2.8		36.3	0.1		0.2	
Queue Length 50th (ft)	13		57	0		0	
Queue Length 95th (ft)	15		89	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1789		547	3505		1596	
Starvation Cap Reductn	235		0	0		0	
Spillback Cap Reductn	0		0	22		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.49		0.39	0.16		0.12	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



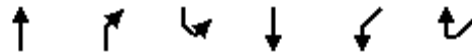
Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Background Traffic
AM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↖	↖	
Traffic Volume (vph)	153	172	0	108	190	0	
Future Volume (vph)	153	172	0	108	190	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	174	195	0	123	216	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	15.0				15.0		22.5
Total Split (s)	19.0				21.0		50.0
Total Split (%)	21.1%				23.3%		56%
Maximum Green (s)	14.5				16.5		45.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.59	0.12		0.09	0.35		
Control Delay	43.9	0.2		1.1	4.0		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Background Traffic
AM Peak



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.7	0.0		0.9	0.1		
Total Delay	44.6	0.2		2.0	4.1		
Queue Length 50th (ft)	93	0		3	2		
Queue Length 95th (ft)	155	0		5	3		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	297	1568		1335	623		
Starvation Cap Reductn	0	0		1005	46		
Spillback Cap Reductn	20	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.63	0.12		0.37	0.37		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	211	245	96	86	58
Average Queue (ft)	119	142	52	32	38
95th Queue (ft)	189	217	88	75	71
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	0	0	3	1	39
Queuing Penalty (veh)	0	1	6	3	60
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	NE
Directions Served	T	T	L	L	R
Maximum Queue (ft)	48	52	97	104	50
Average Queue (ft)	9	12	43	39	6
95th Queue (ft)	34	38	78	83	27
Link Distance (ft)	64	64	2124	2124	78
Upstream Blk Time (%)	0	0			0
Queuing Penalty (veh)	1	0			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: N Sawyer St & Connector

Movement	NB	SB	SW	SW
Directions Served	T	T	L	L
Maximum Queue (ft)	268	44	41	42
Average Queue (ft)	123	11	5	5
95th Queue (ft)	237	37	22	24
Link Distance (ft)	811	50	78	78
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 73

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	706	145	0	683	123	0	
Future Volume (vph)	706	145	0	683	123	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	868	0	0	697	126	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	40.0				26.0		24.0
Total Split (%)	44.4%				28.9%		27%
Maximum Green (s)	35.0				21.0		19.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.64			0.30	0.31		
Control Delay	24.3			7.1	5.3		

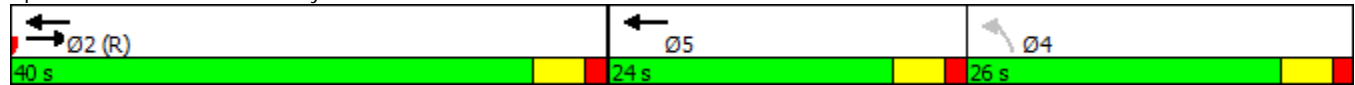


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.9	1.0		
Total Delay	24.3			7.9	6.3		
Queue Length 50th (ft)	200			79	4		
Queue Length 95th (ft)	265			106	7		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1346			2320	413		
Starvation Cap Reductn	0			1261	136		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.64			0.66	0.45		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

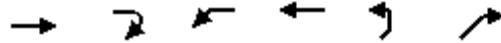
2025 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	706	0	213	683	0	263	
Future Volume (vph)	706	0	213	683	0	263	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	720	0	217	697	0	268	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		22.5			22.5	
Total Split (s)	40.0		26.0			24.0	
Total Split (%)	44.4%		28.9%			27%	
Maximum Green (s)	35.5		21.5			19.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.52		0.26	0.20		0.17	
Control Delay	3.7		28.9	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2025 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.3		0.0	0.0		0.0	
Total Delay	4.0		28.9	0.1		0.2	
Queue Length 50th (ft)	13		52	0		0	
Queue Length 95th (ft)	16		82	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1382		820	3539		1611	
Starvation Cap Reductn	213		0	0		0	
Spillback Cap Reductn	0		0	334		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.62		0.26	0.22		0.17	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Background Traffic
PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↘	
Traffic Volume (vph)	123	263	0	145	213	0	
Future Volume (vph)	123	263	0	145	213	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	126	268	0	148	217	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	22.5				22.5		22.5
Total Split (s)	24.0				26.0		40.0
Total Split (%)	26.7%				28.9%		44%
Maximum Green (s)	19.5				21.5		35.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)	7.0				7.0		7.0
Flash Dont Walk (s)	11.0				11.0		11.0
Pedestrian Calls (#/hr)	0				0		0
v/c Ratio	0.31	0.17		0.12	0.26		
Control Delay	32.2	0.2		1.4	4.6		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

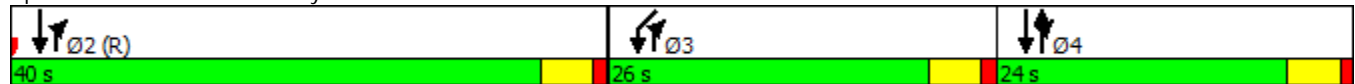
2025 Background Traffic
PM Peak

	↑	↗	↘	↓	↙	↖	Ø2
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		1.5	0.2		
Total Delay	32.2	0.2		2.9	4.8		
Queue Length 50th (ft)	61	0		4	4		
Queue Length 95th (ft)	111	0		m6	6		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	403	1583		1231	820		
Starvation Cap Reductn	0	0		922	197		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.31	0.17		0.48	0.35		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	250	254	136	138	54
Average Queue (ft)	164	191	75	68	12
95th Queue (ft)	237	260	115	127	40
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	1	3	9	7	4
Queuing Penalty (veh)	5	11	32	23	5
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	62	49	89	91	11	7	92
Average Queue (ft)	13	10	45	41	0	0	20
95th Queue (ft)	46	35	80	79	8	5	63
Link Distance (ft)	64	64	2124	2124			78
Upstream Blk Time (%)	1	0					0
Queuing Penalty (veh)	4	0					1
Storage Bay Dist (ft)					225	225	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	168	27	64	30	28
Average Queue (ft)	68	1	21	8	6
95th Queue (ft)	134	13	54	24	22
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			3		
Queuing Penalty (veh)			4		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 85

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	730	118	0	542	173	0	
Future Volume (vph)	730	118	0	542	173	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	964	0	0	616	197	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	50.0				19.0		21.0
Total Split (%)	55.6%				21.1%		23%
Maximum Green (s)	45.0				14.0		16.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.55			0.24	0.72		
Control Delay	16.5			4.1	25.6		

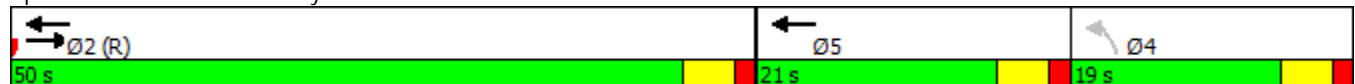


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.6	0.0		
Total Delay	16.5			4.8	25.6		
Queue Length 50th (ft)	183			49	6		
Queue Length 95th (ft)	233			64	m#70		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1747			2570	272		
Starvation Cap Reductn	0			1510	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.55			0.58	0.72		

Intersection Summary

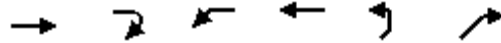
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

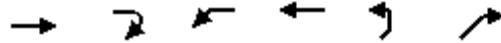
2045 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↖	
Traffic Volume (vph)	730	0	202	542	0	183	
Future Volume (vph)	730	0	202	542	0	183	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	830	0	230	616	0	208	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		15.0			15.0	
Total Split (s)	50.0		19.0			21.0	
Total Split (%)	55.6%		21.1%			23%	
Maximum Green (s)	45.5		14.5			16.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.46		0.42	0.18		0.13	
Control Delay	2.8		36.7	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2045 Background Traffic
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.1		0.0	0.0		0.0	
Total Delay	2.9		36.7	0.1		0.2	
Queue Length 50th (ft)	14		61	0		0	
Queue Length 95th (ft)	16		94	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1789		547	3505		1596	
Starvation Cap Reductn	236		0	0		0	
Spillback Cap Reductn	0		0	48		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.53		0.42	0.18		0.13	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



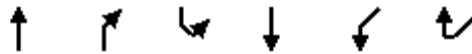
Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Background Traffic
AM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↖	
Traffic Volume (vph)	173	183	0	118	202	0	
Future Volume (vph)	173	183	0	118	202	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	197	208	0	134	230	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	15.0				15.0		22.5
Total Split (s)	19.0				21.0		50.0
Total Split (%)	21.1%				23.3%		56%
Maximum Green (s)	14.5				16.5		45.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.66	0.13		0.10	0.37		
Control Delay	47.5	0.2		1.1	4.1		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Background Traffic
AM Peak



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.3	0.0		1.1	0.1		
Total Delay	47.8	0.2		2.2	4.2		
Queue Length 50th (ft)	107	0		4	2		
Queue Length 95th (ft)	#178	0		6	3		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	297	1568		1335	623		
Starvation Cap Reductn	0	0		1004	35		
Spillback Cap Reductn	6	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.68	0.13		0.40	0.39		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	234	243	102	91	64
Average Queue (ft)	126	146	53	34	47
95th Queue (ft)	203	228	88	79	70
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	0	1	3	1	51
Queuing Penalty (veh)	2	3	7	3	88
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	NE
Directions Served	T	T	L	L	R
Maximum Queue (ft)	60	35	112	107	58
Average Queue (ft)	15	10	50	44	8
95th Queue (ft)	46	32	93	86	34
Link Distance (ft)	64	64	2124	2124	78
Upstream Blk Time (%)	1	0			0
Queuing Penalty (veh)	3	0			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: N Sawyer St & Connector

Movement	NB	SB	SW	SW
Directions Served	T	T	L	L
Maximum Queue (ft)	320	52	25	41
Average Queue (ft)	160	15	6	8
95th Queue (ft)	308	45	21	29
Link Distance (ft)	811	50	78	78
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 107

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↵		
Traffic Volume (vph)	764	158	0	738	140	0	
Future Volume (vph)	764	158	0	738	140	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	941	0	0	753	143	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	40.0				26.0		24.0
Total Split (%)	44.4%				28.9%		27%
Maximum Green (s)	35.0				21.0		19.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.70			0.32	0.35		
Control Delay	25.6			7.2	5.6		

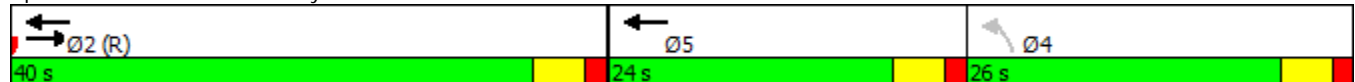


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.9	0.9		
Total Delay	25.6			8.1	6.5		
Queue Length 50th (ft)	223			87	4		
Queue Length 95th (ft)	294			116	7		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1347			2320	413		
Starvation Cap Reductn	0			1195	109		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.70			0.67	0.47		

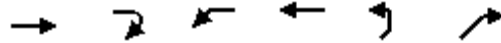
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

Splits and Phases: 2: N Sawyer St & STH 21



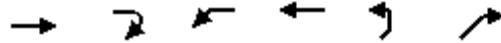
Lanes, Volumes, Timings
3: Connector & STH 21



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	764	0	226	738	0	280	
Future Volume (vph)	764	0	226	738	0	280	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	780	0	231	753	0	286	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		22.5			22.5	
Total Split (s)	40.0		26.0			24.0	
Total Split (%)	44.4%		28.9%			27%	
Maximum Green (s)	35.5		21.5			19.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.56		0.28	0.21		0.18	
Control Delay	3.8		29.1	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2045 Background Traffic
PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.4		0.0	0.0		0.0	
Total Delay	4.2		29.1	0.2		0.2	
Queue Length 50th (ft)	14		55	0		0	
Queue Length 95th (ft)	16		87	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1382		820	3539		1611	
Starvation Cap Reductn	214		0	0		0	
Spillback Cap Reductn	0		0	415		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.67		0.28	0.24		0.18	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Background Traffic
PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↘	
Traffic Volume (vph)	140	280	0	158	226	0	
Future Volume (vph)	140	280	0	158	226	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	143	286	0	161	231	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	22.5				22.5		22.5
Total Split (s)	24.0				26.0		40.0
Total Split (%)	26.7%				28.9%		44%
Maximum Green (s)	19.5				21.5		35.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)	7.0				7.0		7.0
Flash Dont Walk (s)	11.0				11.0		11.0
Pedestrian Calls (#/hr)	0				0		0
v/c Ratio	0.35	0.18		0.13	0.28		
Control Delay	32.9	0.2		1.4	4.6		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Background Traffic
PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		1.8	0.2		
Total Delay	32.9	0.2		3.2	4.9		
Queue Length 50th (ft)	69	0		4	4		
Queue Length 95th (ft)	123	0		m6	6		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	403	1583		1231	820		
Starvation Cap Reductn	0	0		922	183		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.35	0.18		0.52	0.36		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

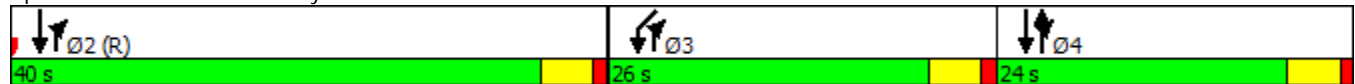
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 70

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	251	256	137	146	56
Average Queue (ft)	172	192	87	81	20
95th Queue (ft)	256	266	128	146	51
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	1	4	12	7	7
Queuing Penalty (veh)	7	17	43	26	9
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	55	60	100	90	1	3	108
Average Queue (ft)	11	17	48	44	0	0	28
95th Queue (ft)	38	49	83	84	1	2	83
Link Distance (ft)	64	64	2124	2124			78
Upstream Blk Time (%)	0	1					1
Queuing Penalty (veh)	1	5					4
Storage Bay Dist (ft)					225	225	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	166	50	57	34	32
Average Queue (ft)	80	2	24	8	7
95th Queue (ft)	138	25	56	27	25
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			3		
Queuing Penalty (veh)			5		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 116

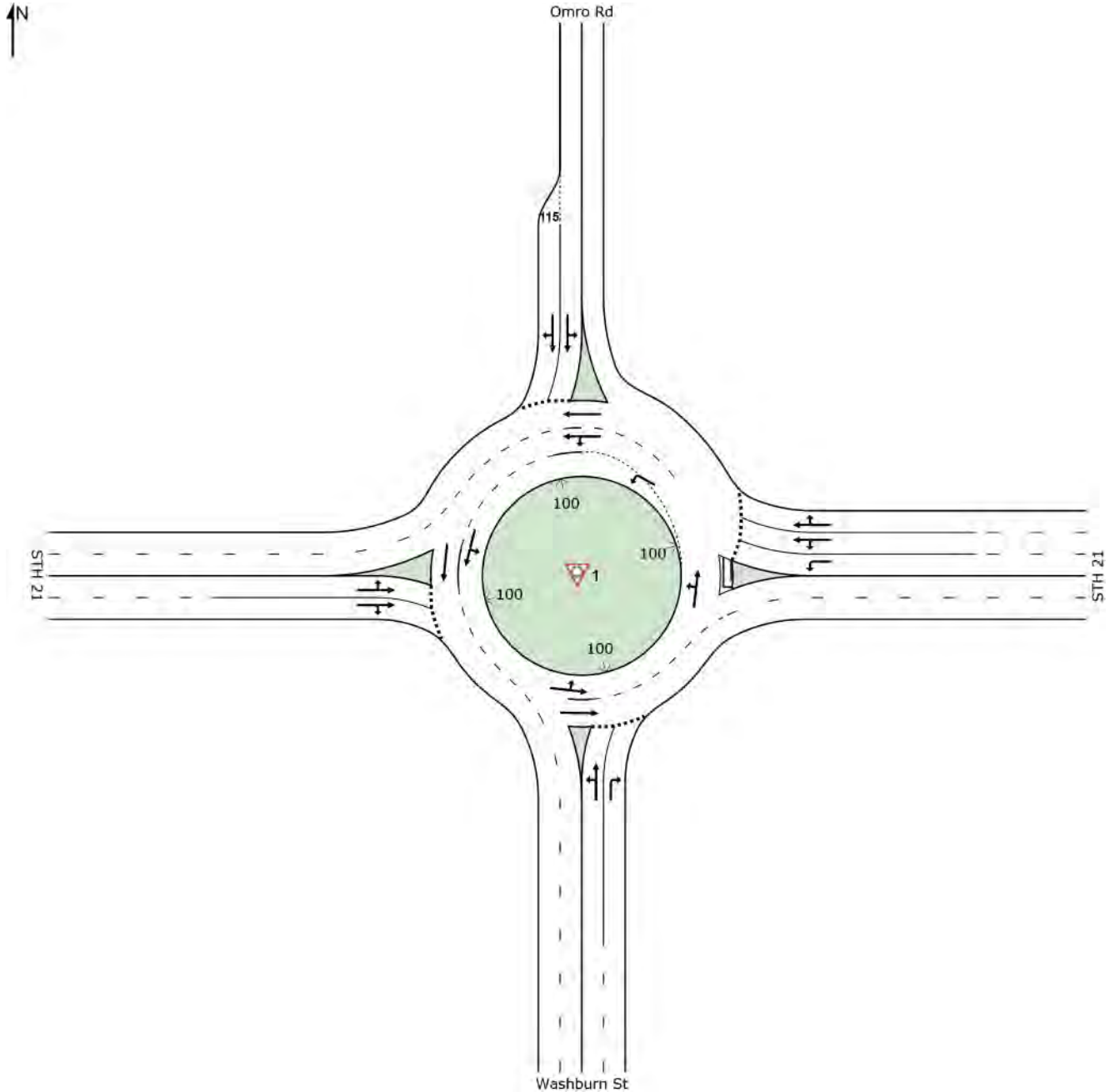
APPENDIX F

Existing Transportation System with Total
Traffic Operational Analysis

SITE LAYOUT

 Site: 1 [STH 21 & Washburn AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



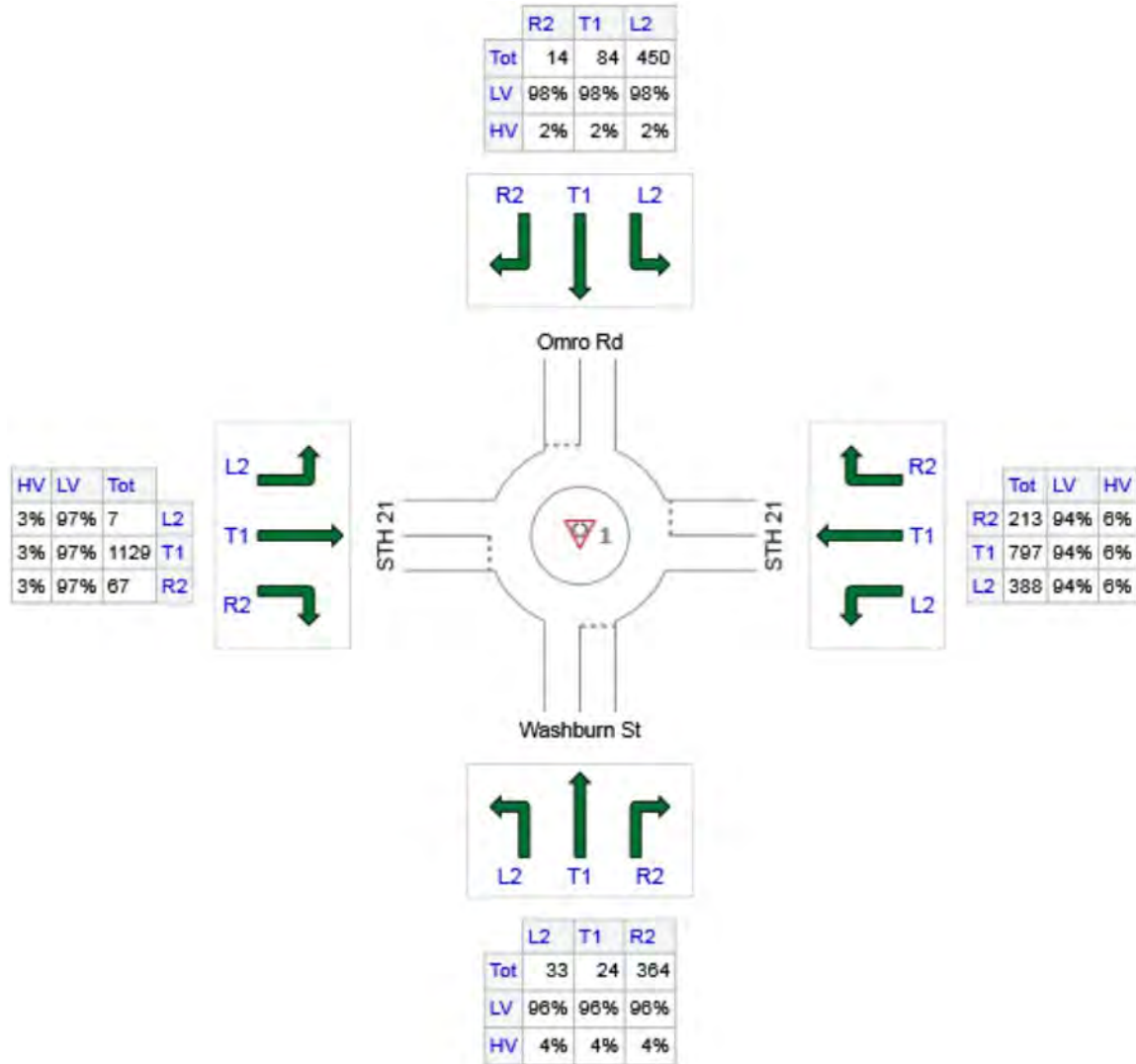
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	421	404	17
E: STH 21	1398	1314	84
N: Omro Rd	548	537	11
W: STH 21	1203	1167	36
Total	3570	3422	148

MOVEMENT SUMMARY

Site: 1 [STH 21 & Washburn AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	35	4.0	0.161	12.3	LOS B	0.4	11.1	0.73	0.73	28.7
8	T1	25	4.0	0.161	12.3	LOS B	0.4	11.1	0.73	0.73	28.5
18	R2	383	4.0	1.025	87.3	LOS F	14.4	371.2	1.00	2.14	14.6
Approach		443	4.0	1.025	77.1	LOS E	14.4	371.2	0.96	1.95	15.7
East: STH 21											
1	L2	408	6.0	0.355	6.6	LOS A	1.5	38.4	0.20	0.09	32.3
6	T1	839	6.0	0.463	8.1	LOS A	2.2	58.1	0.23	0.11	34.0
16	R2	224	6.0	0.463	8.1	LOS A	2.2	58.1	0.23	0.11	32.7
Approach		1472	6.0	0.463	7.7	LOS A	2.2	58.1	0.22	0.11	33.3
North: Omro Rd											
7	L2	474	2.0	1.002	71.6	LOS F	15.7	397.9	1.00	1.99	17.2
4	T1	88	2.0	0.218	10.8	LOS B	0.6	15.9	0.68	0.68	32.8
14	R2	15	2.0	0.218	10.8	LOS B	0.6	15.9	0.68	0.68	31.7
Approach		577	2.0	1.002	60.7	LOS E	15.7	397.9	0.94	1.76	18.7
West: STH 21											
5	L2	7	3.0	1.048	75.9	LOS F	26.3	674.4	1.00	2.42	17.1
2	T1	1188	3.0	1.048	75.9	LOS F	26.3	674.4	1.00	2.42	17.1
12	R2	71	3.0	1.048	75.9	LOS F	26.3	674.4	1.00	2.42	16.7
Approach		1266	3.0	1.048	75.9	LOS E	26.3	674.4	1.00	2.42	17.1
All Vehicles		3758	4.1	1.048	47.0	LOS D	26.3	674.4	0.68	1.36	21.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 1 [STH 21 & Washburn AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	60	4.0	374	0.161	100	12.3	LOS B	0.4	11.1	Full	1600	0.0	0.0
Lane 2 ^d	383	4.0	374	1.025	100	87.3	LOS F	14.4	371.2	Full	1600	0.0	0.0
Approach	443	4.0		1.025		77.1	LOS E	14.4	371.2				
East: STH 21													
Lane 1	408	6.0	1149	0.355	77 ⁵	6.6	LOS A	1.5	38.4	Full	1600	0.0	0.0
Lane 2	532	6.0	1149	0.463	100	8.1	LOS A	2.2	58.1	Full	1600	0.0	0.0
Lane 3 ^d	532	6.0	1149	0.463	100	8.1	LOS A	2.2	58.1	Full	1600	0.0	0.0
Approach	1472	6.0		0.463		7.7	LOS A	2.2	58.1				
North: Omro Rd													
Lane 1 ^d	474	2.0	473	1.002	100	71.6	LOS F	15.7	397.9	Full	1600	0.0	0.0
Lane 2	103	2.0	473	0.218	22 ⁵	10.8	LOS B	0.6	15.9	Short	115	0.0	NA
Approach	577	2.0		1.002		60.7	LOS E	15.7	397.9				
West: STH 21													
Lane 1	633	3.0	604	1.048	100	75.9	LOS F	26.3	674.4	Full	1600	0.0	0.0
Lane 2 ^d	633	3.0	604	1.048	100	75.9	LOS F	26.3	674.4	Full	1600	0.0	0.0
Approach	1266	3.0		1.048		75.9	LOS E	26.3	674.4				
Intersection	3758	4.1		1.048		47.0	LOS D	26.3	674.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

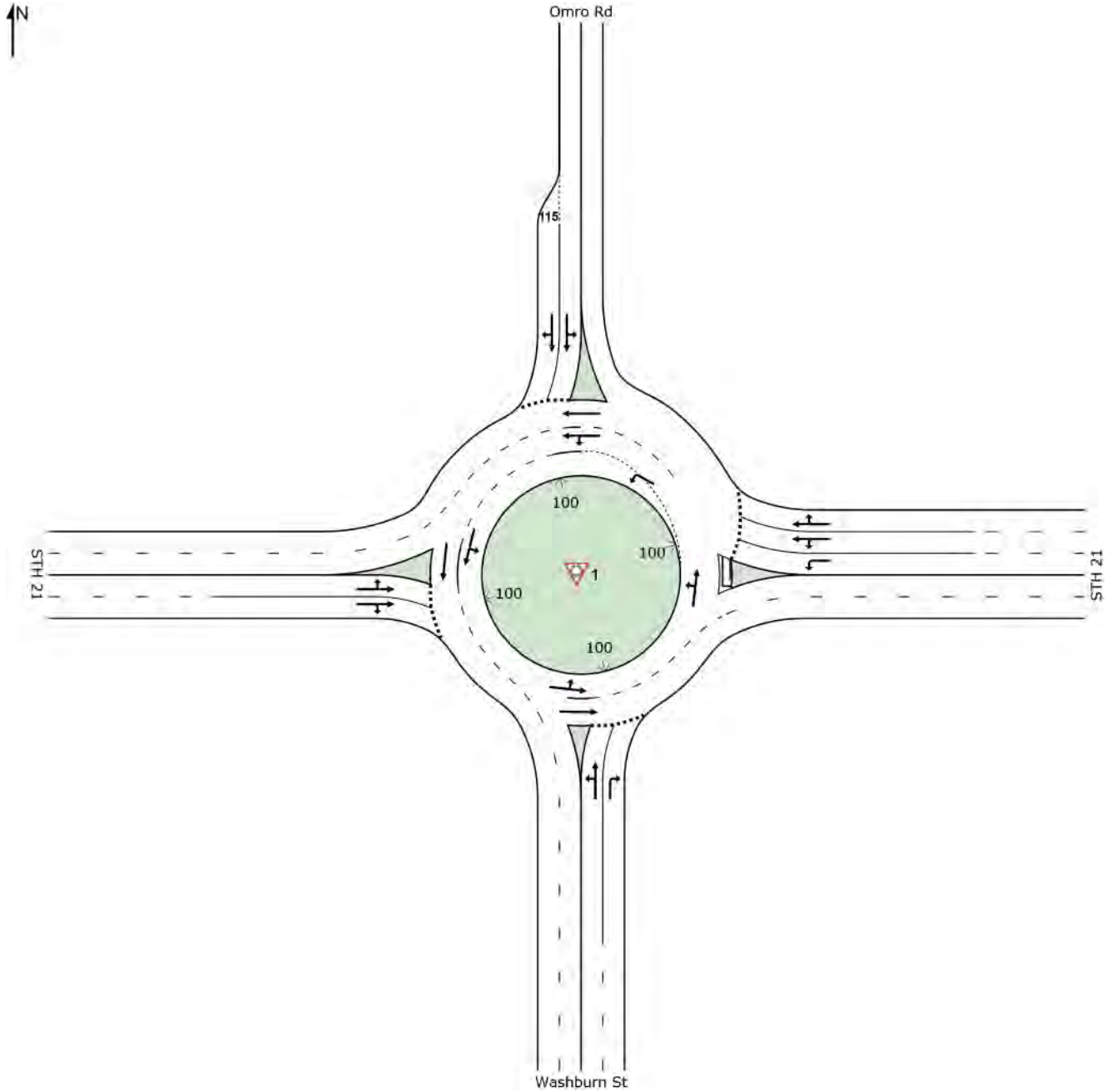
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



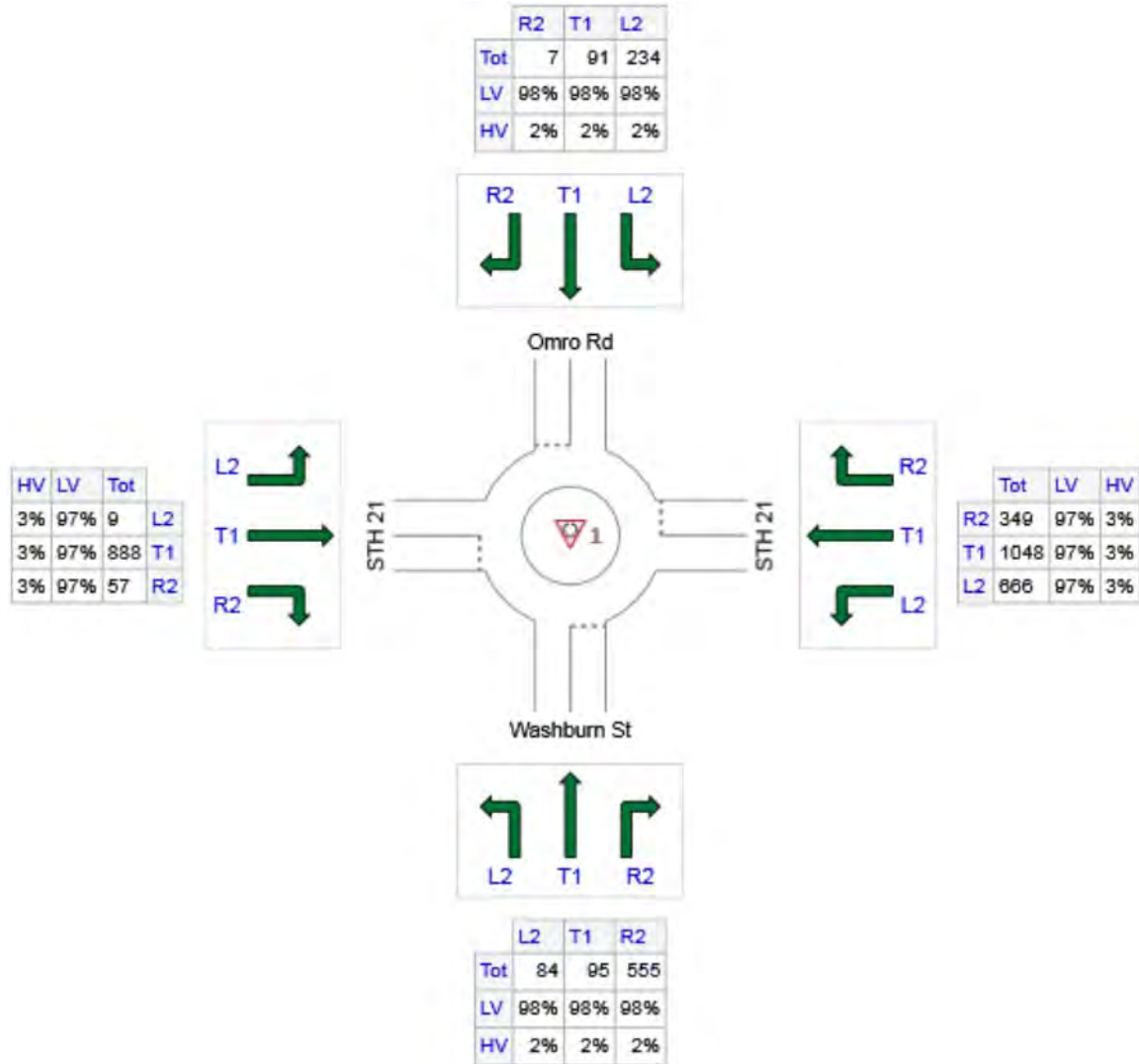
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	734	719	15
E: STH 21	2063	2001	62
N: Omro Rd	332	325	7
W: STH 21	954	925	29
Total	4083	3971	112

MOVEMENT SUMMARY

 Site: 1 [STH 21 & Washburn PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	88	2.0	0.355	12.3	LOS B	1.3	32.1	0.68	0.75	29.0
8	T1	99	2.0	0.355	12.3	LOS B	1.3	32.1	0.68	0.75	28.7
18	R2	578	2.0	1.099	96.5	LOS F	29.1	740.0	1.00	2.84	13.7
Approach		765	2.0	1.099	76.0	LOS E	29.1	740.0	0.92	2.33	15.8
East: STH 21											
1	L2	694	3.0	0.649	12.6	LOS B	6.5	166.0	0.53	0.49	29.9
6	T1	1092	3.0	0.681	13.6	LOS B	8.3	213.3	0.56	0.56	31.5
16	R2	364	3.0	0.681	13.6	LOS B	8.3	213.3	0.56	0.56	30.3
Approach		2149	3.0	0.681	13.3	LOS B	8.3	213.3	0.55	0.54	30.8
North: Omro Rd											
7	L2	244	2.0	0.778	46.1	LOS D	4.0	101.8	0.93	1.23	21.0
4	T1	95	2.0	0.326	18.6	LOS B	1.0	25.2	0.82	0.87	29.6
14	R2	7	2.0	0.326	18.6	LOS B	1.0	25.2	0.82	0.87	28.6
Approach		346	2.0	0.778	38.0	LOS D	4.0	101.8	0.89	1.12	23.0
West: STH 21											
5	L2	9	3.0	0.855	36.6	LOS D	8.8	224.6	0.87	1.38	24.1
2	T1	925	3.0	0.855	36.6	LOS D	8.8	224.6	0.87	1.38	24.0
12	R2	59	3.0	0.855	36.6	LOS D	8.8	224.6	0.87	1.38	23.4
Approach		994	3.0	0.855	36.6	LOS D	8.8	224.6	0.87	1.38	24.0
All Vehicles		4253	2.7	1.099	32.0	LOS C	29.1	740.0	0.72	1.10	24.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	186	2.0	526	0.355	100	12.3	LOS B	1.3	32.1	Full	1600	0.0	0.0
Lane 2 ^d	578	2.0	526	1.099	100	96.5	LOS F	29.1	740.0	Full	1600	0.0	0.0
Approach	765	2.0		1.099		76.0	LOS E	29.1	740.0				
East: STH 21													
Lane 1	694	3.0	1069	0.649	95 ⁵	12.6	LOS B	6.5	166.0	Full	1600	0.0	0.0
Lane 2	728	3.0	1069	0.681	100	13.6	LOS B	8.3	213.3	Full	1600	0.0	0.0
Lane 3 ^d	728	3.0	1069	0.681	100	13.6	LOS B	8.3	213.3	Full	1600	0.0	0.0
Approach	2149	3.0		0.681		13.3	LOS B	8.3	213.3				
North: Omro Rd													
Lane 1 ^d	244	2.0	313	0.778	100	46.1	LOS D	4.0	101.8	Full	1600	0.0	0.0
Lane 2	102	2.0	313	0.326	42 ⁵	18.6	LOS B	1.0	25.2	Short	115	0.0	NA
Approach	346	2.0		0.778		38.0	LOS D	4.0	101.8				
West: STH 21													
Lane 1	497	3.0	581	0.855	100	36.6	LOS D	8.8	224.6	Full	1600	0.0	0.0
Lane 2 ^d	497	3.0	581	0.855	100	36.6	LOS D	8.8	224.6	Full	1600	0.0	0.0
Approach	994	3.0		0.855		36.6	LOS D	8.8	224.6				
Intersection	4253	2.7		1.099		32.0	LOS C	29.1	740.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

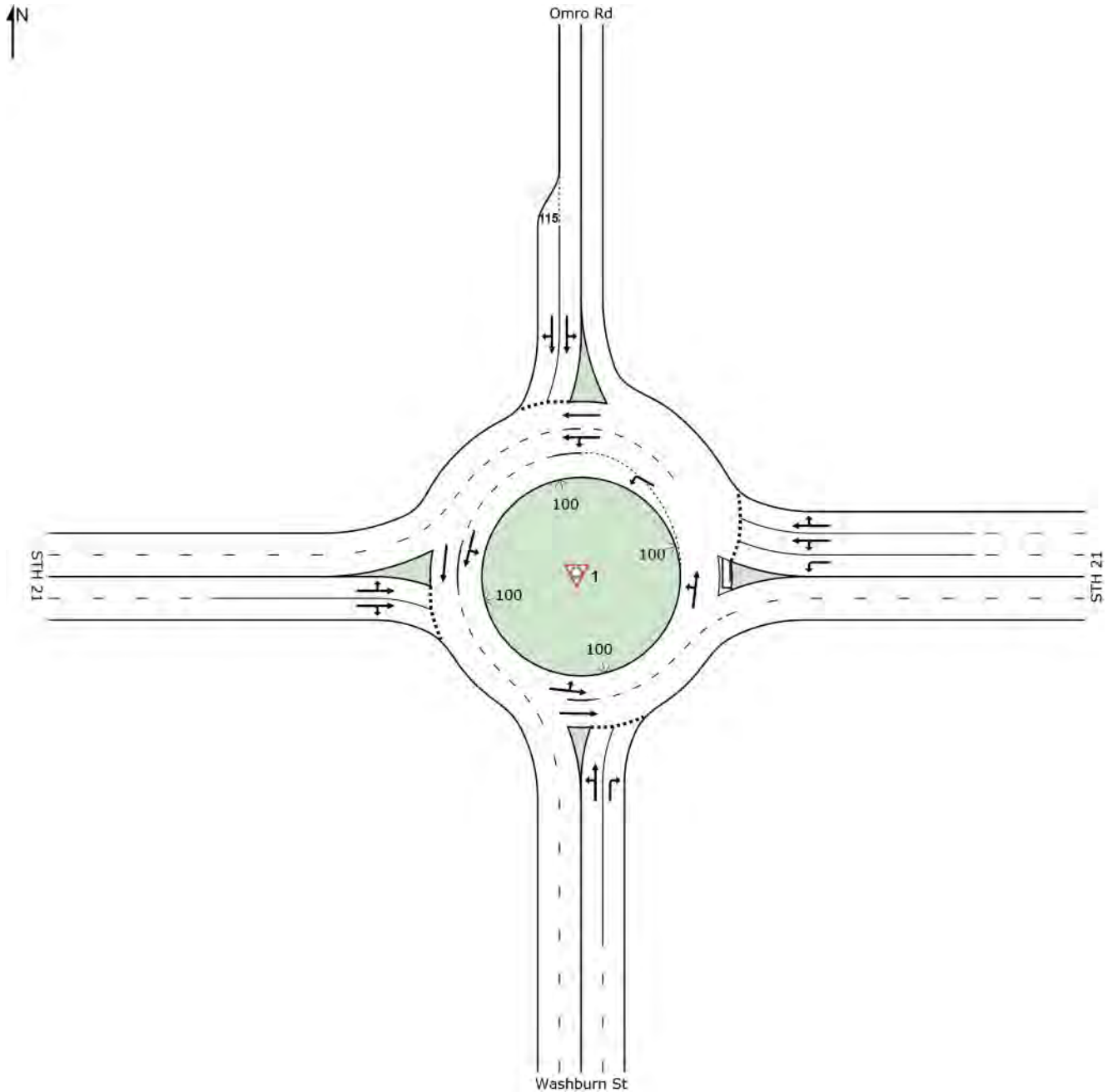
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



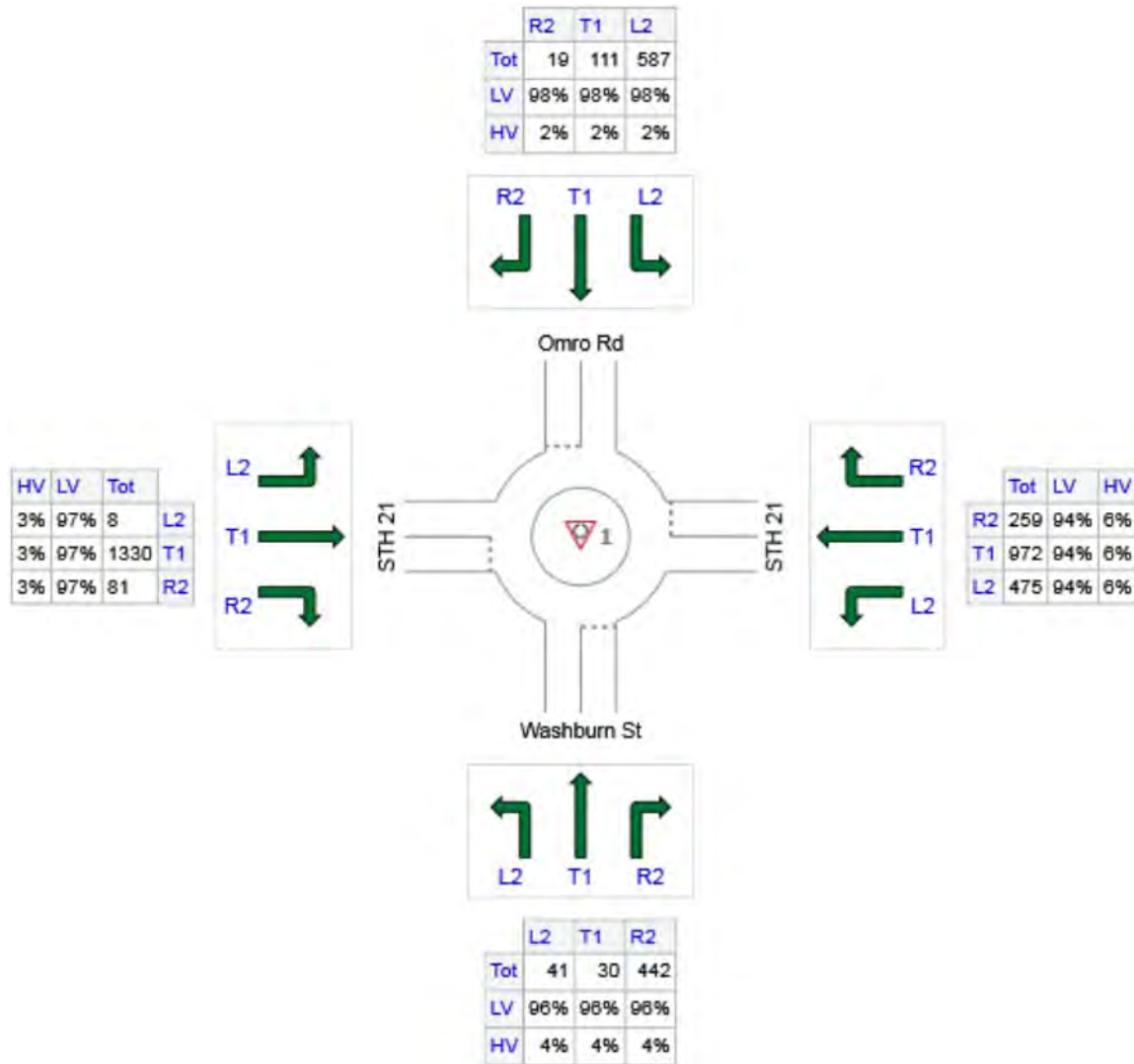
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	513	492	21
E: STH 21	1706	1604	102
N: Omro Rd	717	703	14
W: STH 21	1419	1376	43
Total	4355	4175	180

MOVEMENT SUMMARY

Site: 1 [STH 21 & Washburn AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	43	4.0	0.183	11.7	LOS B	0.5	12.9	0.71	0.71	29.0
8	T1	32	4.0	0.183	11.7	LOS B	0.5	12.9	0.71	0.71	28.7
18	R2	465	4.0	1.140	119.5	LOS F	27.2	701.8	1.00	2.91	12.0
Approach		540	4.0	1.140	104.6	LOS F	27.2	701.8	0.96	2.61	13.2
East: STH 21											
1	L2	500	6.0	0.440	7.8	LOS A	2.0	53.1	0.24	0.13	31.7
6	T1	1023	6.0	0.570	10.1	LOS B	3.2	84.7	0.30	0.16	33.0
16	R2	273	6.0	0.570	10.1	LOS B	3.2	84.7	0.30	0.16	31.8
Approach		1796	6.0	0.570	9.5	LOS A	3.2	84.7	0.29	0.15	32.5
North: Omro Rd											
7	L2	618	2.0	1.624	318.1	LOS F	82.1	2085.6	1.00	4.79	6.2
4	T1	117	2.0	0.360	16.5	LOS B	1.2	30.0	0.78	0.85	30.4
14	R2	20	2.0	0.360	16.5	LOS B	1.2	30.0	0.78	0.85	29.4
Approach		755	2.0	1.624	263.4	LOS F	82.1	2085.6	0.96	4.08	7.2
West: STH 21											
5	L2	8	3.0	1.265	154.5	LOS F	60.9	1558.8	1.00	3.97	10.8
2	T1	1400	3.0	1.265	154.5	LOS F	60.9	1558.8	1.00	3.97	10.8
12	R2	85	3.0	1.265	154.5	LOS F	60.9	1558.8	1.00	3.97	10.7
Approach		1494	3.0	1.265	154.5	LOS F	60.9	1558.8	1.00	3.97	10.8
All Vehicles		4584	4.1	1.624	109.7	LOS F	82.1	2085.6	0.71	2.33	13.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 1 [STH 21 & Washburn AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	75	4.0	408	0.183	100	11.7	LOS B	0.5	12.9	Full	1600	0.0	0.0
Lane 2 ^d	465	4.0	408	1.140	100	119.5	LOS F	27.2	701.8	Full	1600	0.0	0.0
Approach	540	4.0		1.140		104.6	LOS F	27.2	701.8				
East: STH 21													
Lane 1	500	6.0	1136	0.440	77 ⁵	7.8	LOS A	2.0	53.1	Full	1600	0.0	0.0
Lane 2	648	6.0	1136	0.570	100	10.1	LOS B	3.2	84.7	Full	1600	0.0	0.0
Lane 3 ^d	648	6.0	1136	0.570	100	10.1	LOS B	3.2	84.7	Full	1600	0.0	0.0
Approach	1796	6.0		0.570		9.5	LOS A	3.2	84.7				
North: Omro Rd													
Lane 1 ^d	618	2.0	380	1.624	100	318.1	LOS F	82.1	2085.6	Full	1600	0.0	13.5
Lane 2	137	2.0	380	0.360	22 ⁵	16.5	LOS B	1.2	30.0	Short	115	0.0	NA
Approach	755	2.0		1.624		263.4	LOS F	82.1	2085.6				
West: STH 21													
Lane 1	747	3.0	590	1.265	100	154.5	LOS F	60.9	1558.8	Full	1600	0.0	4.2
Lane 2 ^d	747	3.0	590	1.265	100	154.5	LOS F	60.9	1558.8	Full	1600	0.0	4.2
Approach	1494	3.0		1.265		154.5	LOS F	60.9	1558.8				
Intersection	4584	4.1		1.624		109.7	LOS F	82.1	2085.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

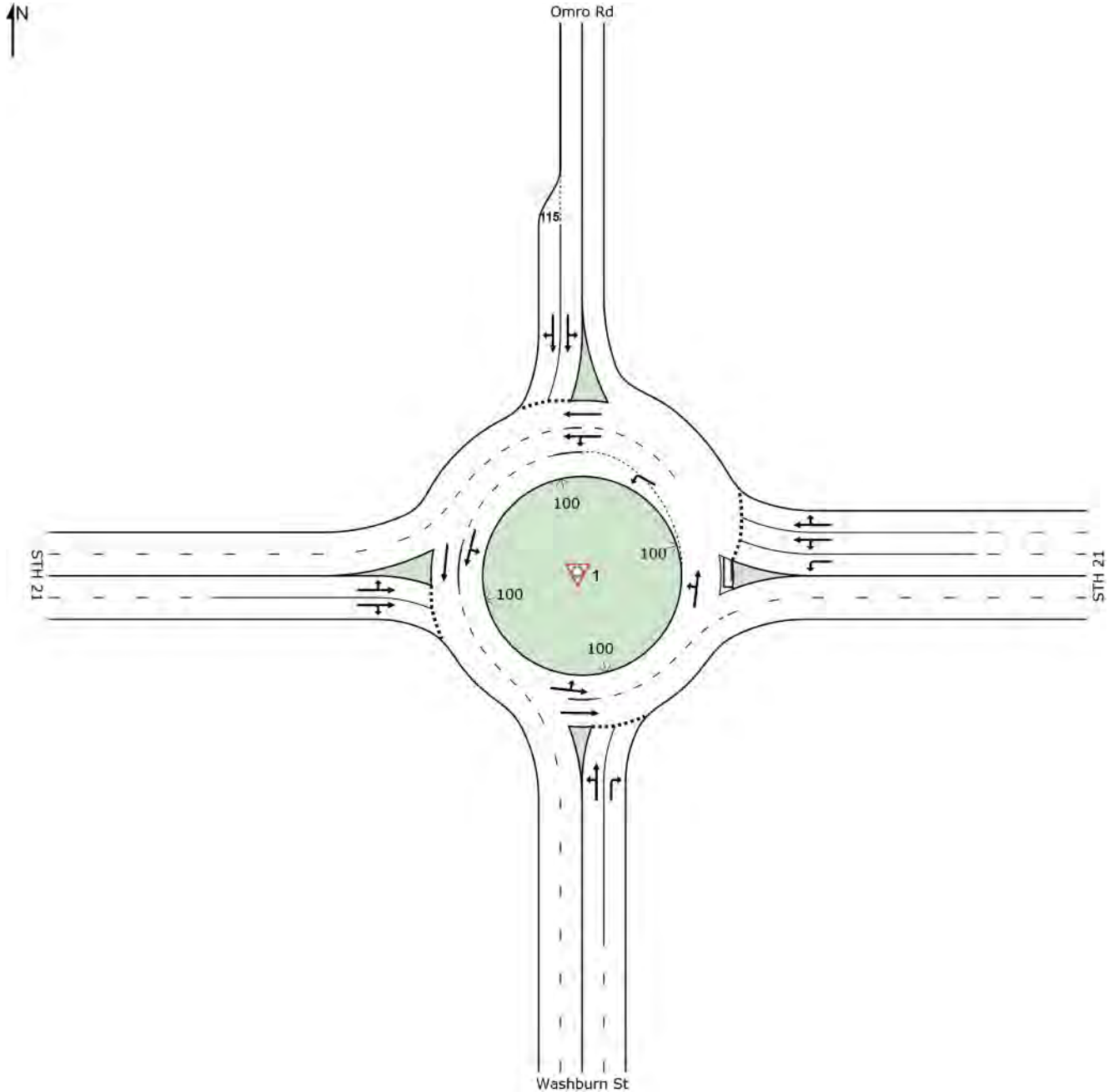
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 1 [STH 21 & Washburn PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



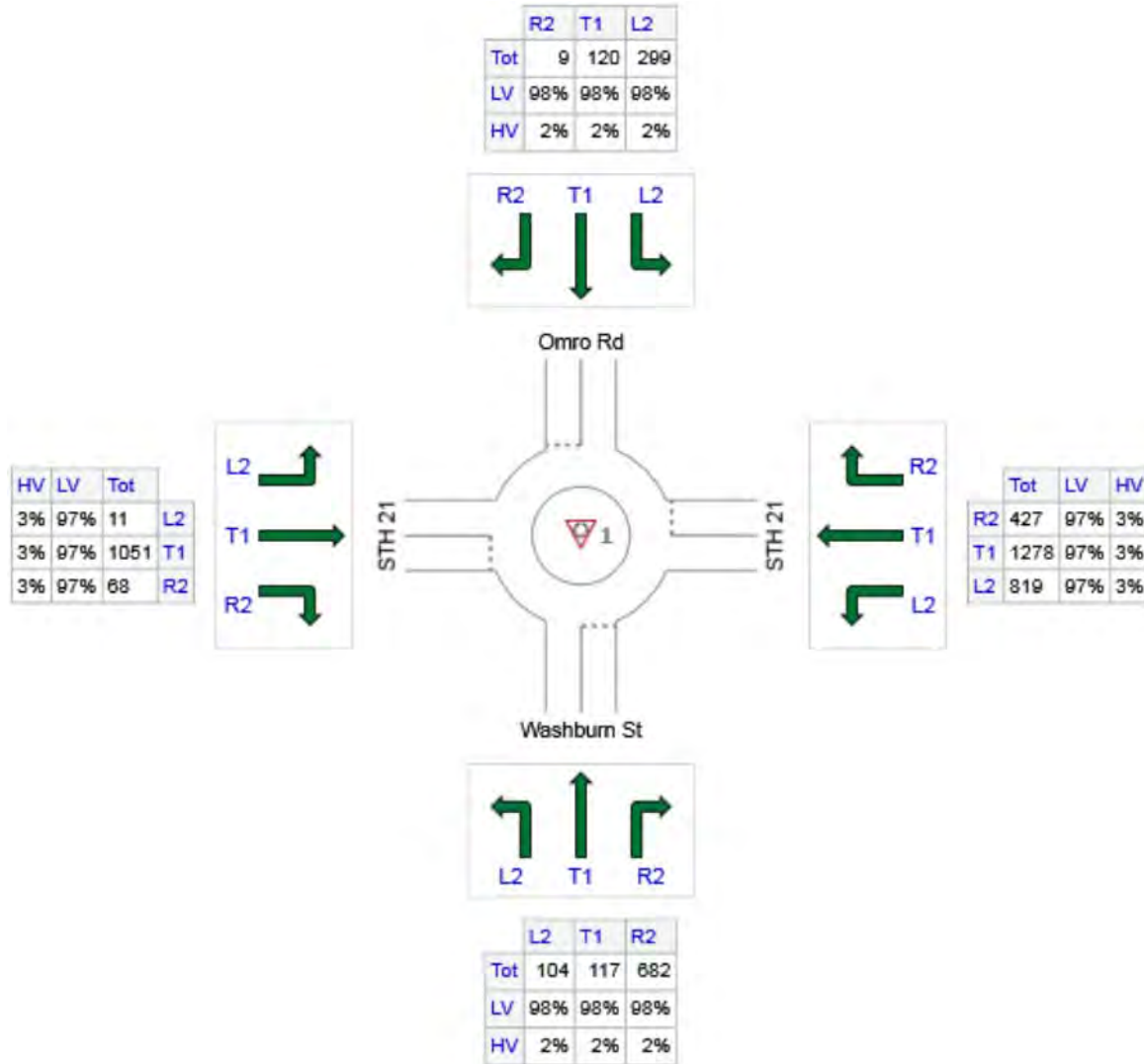
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1 [STH 21 & Washburn PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Washburn St	903	885	18
E: STH 21	2524	2448	76
N: Omro Rd	428	419	9
W: STH 21	1130	1096	34
Total	4985	4849	136

MOVEMENT SUMMARY

Site: 1 [STH 21 & Washburn PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Washburn St											
3	L2	108	2.0	0.441	14.4	LOS B	1.8	45.0	0.71	0.82	28.2
8	T1	122	2.0	0.441	14.4	LOS B	1.8	45.0	0.71	0.82	28.0
18	R2	710	2.0	1.361	197.1	LOS F	68.9	1750.8	1.00	4.72	8.5
Approach		941	2.0	1.361	152.4	LOS F	68.9	1750.8	0.93	3.77	10.3
East: STH 21											
1	L2	853	3.0	0.827	21.7	LOS C	21.2	541.7	0.81	1.14	26.8
6	T1	1331	3.0	0.861	24.8	LOS C	25.7	658.1	0.88	1.30	27.4
16	R2	445	3.0	0.861	24.8	LOS C	25.7	658.1	0.88	1.30	26.4
Approach		2629	3.0	0.861	23.8	LOS C	25.7	658.1	0.86	1.25	27.0
North: Omro Rd											
7	L2	311	2.0	1.358	228.0	LOS F	31.5	799.8	1.00	2.89	8.1
4	T1	125	2.0	0.586	38.7	LOS D	2.0	51.9	0.91	1.06	23.5
14	R2	9	2.0	0.586	38.7	LOS D	2.0	51.9	0.91	1.06	22.9
Approach		446	2.0	1.358	171.0	LOS F	31.5	799.8	0.97	2.34	10.0
West: STH 21											
5	L2	11	3.0	1.154	116.5	LOS F	35.9	917.9	1.00	3.02	13.2
2	T1	1095	3.0	1.154	116.5	LOS F	35.9	917.9	1.00	3.02	13.1
12	R2	71	3.0	1.154	116.5	LOS F	35.9	917.9	1.00	3.02	12.9
Approach		1177	3.0	1.154	116.5	LOS F	35.9	917.9	1.00	3.02	13.1
All Vehicles		5193	2.7	1.361	80.7	LOS F	68.9	1750.8	0.91	2.20	16.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 1 [STH 21 & Washburn PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Washburn St													
Lane 1	230	2.0	522	0.441	100	14.4	LOS B	1.8	45.0	Full	1600	0.0	0.0
Lane 2 ^d	710	2.0	522	1.361	100	197.1	LOS F	68.9	1750.8	Full	1600	0.0	7.7
Approach	941	2.0		1.361		152.4	LOS F	68.9	1750.8				
East: STH 21													
Lane 1	853	3.0	1032	0.827	96 ⁵	21.7	LOS C	21.2	541.7	Full	1600	0.0	0.0
Lane 2	888	3.0	1032	0.861	100	24.8	LOS C	25.7	658.1	Full	1600	0.0	0.0
Lane 3 ^d	888	3.0	1032	0.861	100	24.8	LOS C	25.7	658.1	Full	1600	0.0	0.0
Approach	2629	3.0		0.861		23.8	LOS C	25.7	658.1				
North: Omro Rd													
Lane 1 ^d	311	2.0	229	1.358	100	228.0	LOS F	31.5	799.8	Full	1600	0.0	0.0
Lane 2	134	2.0	229	0.586	43 ⁵	38.7	LOS D	2.0	51.9	Short	115	0.0	NA
Approach	446	2.0		1.358		171.0	LOS F	31.5	799.8				
West: STH 21													
Lane 1	589	3.0	510	1.154	100	116.5	LOS F	35.9	917.9	Full	1600	0.0	0.0
Lane 2 ^d	589	3.0	510	1.154	100	116.5	LOS F	35.9	917.9	Full	1600	0.0	0.0
Approach	1177	3.0		1.154		116.5	LOS F	35.9	917.9				
Intersection	5193	2.7		1.361		80.7	LOS F	68.9	1750.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

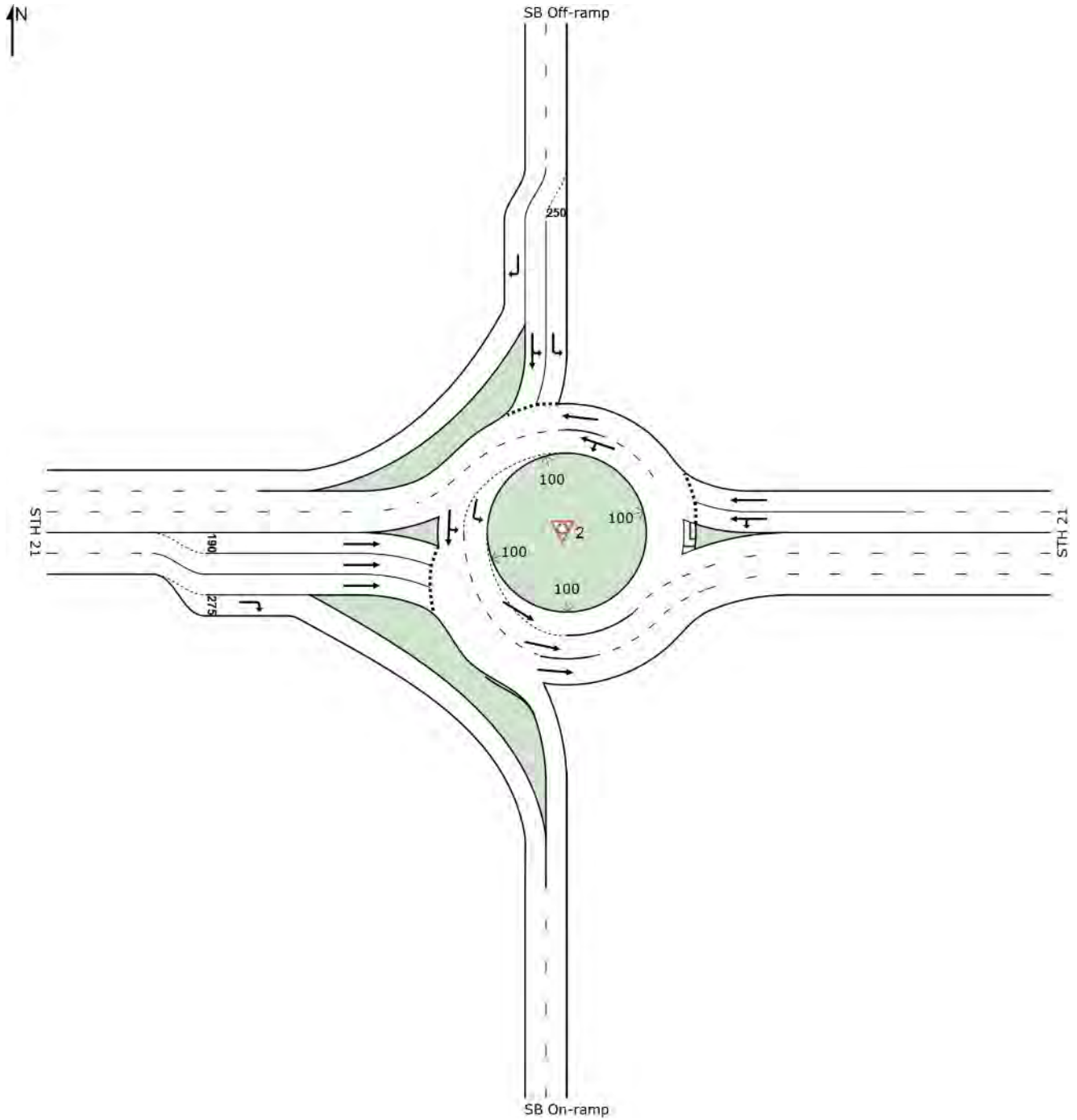
⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



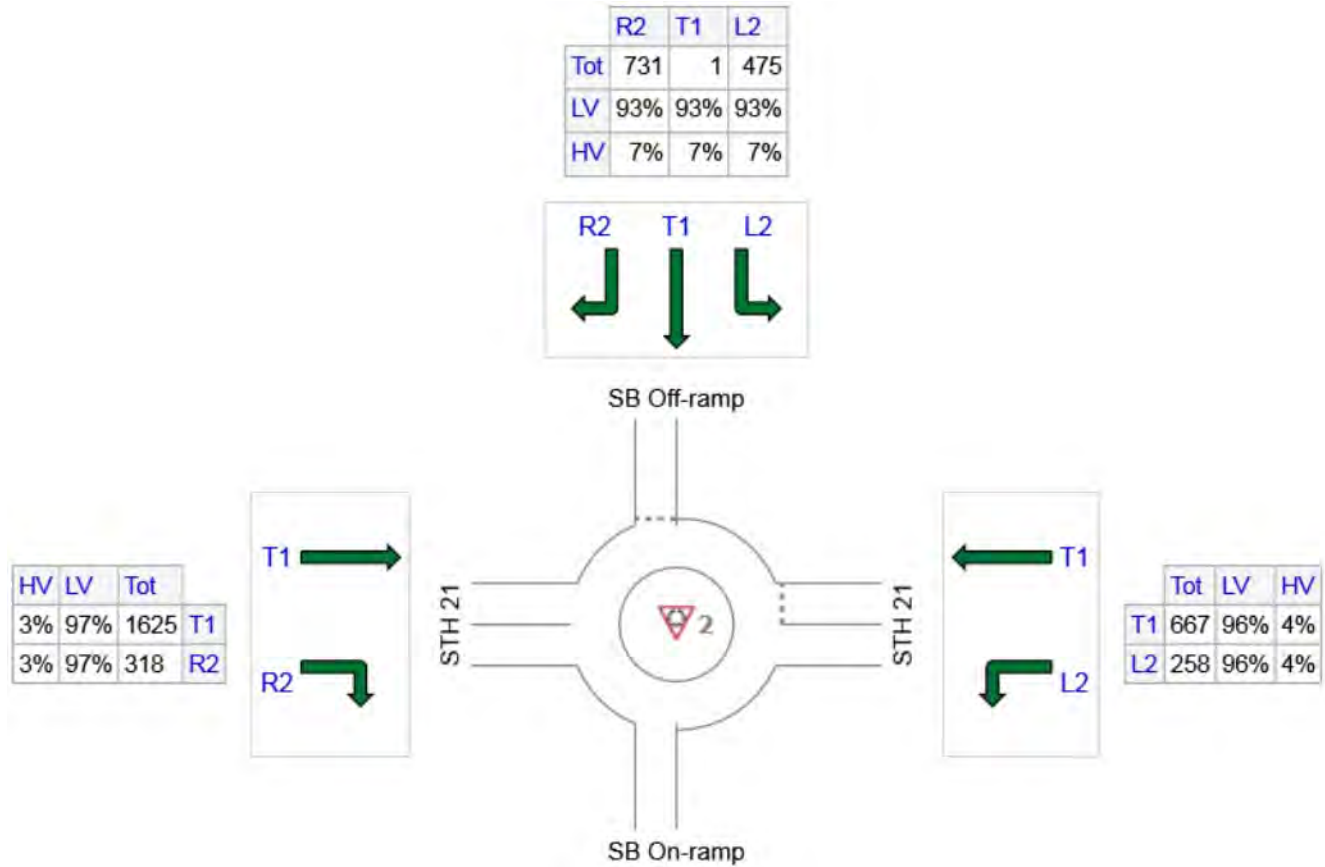
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	925	888	37
N: SB Off-ramp	1207	1123	84
W: STH 21	1943	1885	58
Total	4075	3895	180

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: STH 21											
1	L2	277	4.0	0.402	6.9	LOS A	0.0	0.0	0.00	0.00	36.9
6	T1	717	4.0	0.402	6.9	LOS A	0.0	0.0	0.00	0.00	38.1
Approach		995	4.0	0.402	6.9	LOS A	0.0	0.0	0.00	0.00	37.7
North: SB Off-ramp											
7	L2	511	7.0	0.449	13.6	LOS B	1.8	48.6	0.66	0.76	29.4
4	T1	1	7.0	0.449	13.6	LOS B	1.8	48.6	0.66	0.76	29.4
14	R2	786	7.0	0.502	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		1298	7.0	0.502	5.4	LOS A	1.8	48.6	0.26	0.30	33.6
West: STH 21											
2	T1	1747	3.0	0.853	32.3	LOS C	10.6	270.6	0.86	1.39	25.2
12	R2	342	3.0	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		2089	3.0	0.853	27.0	LOS C	10.6	270.6	0.72	1.16	26.5
All Vehicles		4382	4.4	0.853	16.0	LOS B	10.6	270.6	0.42	0.64	30.5

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	497	4.0	1237	0.402	100	6.9	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	497	4.0	1237	0.402	100	6.9	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	995	4.0		0.402		6.9	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	256	7.0	570	0.449	100	13.6	LOS B	1.8	48.6	Short	250	0.0	NA
Lane 2 ^d	256	7.0	570	0.449	100	13.6	LOS B	1.8	48.6	Full	1600	0.0	0.0
Lane 3	786	7.0	1565	0.502	100	0.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1298	7.0		0.502		5.4	LOS A	1.8	48.6				
West: STH 21													
Lane 1	582	3.0	683	0.853	100	32.3	LOS C	10.6	270.6	Short	190	0.0	NA
Lane 2	582	3.0	683	0.853	100	32.3	LOS C	10.6	270.6	Full	1600	0.0	0.0
Lane 3 ^d	582	3.0	683	0.853	100	32.3	LOS C	10.6	270.6	Full	1600	0.0	0.0
Lane 4	342	3.0	1626	0.210	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	2089	3.0		0.853		27.0	LOS C	10.6	270.6				
Intersection	4382	4.4		0.853		16.0	LOS B	10.6	270.6				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

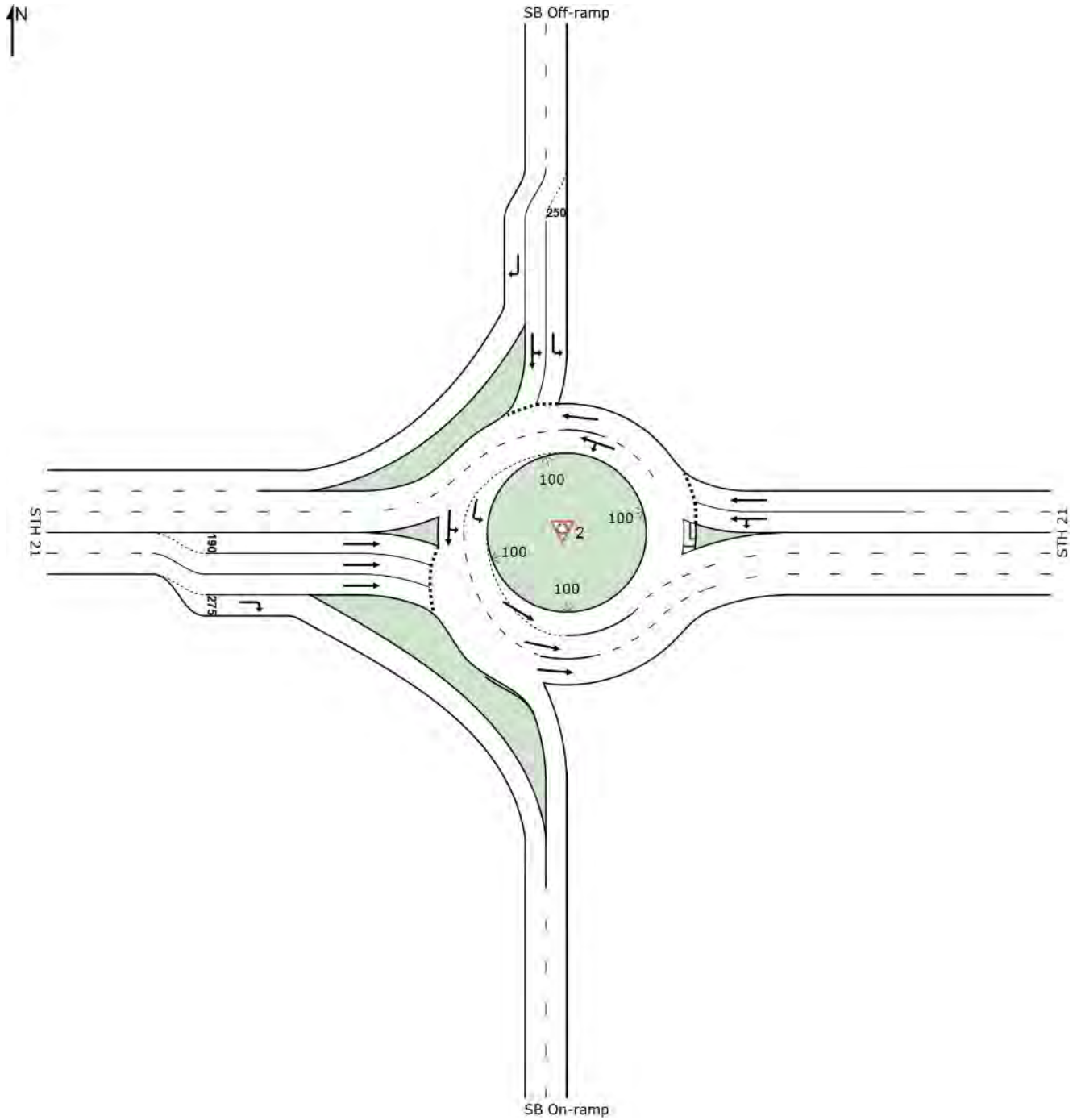
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



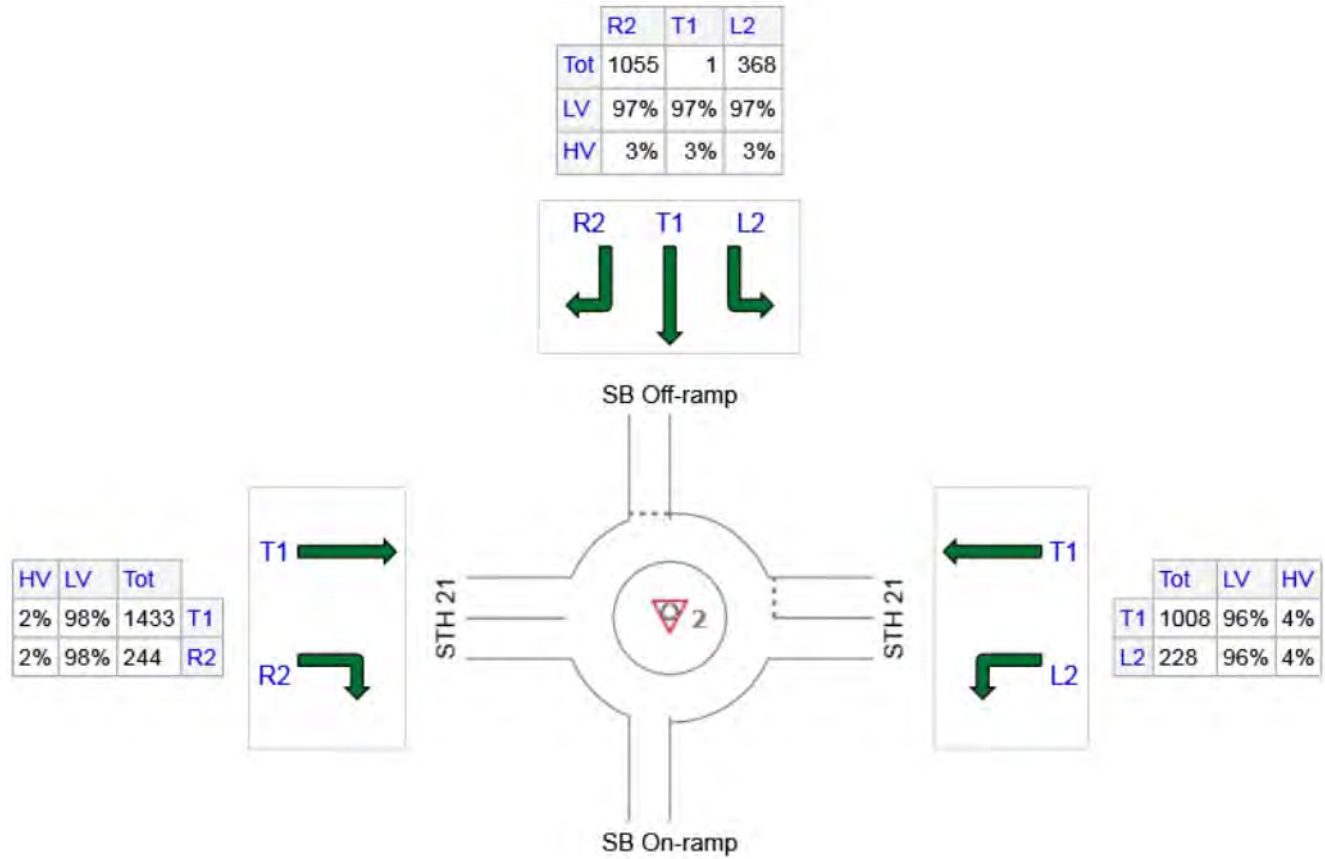
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	1236	1187	49
N: SB Off-ramp	1424	1381	43
W: STH 21	1677	1643	34
Total	4337	4211	126

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: STH 21											
1	L2	238	4.0	0.521	8.6	LOS A	0.0	0.0	0.00	0.00	37.5
6	T1	1050	4.0	0.521	8.6	LOS A	0.0	0.0	0.00	0.00	38.2
Approach		1288	4.0	0.521	8.6	LOS A	0.0	0.0	0.00	0.00	38.1
North: SB Off-ramp											
7	L2	383	3.0	0.405	14.7	LOS B	1.5	38.0	0.73	0.81	29.2
4	T1	1	3.0	0.405	14.7	LOS B	1.5	38.0	0.73	0.81	29.1
14	R2	1099	3.0	0.676	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		1483	3.0	0.676	4.0	LOS A	1.5	38.0	0.19	0.21	34.7
West: STH 21											
2	T1	1493	2.0	0.628	15.0	LOS B	4.8	122.3	0.68	0.89	31.0
12	R2	254	2.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		1747	2.0	0.628	12.8	LOS B	4.8	122.3	0.58	0.76	31.7
All Vehicles		4518	2.9	0.676	8.7	LOS A	4.8	122.3	0.29	0.36	34.3

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	644	4.0	1237	0.521	100	8.6	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	644	4.0	1237	0.521	100	8.6	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1288	4.0		0.521		8.6	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	192	3.0	475	0.405	100	14.7	LOS B	1.5	38.0	Short	250	0.0	NA
Lane 2 ^d	192	3.0	475	0.405	100	14.7	LOS B	1.5	38.0	Full	1600	0.0	0.0
Lane 3	1099	3.0	1626	0.676	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1483	3.0		0.676		4.0	LOS A	1.5	38.0				
West: STH 21													
Lane 1	498	2.0	793	0.628	100	15.0	LOS B	4.8	122.3	Short	190	0.0	NA
Lane 2	498	2.0	793	0.628	100	15.0	LOS B	4.8	122.3	Full	1600	0.0	0.0
Lane 3 ^d	498	2.0	793	0.628	100	15.0	LOS B	4.8	122.3	Full	1600	0.0	0.0
Lane 4	254	2.0	1642	0.155	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	1747	2.0		0.628		12.8	LOS B	4.8	122.3				
Intersection	4518	2.9		0.676		8.7	LOS A	4.8	122.3				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

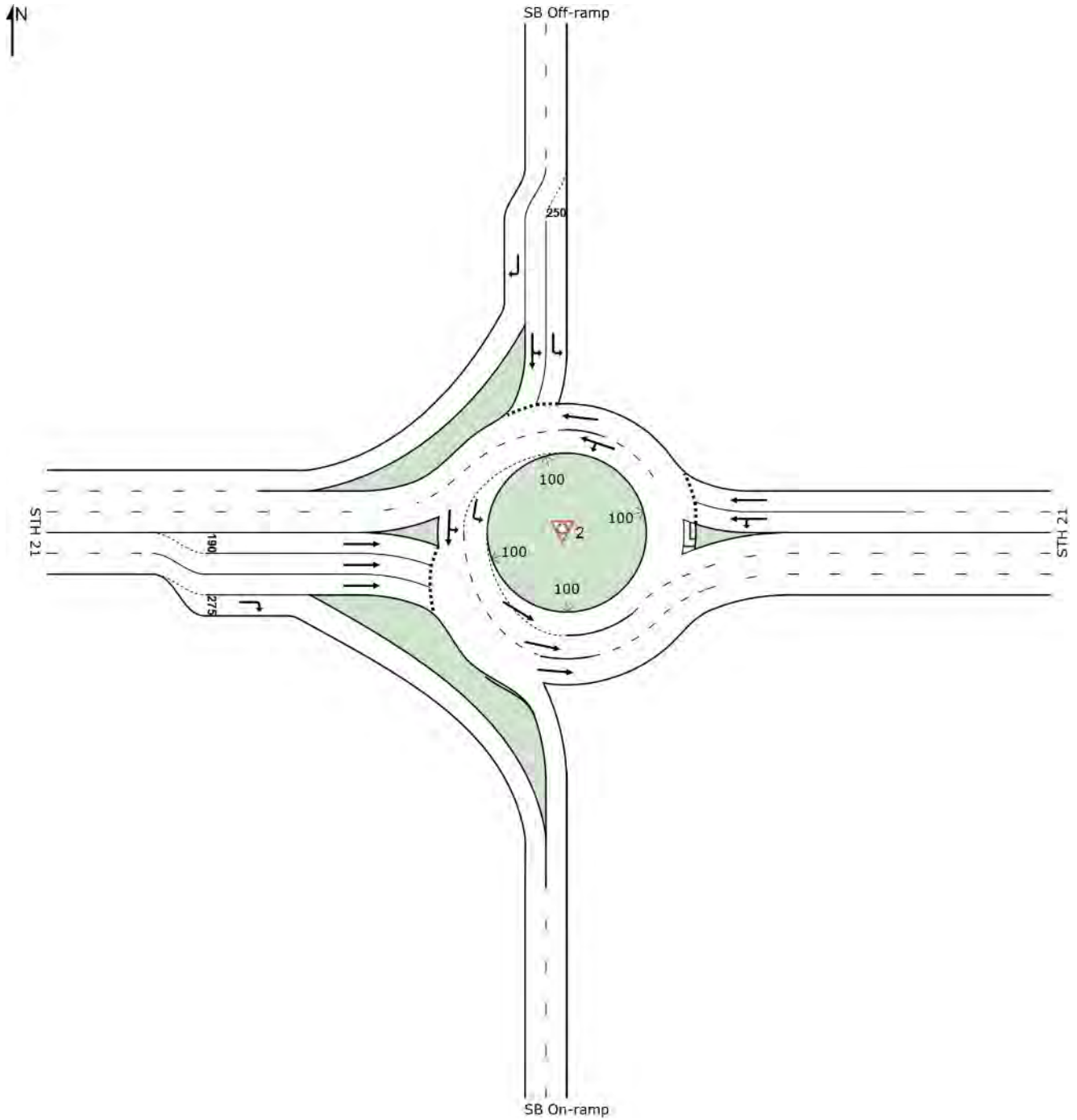
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



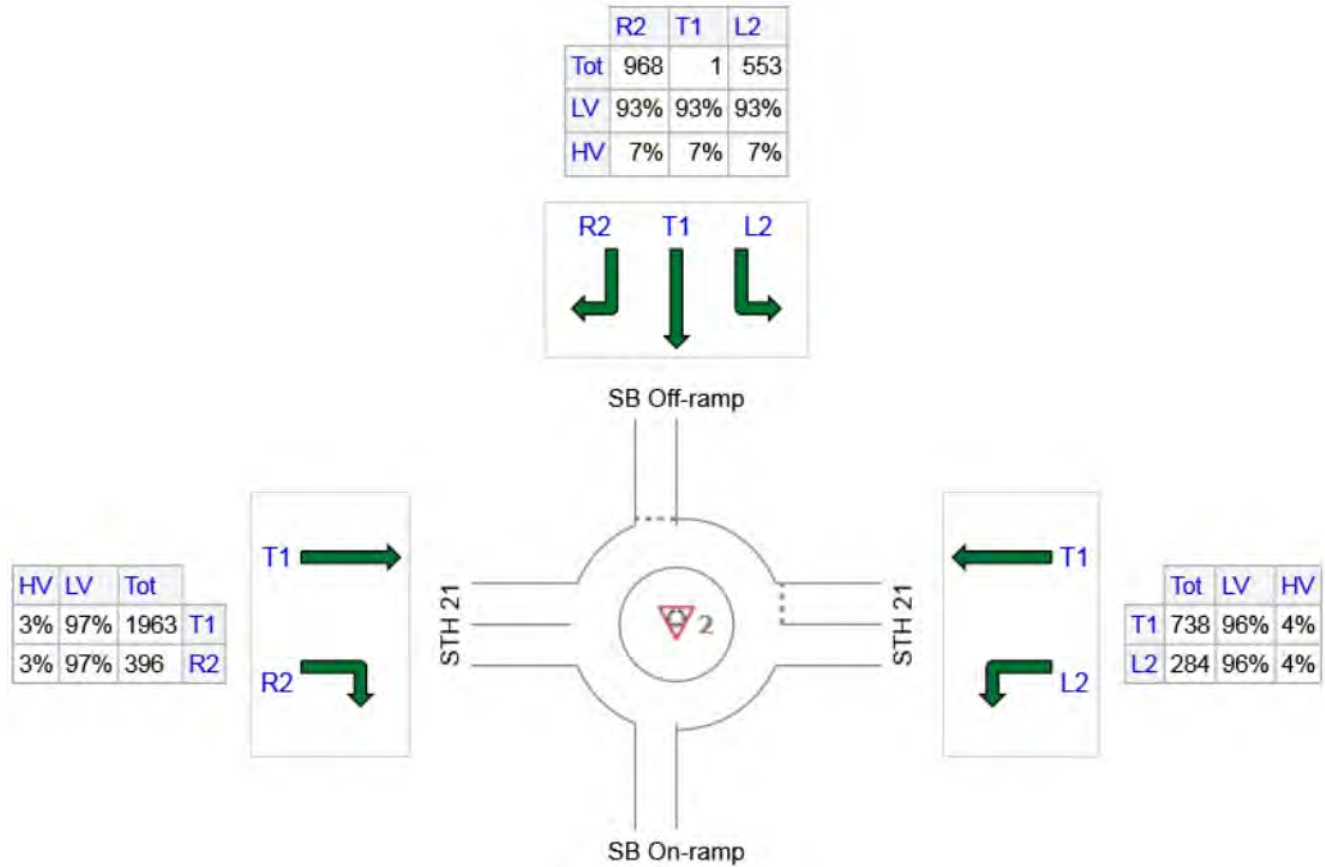
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	1022	981	41
N: SB Off-ramp	1522	1415	107
W: STH 21	2359	2288	71
Total	4903	4685	218

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
East: STH 21												
1	L2	305	4.0	0.444	7.4	LOS A	0.0	0.0	0.00	0.00	36.9	
6	T1	794	4.0	0.444	7.4	LOS A	0.0	0.0	0.00	0.00	38.1	
Approach		1099	4.0	0.444	7.4	LOS A	0.0	0.0	0.00	0.00	37.7	
North: SB Off-ramp												
7	L2	595	7.0	0.566	18.2	LOS B	2.7	70.8	0.73	0.90	27.9	
4	T1	1	7.0	0.566	18.2	LOS B	2.7	70.8	0.73	0.90	27.8	
14	R2	1041	7.0	0.665	0.0	LOS A	0.0	0.0	0.00	0.00	37.2	
Approach		1637	7.0	0.665	6.8	LOS A	2.7	70.8	0.27	0.33	33.0	
West: STH 21												
2	T1	2111	3.0	1.123	99.0	LOS F	39.2	1004.8	1.00	2.99	14.6	
12	R2	426	3.0	0.262	0.0	LOS A	0.0	0.0	0.00	0.00	37.3	
Approach		2537	3.0	1.123	82.4	LOS F	39.2	1004.8	0.83	2.49	16.2	
All Vehicles		5272	4.5	1.123	43.2	LOS D	39.2	1004.8	0.48	1.30	22.4	

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	549	4.0	1237	0.444	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	549	4.0	1237	0.444	100	7.4	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1099	4.0		0.444		7.4	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	298	7.0	527	0.566	100	18.2	LOS B	2.7	70.8	Short	250	0.0	NA
Lane 2 ^d	298	7.0	527	0.566	100	18.2	LOS B	2.7	70.8	Full	1600	0.0	0.0
Lane 3	1041	7.0	1565	0.665	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1637	7.0		0.665		6.8	LOS A	2.7	70.8				
West: STH 21													
Lane 1	704	3.0	627	1.123	100	99.0	LOS F	39.2	1004.8	Short	190	0.0	NA
Lane 2	704	3.0	627	1.123	100	99.0	LOS F	39.2	1004.8	Full	1600	0.0	0.0
Lane 3 ^d	704	3.0	627	1.123	100	99.0	LOS F	39.2	1004.8	Full	1600	0.0	0.0
Lane 4	426	3.0	1626	0.262	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	2537	3.0		1.123		82.4	LOS F	39.2	1004.8				
Intersection	5272	4.5		1.123		43.2	LOS D	39.2	1004.8				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

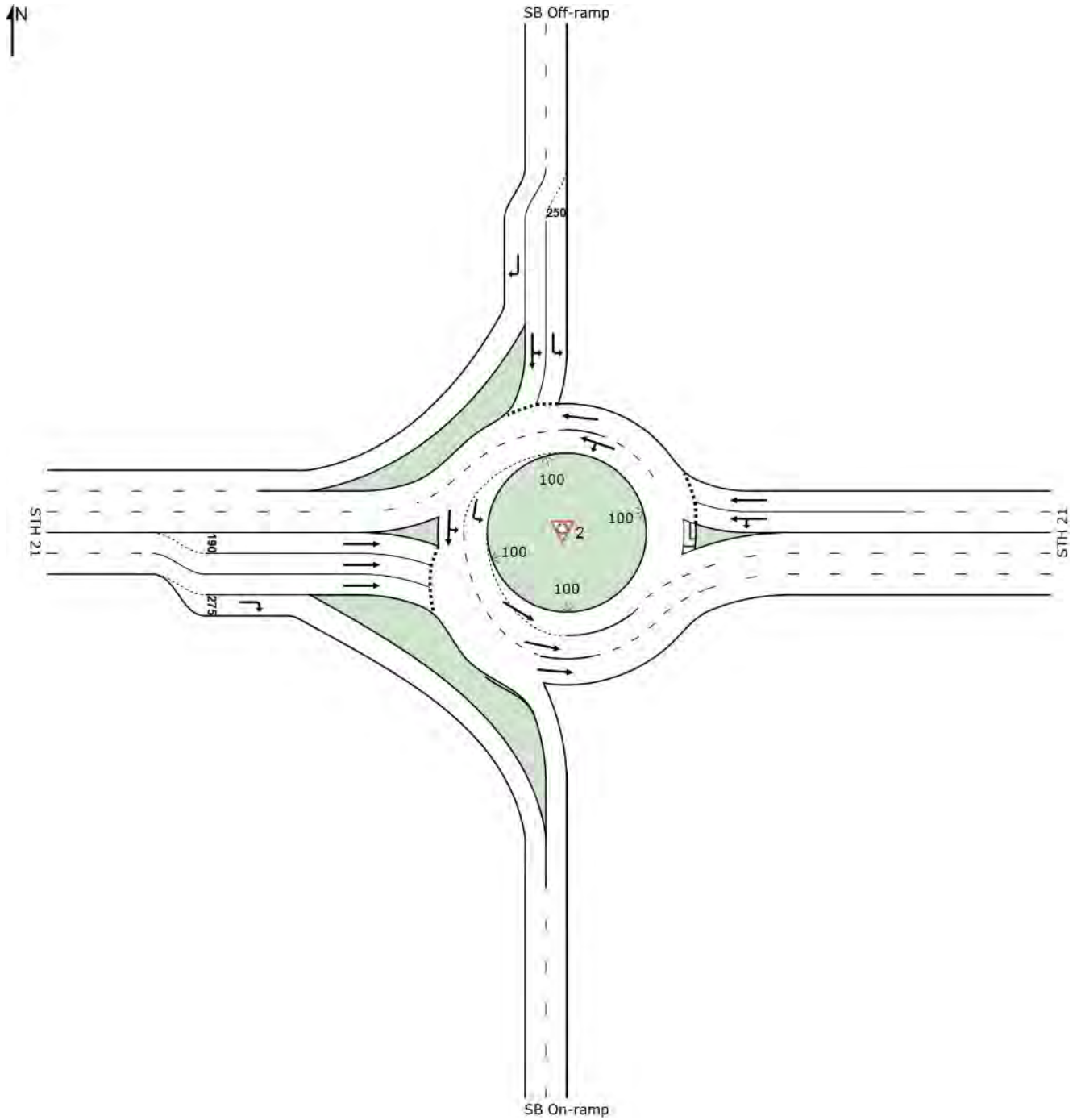
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 2 [STH 21 & SB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



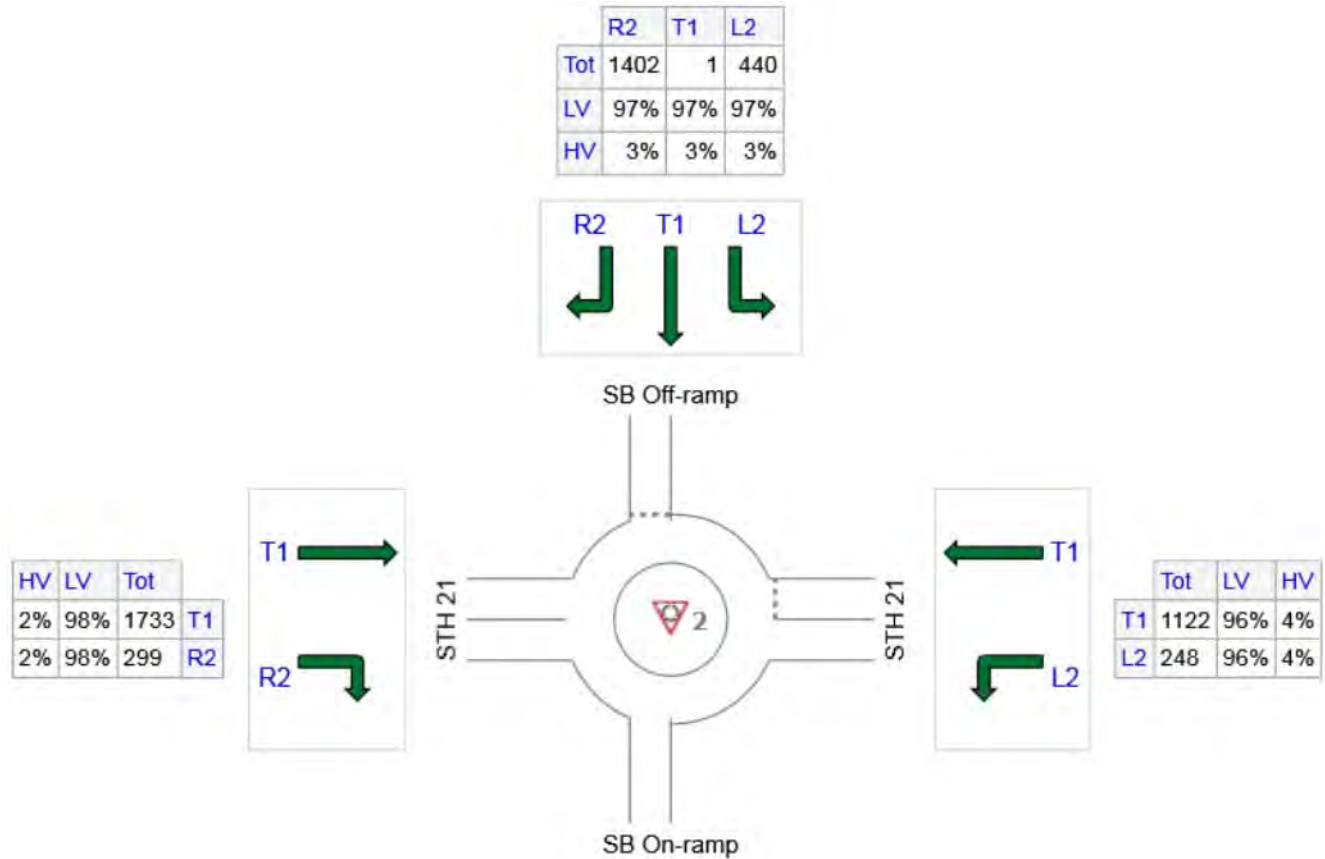
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 2 [STH 21 & SB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
E: STH 21	1370	1315	55
N: SB Off-ramp	1843	1788	55
W: STH 21	2032	1991	41
Total	5245	5094	151

MOVEMENT SUMMARY

 Site: 2 [STH 21 & SB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: STH 21											
1	L2	258	4.0	0.577	9.7	LOS A	0.0	0.0	0.00	0.00	37.5
6	T1	1169	4.0	0.577	9.7	LOS A	0.0	0.0	0.00	0.00	38.2
Approach		1427	4.0	0.577	9.7	LOS A	0.0	0.0	0.00	0.00	38.1
North: SB Off-ramp											
7	L2	458	3.0	0.537	20.5	LOS C	2.2	57.1	0.80	0.94	27.2
4	T1	1	3.0	0.537	20.5	LOS C	2.2	57.1	0.80	0.94	27.2
14	R2	1460	3.0	0.898	0.0	LOS A	0.0	0.0	0.00	0.00	36.7
Approach		1920	3.0	0.898	5.5	LOS A	2.2	57.1	0.19	0.23	33.8
West: STH 21											
2	T1	1805	2.0	0.815	26.7	LOS C	9.8	249.1	0.84	1.28	26.8
12	R2	311	2.0	0.190	0.0	LOS A	0.0	0.0	0.00	0.00	37.3
Approach		2117	2.0	0.815	22.8	LOS C	9.8	249.1	0.71	1.09	27.9
All Vehicles		5464	2.9	0.898	13.1	LOS B	9.8	249.1	0.34	0.50	32.1

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

Site: 2 [STH 21 & SB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: STH 21													
Lane 1	714	4.0	1237	0.577	100	9.7	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2 ^d	714	4.0	1237	0.577	100	9.7	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1427	4.0		0.577		9.7	LOS A	0.0	0.0				
North: SB Off-ramp													
Lane 1	230	3.0	428	0.537	100	20.5	LOS C	2.2	57.1	Short	250	0.0	NA
Lane 2 ^d	230	3.0	428	0.537	100	20.5	LOS C	2.2	57.1	Full	1600	0.0	0.0
Lane 3	1460	3.0	1626	0.898	100	0.8	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1920	3.0		0.898		5.5	LOS A	2.2	57.1				
West: STH 21													
Lane 1	602	2.0	738	0.815	100	26.7	LOS C	9.8	249.1	Short	190	0.0	NA
Lane 2	602	2.0	738	0.815	100	26.7	LOS C	9.8	249.1	Full	1600	0.0	0.0
Lane 3 ^d	602	2.0	738	0.815	100	26.7	LOS C	9.8	249.1	Full	1600	0.0	0.0
Lane 4	311	2.0	1642	0.190	100	0.0	LOS A	0.0	0.0	Short	275	0.0	NA
Approach	2117	2.0		0.815		22.8	LOS C	9.8	249.1				
Intersection	5464	2.9		0.898		13.1	LOS B	9.8	249.1				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

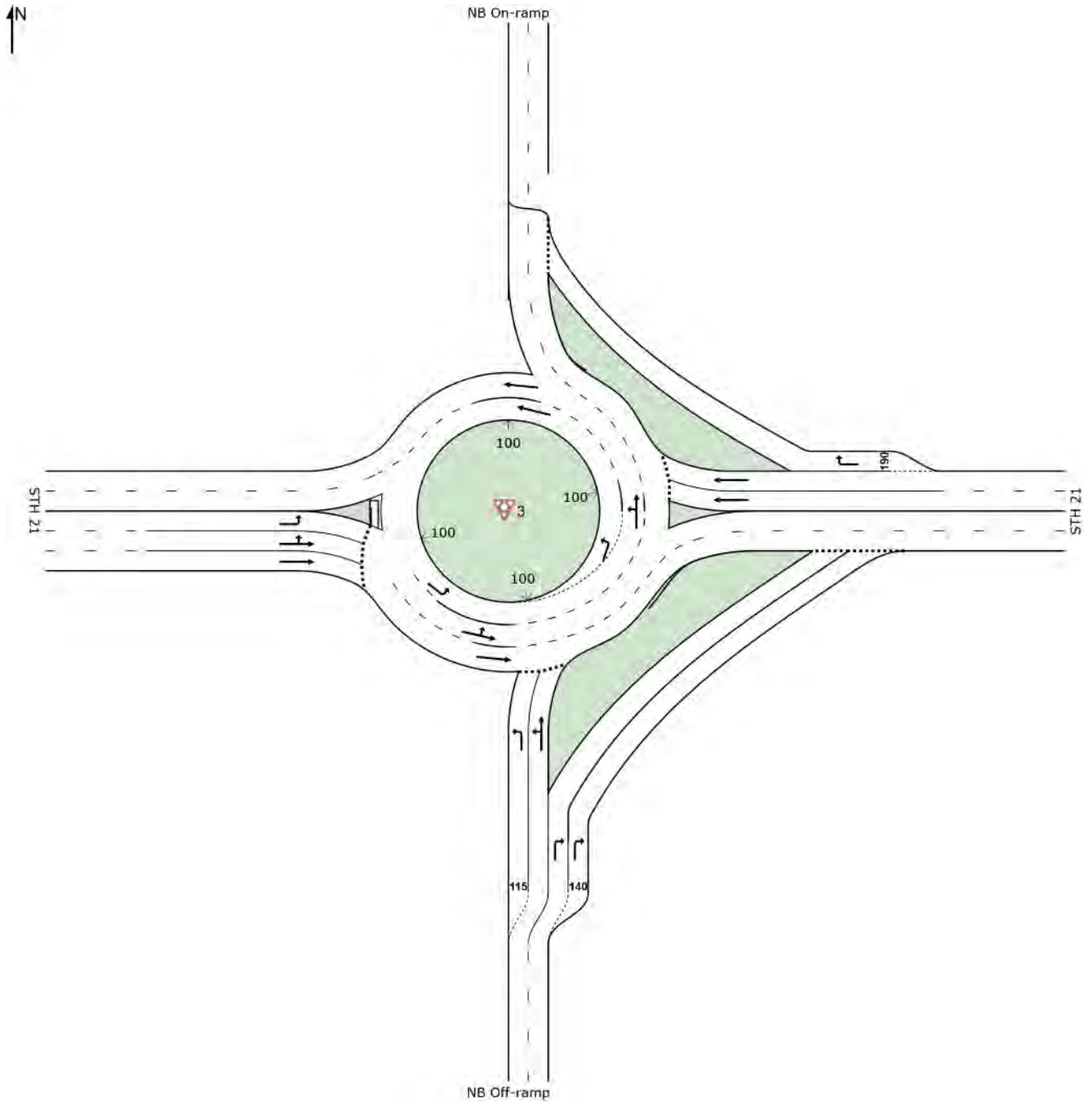
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



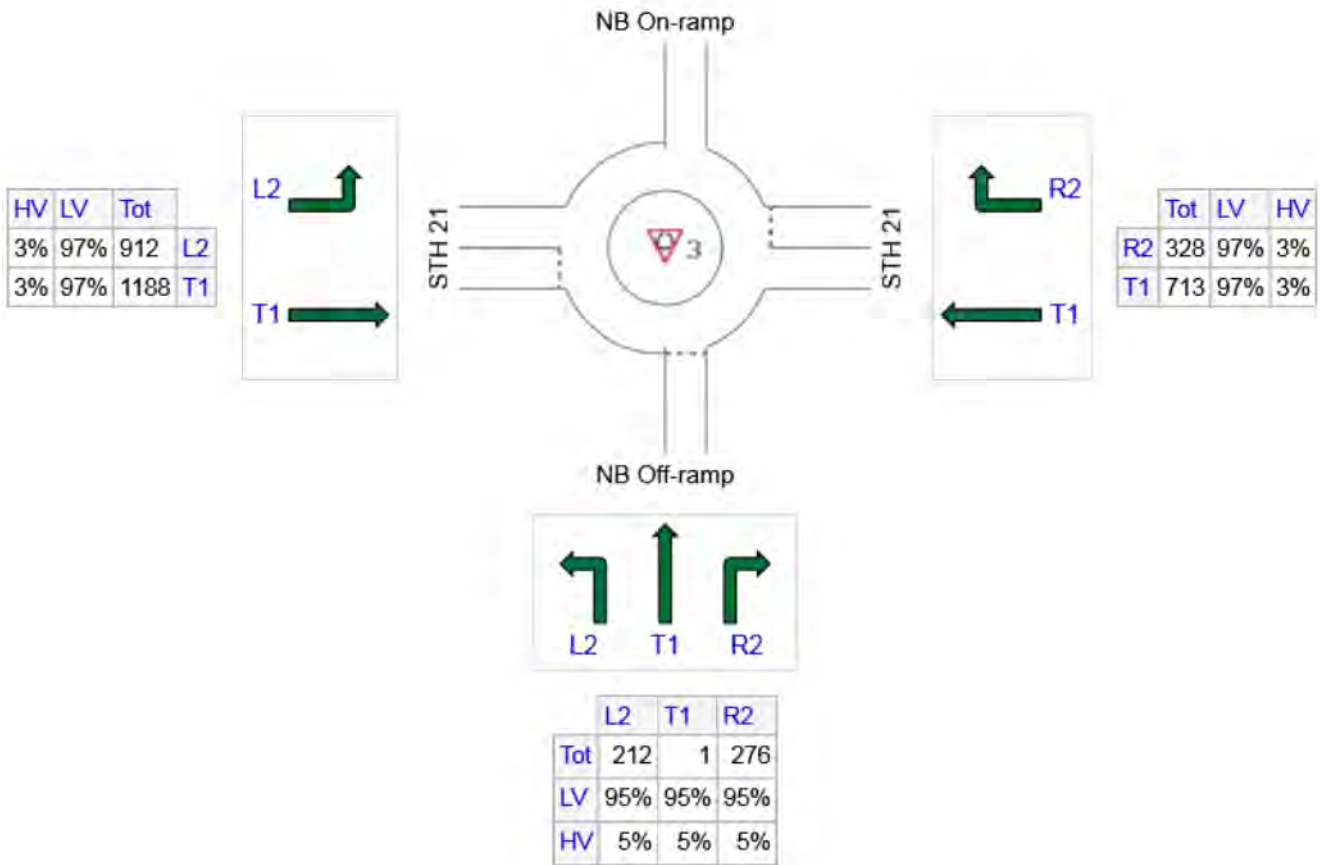
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	489	465	24
E: STH 21	1041	1010	31
W: STH 21	2100	2037	63
Total	3630	3511	119

MOVEMENT SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	228	5.0	0.501	33.1	LOS C	1.6	41.4	0.89	1.01	23.8
8	T1	1	5.0	0.501	33.1	LOS C	1.6	41.4	0.89	1.01	23.7
18	R2	297	5.0	0.313	12.6	LOS B	1.0	26.0	0.69	0.74	30.6
Approach		526	5.0	0.501	21.5	LOS C	1.6	41.4	0.78	0.86	27.1
East: STH 21											
6	T1	767	3.0	0.757	29.8	LOS C	5.1	130.7	0.85	1.16	25.9
16	R2	353	3.0	0.586	17.0	LOS B	3.2	81.8	0.71	0.89	29.0
Approach		1119	3.0	0.757	25.8	LOS C	5.1	130.7	0.81	1.08	26.8
West: STH 21											
5	L2	981	3.0	0.603	10.2	LOS B	0.0	0.0	0.00	0.00	36.0
2	T1	1277	3.0	0.603	10.2	LOS B	0.0	0.0	0.00	0.00	38.3
Approach		2258	3.0	0.603	10.2	LOS B	0.0	0.0	0.00	0.00	37.3
All Vehicles		3903	3.3	0.757	16.2	LOS B	5.1	130.7	0.34	0.42	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	115	5.0	228	0.501	100	33.1	LOS C	1.6	41.4	Short	115	0.0	NA
Lane 2 ^d	115	5.0	228	0.501	100	33.1	LOS C	1.6	41.4	Full	1600	0.0	0.0
Lane 3	148	5.0	474	0.313	100	12.6	LOS B	1.0	26.0	Full	1600	0.0	0.0
Lane 4	148	5.0	474	0.313	100	12.6	LOS B	1.0	26.0	Short	140	0.0	NA
Approach	526	5.0		0.501		21.5	LOS C	1.6	41.4				
East: STH 21													
Lane 1	383	3.0	506	0.757	100	29.8	LOS C	5.1	130.7	Full	1600	0.0	0.0
Lane 2 ^d	383	3.0	506	0.757	100	29.8	LOS C	5.1	130.7	Full	1600	0.0	0.0
Lane 3	353	3.0	602	0.586	100	17.0	LOS B	3.2	81.8	Short	190	0.0	NA
Approach	1119	3.0		0.757		25.8	LOS C	5.1	130.7				
West: STH 21													
Lane 1	753	3.0	1249	0.603	100	10.2	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 2	753	3.0	1249	0.603	100	10.2	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	753	3.0	1249	0.603	100	10.2	LOS B	0.0	0.0	Full	1600	0.0	0.0
Approach	2258	3.0		0.603		10.2	LOS B	0.0	0.0				
Intersection	3903	3.3		0.757		16.2	LOS B	5.1	130.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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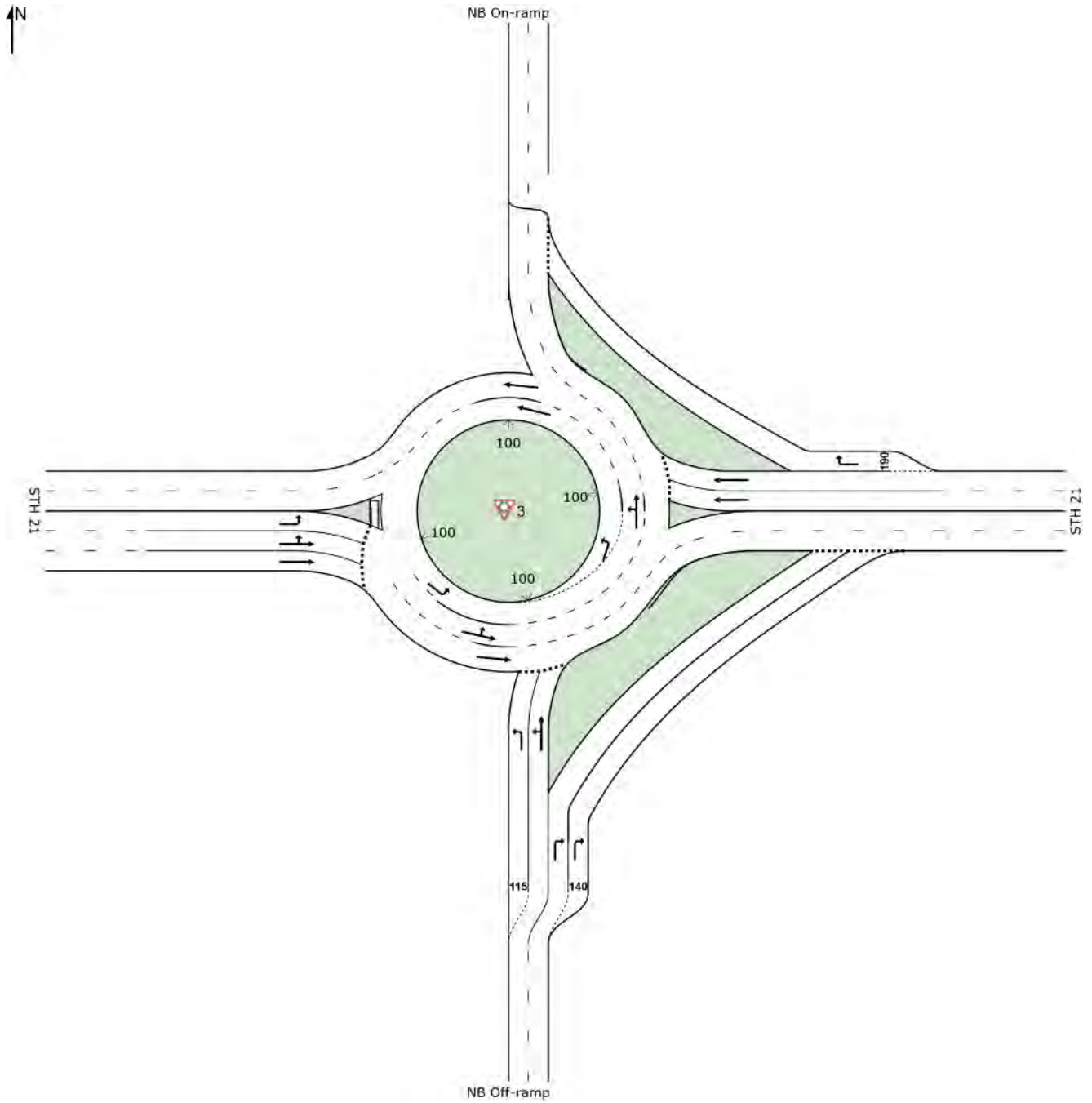
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Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



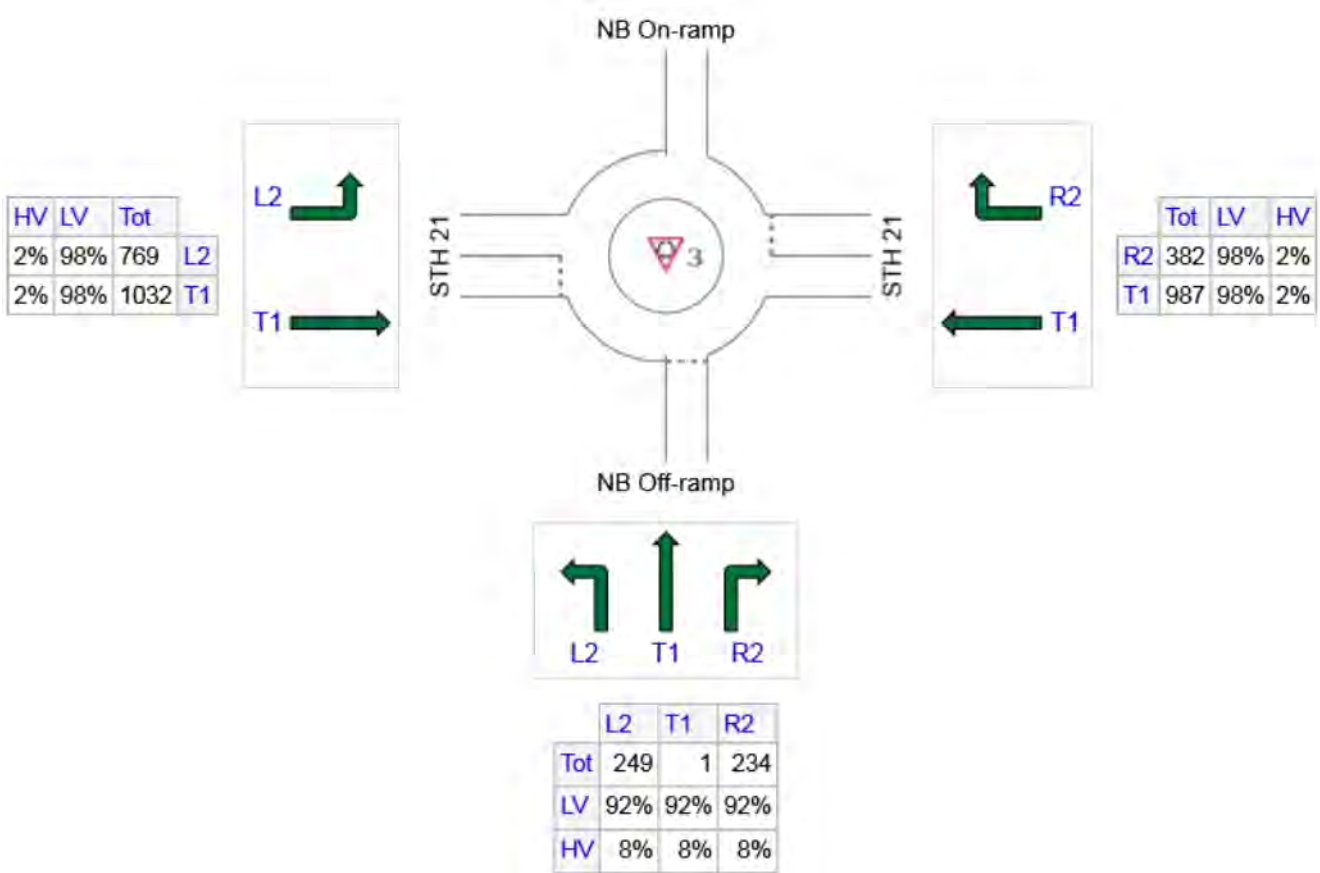
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	484	445	39
E: STH 21	1369	1342	27
W: STH 21	1801	1765	36
Total	3654	3552	102

MOVEMENT SUMMARY

 **Site: 3 [STH 21 & NB Ramps PM - 2025 Total Traffic]**

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	259	8.0	0.435	23.2	LOS C	1.4	36.8	0.83	0.94	26.3
8	T1	1	8.0	0.435	23.2	LOS C	1.4	36.8	0.83	0.94	26.3
18	R2	244	8.0	0.226	9.7	LOS A	0.6	16.8	0.60	0.60	31.8
Approach		504	8.0	0.435	16.7	LOS B	1.4	36.8	0.72	0.78	28.6
East: STH 21											
6	T1	1028	2.0	0.901	43.8	LOS D	10.8	273.8	0.91	1.53	22.4
16	R2	398	2.0	0.570	14.6	LOS B	3.4	85.9	0.67	0.84	30.0
Approach		1426	2.0	0.901	35.7	LOS D	10.8	273.8	0.85	1.34	24.0
West: STH 21											
5	L2	801	2.0	0.496	8.1	LOS A	0.0	0.0	0.00	0.00	36.0
2	T1	1075	2.0	0.496	8.1	LOS A	0.0	0.0	0.00	0.00	38.3
Approach		1876	2.0	0.496	8.1	LOS A	0.0	0.0	0.00	0.00	37.3
All Vehicles		3806	2.8	0.901	19.6	LOS B	10.8	273.8	0.41	0.60	30.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps PM - 2025 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	130	8.0	299	0.435	100	23.2	LOS C	1.4	36.8	Short	115	0.0	NA
Lane 2 ^d	130	8.0	299	0.435	100	23.2	LOS C	1.4	36.8	Full	1600	0.0	0.0
Lane 3	122	8.0	540	0.226	100	9.7	LOS A	0.6	16.8	Full	1600	0.0	0.0
Lane 4	122	8.0	540	0.226	100	9.7	LOS A	0.6	16.8	Short	140	0.0	NA
Approach	504	8.0		0.435		16.7	LOS B	1.4	36.8				
East: STH 21													
Lane 1	514	2.0	570	0.901	100	43.8	LOS D	10.8	273.8	Full	1600	0.0	0.0
Lane 2 ^d	514	2.0	570	0.901	100	43.8	LOS D	10.8	273.8	Full	1600	0.0	0.0
Lane 3	398	2.0	698	0.570	100	14.6	LOS B	3.4	85.9	Short	190	0.0	NA
Approach	1426	2.0		0.901		35.7	LOS D	10.8	273.8				
West: STH 21													
Lane 1	625	2.0	1261	0.496	100	8.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 2	625	2.0	1261	0.496	100	8.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	625	2.0	1261	0.496	100	8.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1876	2.0		0.496		8.1	LOS A	0.0	0.0				
Intersection	3806	2.8		0.901		19.6	LOS B	10.8	273.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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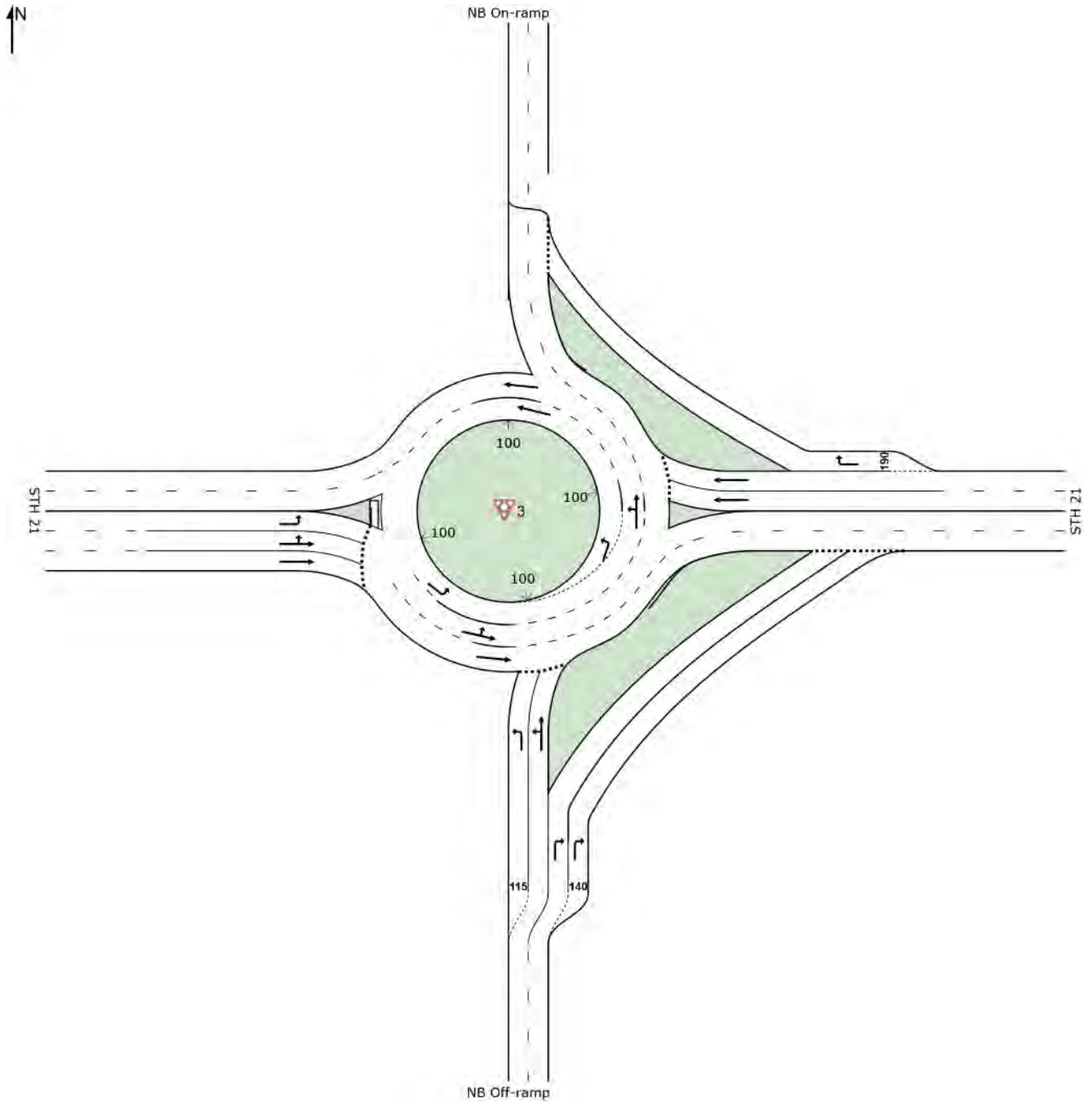
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SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



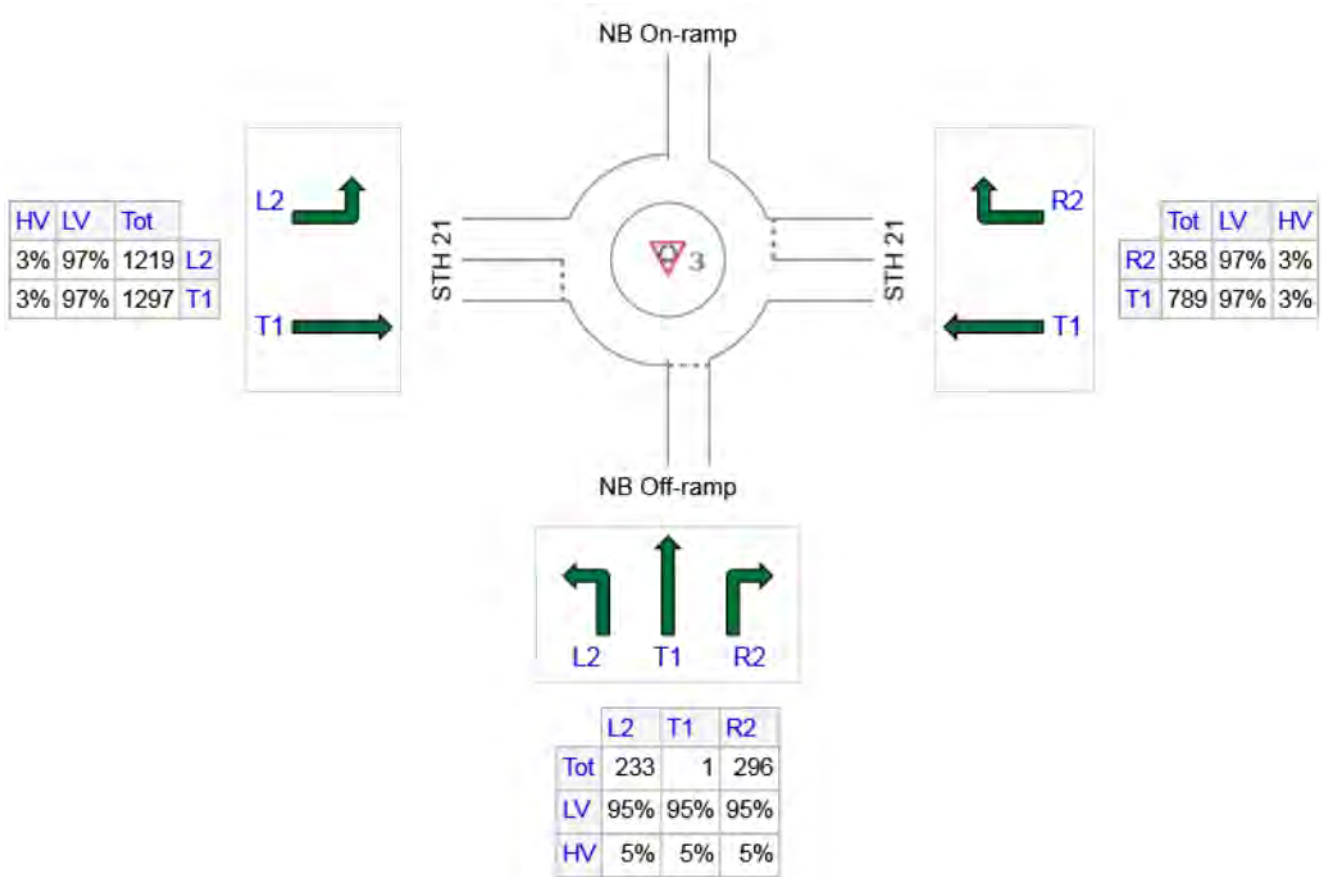
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	530	504	27
E: STH 21	1147	1113	34
W: STH 21	2516	2441	75
Total	4193	4057	136

MOVEMENT SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	251	5.0	0.768	75.2	LOS E	2.9	75.3	0.96	1.22	16.7
8	T1	1	5.0	0.768	75.2	LOS E	2.9	75.3	0.96	1.22	16.7
18	R2	318	5.0	0.367	14.8	LOS B	1.2	32.0	0.74	0.81	29.7
Approach		570	5.0	0.768	41.5	LOS D	2.9	75.3	0.84	0.99	21.9
East: STH 21											
6	T1	848	3.0	1.090	104.8	LOS F	20.8	532.2	1.00	2.37	14.1
16	R2	385	3.0	0.818	37.8	LOS D	6.1	155.6	0.89	1.29	22.9
Approach		1233	3.0	1.090	83.9	LOS F	20.8	532.2	0.97	2.03	16.0
West: STH 21											
5	L2	1311	3.0	0.722	13.6	LOS B	0.0	0.0	0.00	0.00	36.0
2	T1	1395	3.0	0.722	13.6	LOS B	0.0	0.0	0.00	0.00	38.1
Approach		2705	3.0	0.722	13.6	LOS B	0.0	0.0	0.00	0.00	37.1
All Vehicles		4509	3.3	1.090	36.3	LOS D	20.8	532.2	0.37	0.68	25.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps AM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	126	5.0	164	0.768	100	75.2	LOS E	2.9	75.3	Short	115	0.0	NA
Lane 2 ^d	126	5.0	164	0.768	100	75.2	LOS E	2.9	75.3	Full	1600	0.0	0.0
Lane 3	159	5.0	434	0.367	100	14.8	LOS B	1.2	32.0	Full	1600	0.0	0.0
Lane 4	159	5.0	434	0.367	100	14.8	LOS B	1.2	32.0	Short	140	0.0	NA
Approach	570	5.0		0.768		41.5	LOS D	2.9	75.3				
East: STH 21													
Lane 1	424	3.0	389	1.090	100	104.8	LOS F	20.8	532.2	Full	1600	0.0	0.0
Lane 2 ^d	424	3.0	389	1.090	100	104.8	LOS F	20.8	532.2	Full	1600	0.0	0.0
Lane 3	385	3.0	471	0.818	100	37.8	LOS D	6.1	155.6	Short	190	0.0	NA
Approach	1233	3.0		1.090		83.9	LOS F	20.8	532.2				
West: STH 21													
Lane 1	902	3.0	1249	0.722	100	13.6	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 2	902	3.0	1249	0.722	100	13.6	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	902	3.0	1249	0.722	100	13.6	LOS B	0.0	0.0	Full	1600	0.0	0.0
Approach	2705	3.0		0.722		13.6	LOS B	0.0	0.0				
Intersection	4509	3.3		1.090		36.3	LOS D	20.8	532.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

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

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

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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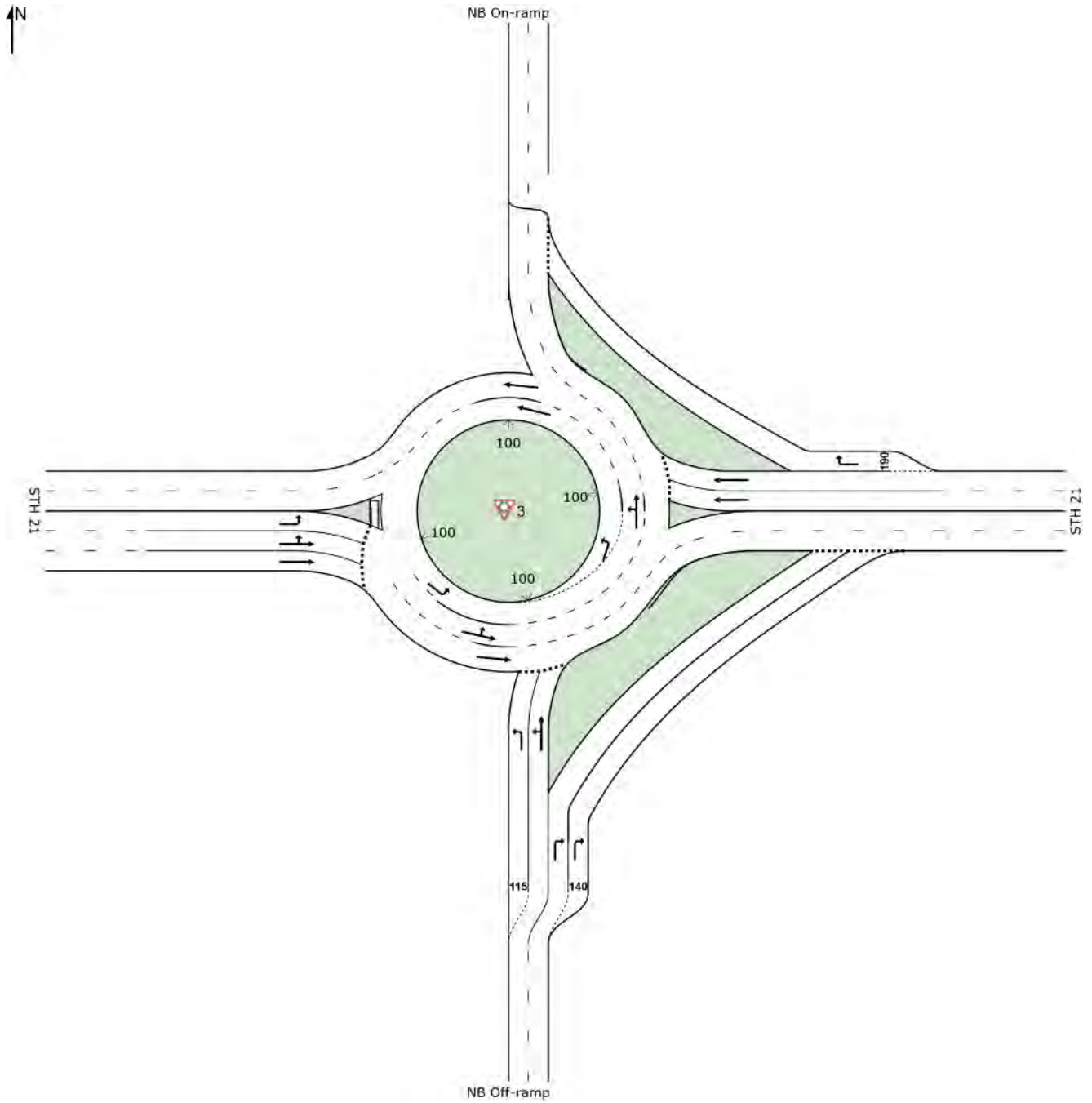
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SITE LAYOUT

 Site: 3 [STH 21 & NB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout



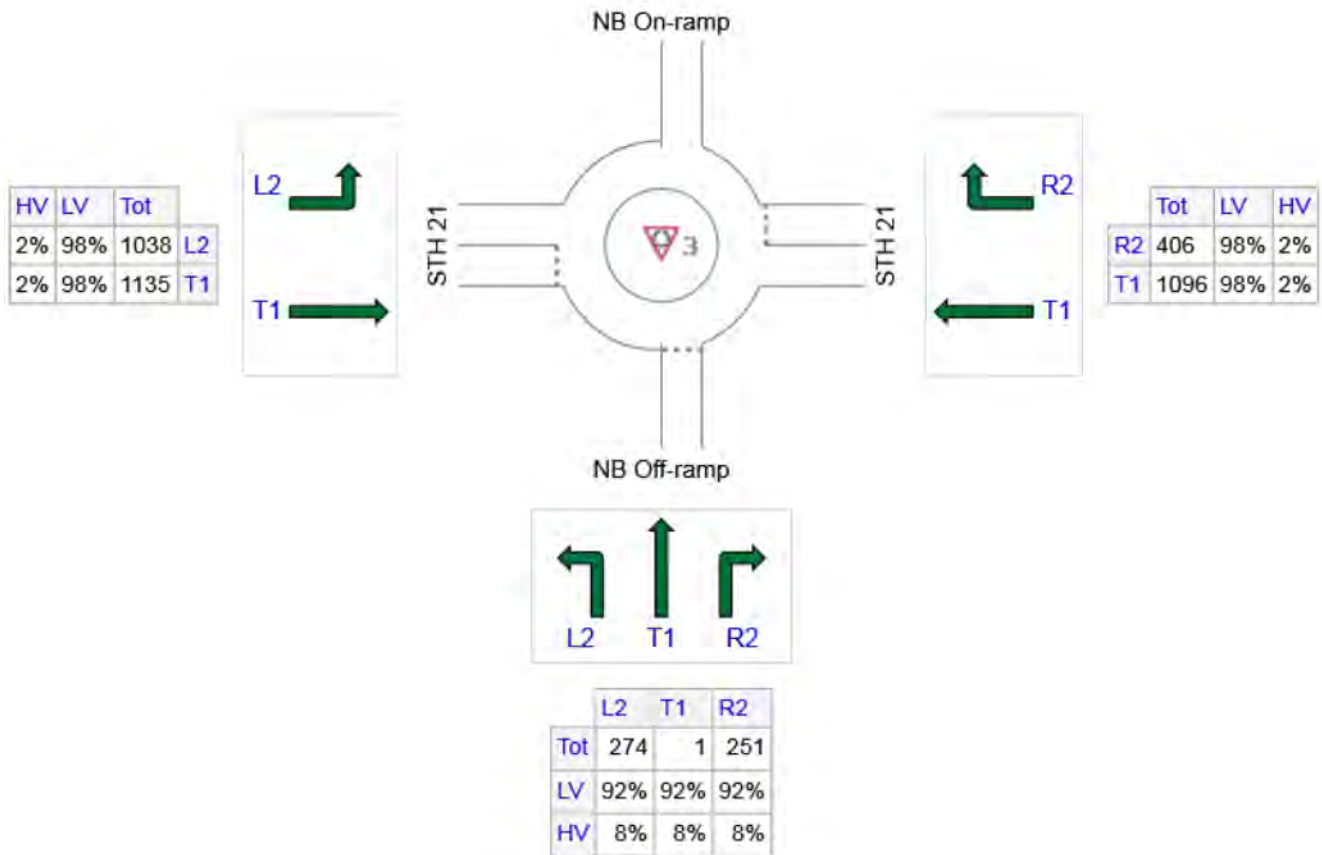
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 3 [STH 21 & NB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: NB Off-ramp	526	484	42
E: STH 21	1502	1472	30
W: STH 21	2173	2130	43
Total	4201	4085	116

MOVEMENT SUMMARY

 Site: 3 [STH 21 & NB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB Off-ramp											
3	L2	285	8.0	0.637	43.6	LOS D	2.2	59.6	0.91	1.10	21.5
8	T1	1	8.0	0.637	43.6	LOS D	2.2	59.6	0.91	1.10	21.4
18	R2	261	8.0	0.262	11.1	LOS B	0.8	20.2	0.65	0.66	31.2
Approach		548	8.0	0.637	28.1	LOS C	2.2	59.6	0.79	0.89	25.1
East: STH 21											
6	T1	1142	2.0	1.255	158.5	LOS F	45.4	1154.3	1.00	3.50	10.6
16	R2	423	2.0	0.744	26.2	LOS C	5.4	136.7	0.82	1.12	25.9
Approach		1565	2.0	1.255	122.7	LOS F	45.4	1154.3	0.95	2.85	12.6
West: STH 21											
5	L2	1081	2.0	0.598	10.0	LOS B	0.0	0.0	0.00	0.00	36.1
2	T1	1182	2.0	0.598	10.0	LOS B	0.0	0.0	0.00	0.00	38.2
Approach		2264	2.0	0.598	10.0	LOS B	0.0	0.0	0.00	0.00	37.1
All Vehicles		4376	2.8	1.255	52.6	LOS D	45.4	1154.3	0.44	1.13	21.2

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

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LANE SUMMARY

 Site: 3 [STH 21 & NB Ramps PM - 2045 Total Traffic]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB Off-ramp													
Lane 1	143	8.0	225	0.637	100	43.6	LOS D	2.2	59.6	Short	115	0.0	NA
Lane 2 ^d	143	8.0	225	0.637	100	43.6	LOS D	2.2	59.6	Full	1600	0.0	0.0
Lane 3	131	8.0	499	0.262	100	11.1	LOS B	0.8	20.2	Full	1600	0.0	0.0
Lane 4	131	8.0	499	0.262	100	11.1	LOS B	0.8	20.2	Short	140	0.0	NA
Approach	548	8.0		0.637		28.1	LOS C	2.2	59.6				
East: STH 21													
Lane 1	571	2.0	455	1.255	100	158.5	LOS F	45.4	1154.3	Full	1600	0.0	0.0
Lane 2 ^d	571	2.0	455	1.255	100	158.5	LOS F	45.4	1154.3	Full	1600	0.0	0.0
Lane 3	423	2.0	568	0.744	100	26.2	LOS C	5.4	136.7	Short	190	0.0	NA
Approach	1565	2.0		1.255		122.7	LOS F	45.4	1154.3				
West: STH 21													
Lane 1	755	2.0	1261	0.598	100	10.0	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 2	755	2.0	1261	0.598	100	10.0	LOS B	0.0	0.0	Full	1600	0.0	0.0
Lane 3 ^d	755	2.0	1261	0.598	100	10.0	LOS B	0.0	0.0	Full	1600	0.0	0.0
Approach	2264	2.0		0.598		10.0	LOS B	0.0	0.0				
Intersection	4376	2.8		1.255		52.6	LOS D	45.4	1154.3				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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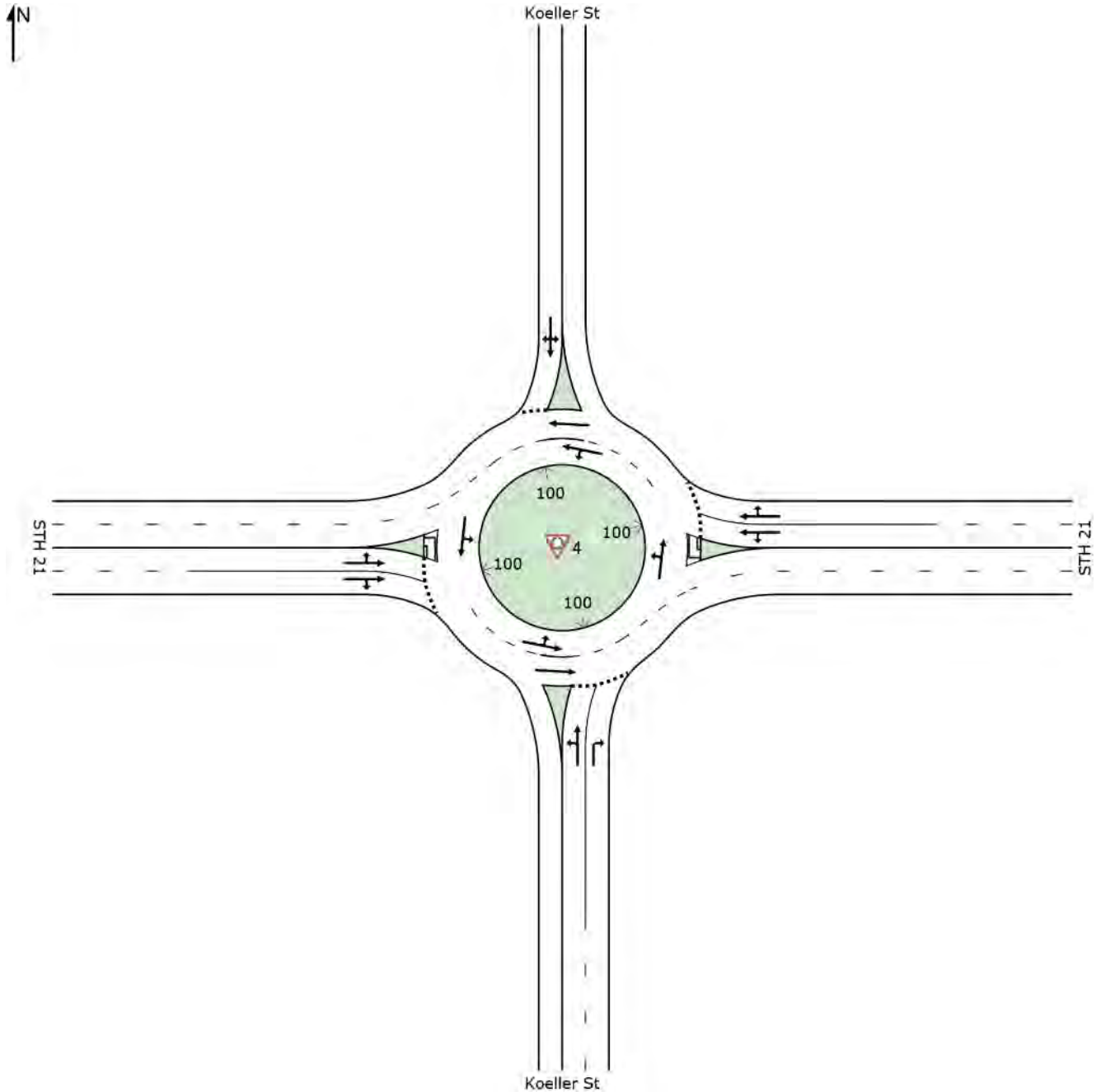
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SITE LAYOUT

Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout



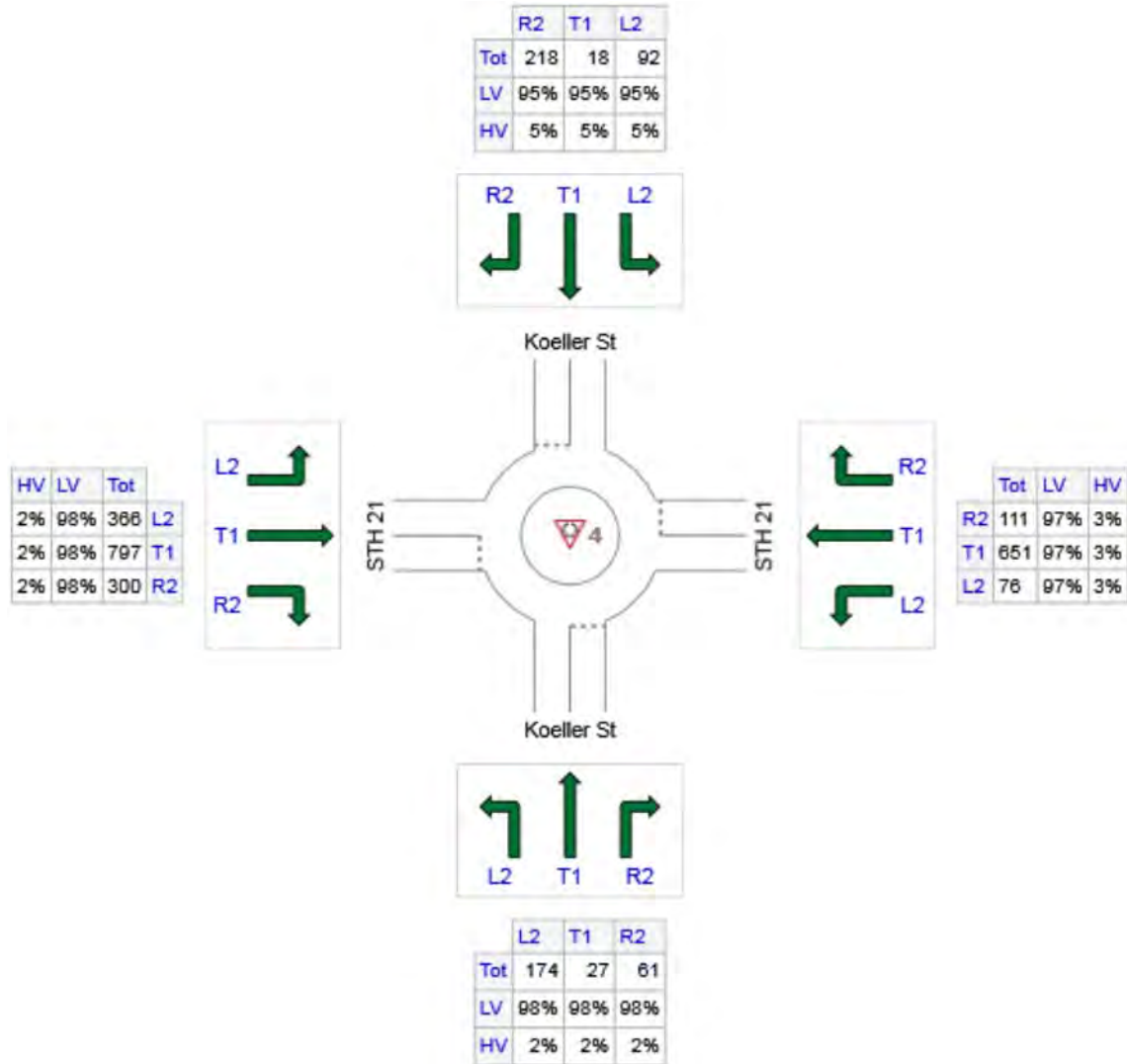
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	262	257	5
E: STH 21	838	813	25
N: Koeller St	328	312	16
W: STH 21	1463	1434	29
Total	2891	2815	76

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	198	2.0	0.519	19.3	LOS B	2.1	54.5	0.79	0.92	27.5
8	T1	31	2.0	0.519	19.3	LOS B	2.1	54.5	0.79	0.92	27.4
18	R2	69	2.0	0.158	10.5	LOS B	0.4	11.1	0.69	0.69	31.4
Approach		298	2.0	0.519	17.2	LOS B	2.1	54.5	0.77	0.87	28.3
East: STH 21											
1	L2	86	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.9
6	T1	740	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.9
16	R2	126	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.3
Approach		952	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.8
North: Koeller St											
7	L2	105	5.0	0.651	20.5	LOS C	3.8	99.9	0.75	0.97	27.9
4	T1	20	5.0	0.651	20.5	LOS C	3.8	99.9	0.75	0.97	27.8
14	R2	248	5.0	0.651	20.5	LOS C	3.8	99.9	0.75	0.97	27.2
Approach		373	5.0	0.651	20.5	LOS C	3.8	99.9	0.75	0.97	27.4
West: STH 21											
5	L2	416	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.4
2	T1	906	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.8
12	R2	341	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.4
Approach		1663	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.6
All Vehicles		3285	2.6	0.783	17.8	LOS B	17.0	431.9	0.73	0.92	28.8

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	228	2.0	440	0.519	100	19.3	LOS B	2.1	54.5	Full	1600	0.0	0.0
Lane 2	69	2.0	440	0.158	100	10.5	LOS B	0.4	11.1	Full	1600	0.0	0.0
Approach	298	2.0		0.519		17.2	LOS B	2.1	54.5				
East: STH 21													
Lane 1	476	3.0	749	0.636	100	16.0	LOS B	4.9	126.4	Full	1600	0.0	0.0
Lane 2 ^d	476	3.0	749	0.636	100	16.0	LOS B	4.9	126.4	Full	1600	0.0	0.0
Approach	952	3.0		0.636		16.0	LOS B	4.9	126.4				
North: Koeller St													
Lane 1 ^d	373	5.0	573	0.651	100	20.5	LOS C	3.8	99.9	Full	1600	0.0	0.0
Approach	373	5.0		0.651		20.5	LOS C	3.8	99.9				
West: STH 21													
Lane 1	831	2.0	1062	0.783	100	18.3	LOS B	17.0	431.9	Full	1600	0.0	0.0
Lane 2 ^d	831	2.0	1062	0.783	100	18.3	LOS B	17.0	431.9	Full	1600	0.0	0.0
Approach	1663	2.0		0.783		18.3	LOS B	17.0	431.9				
Intersection	3285	2.6		0.783		17.8	LOS B	17.0	431.9				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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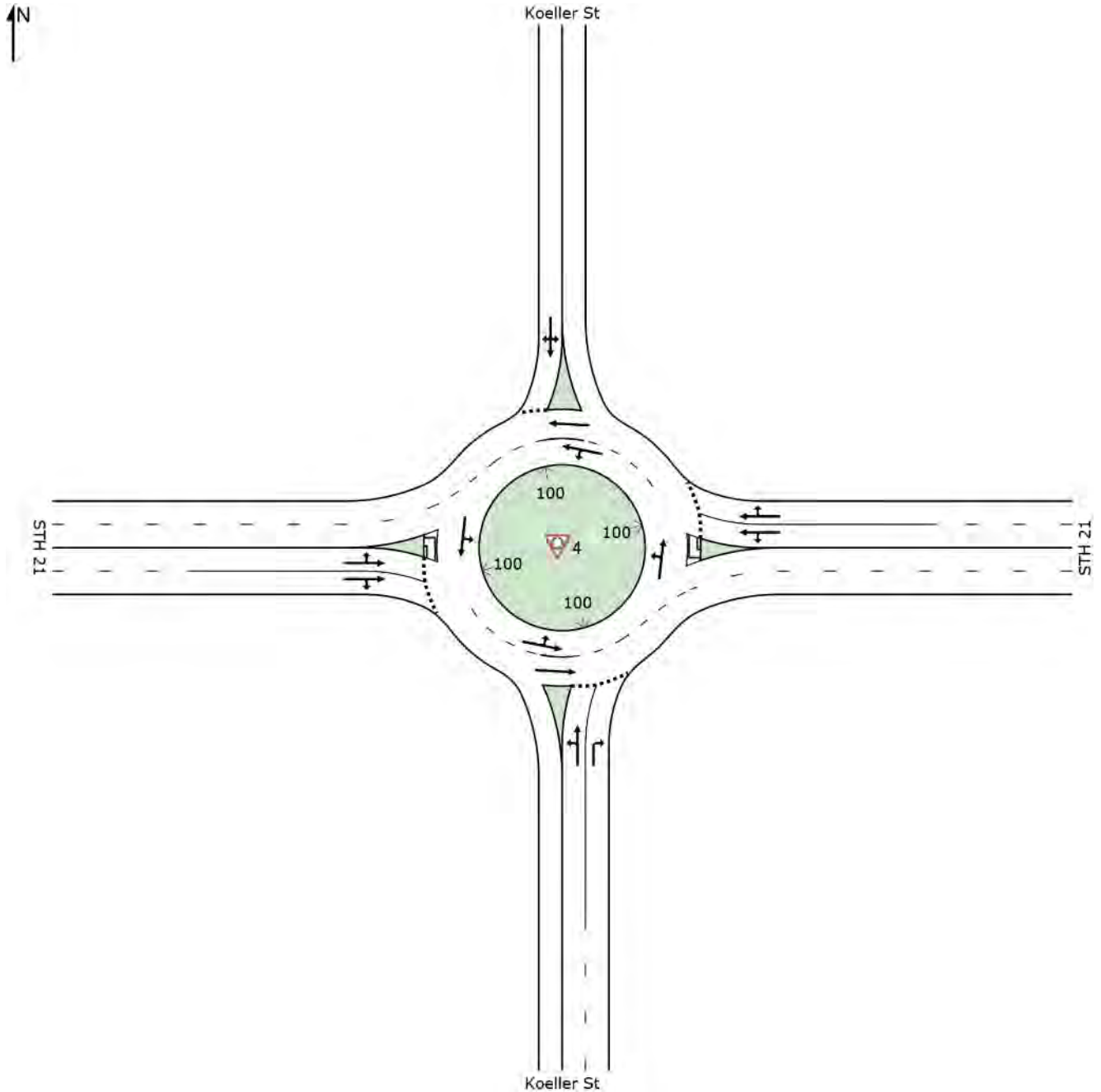
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Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout



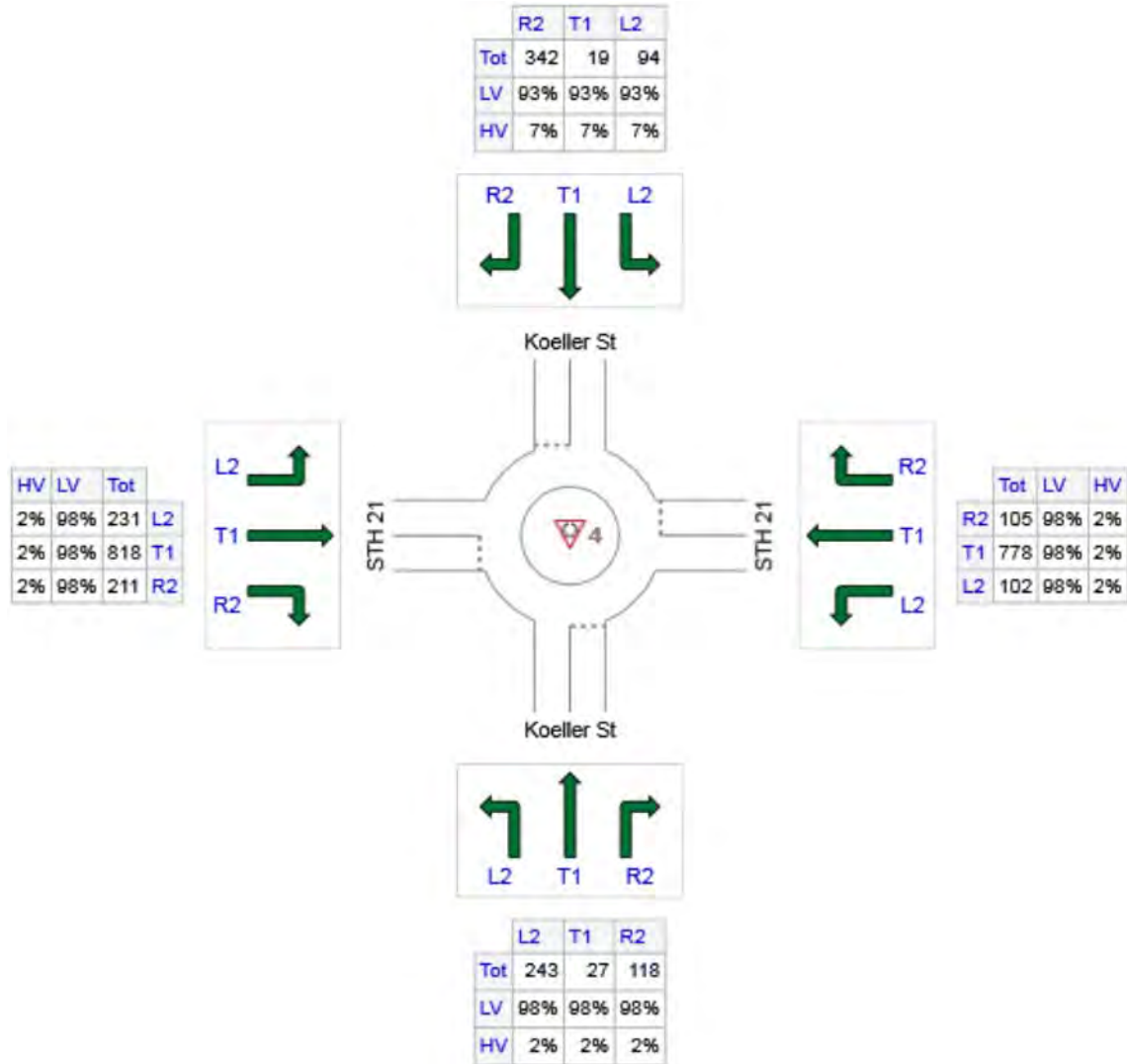
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	388	380	8
E: STH 21	985	965	20
N: Koeller St	455	423	32
W: STH 21	1260	1235	25
Total	3088	3003	85

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	248	2.0	0.518	16.4	LOS B	2.3	59.5	0.74	0.87	28.4
8	T1	28	2.0	0.518	16.4	LOS B	2.3	59.5	0.74	0.87	28.3
18	R2	120	2.0	0.226	9.9	LOS A	0.7	16.9	0.64	0.64	31.7
Approach		396	2.0	0.518	14.4	LOS B	2.3	59.5	0.71	0.80	29.3
East: STH 21											
1	L2	104	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.9
6	T1	794	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	31.0
16	R2	107	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.3
Approach		1005	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.9
North: Koeller St											
7	L2	96	7.0	0.898	46.4	LOS D	9.6	254.0	0.89	1.53	21.2
4	T1	19	7.0	0.898	46.4	LOS D	9.6	254.0	0.89	1.53	21.1
14	R2	349	7.0	0.898	46.4	LOS D	9.6	254.0	0.89	1.53	20.7
Approach		464	7.0	0.898	46.4	LOS D	9.6	254.0	0.89	1.53	20.8
West: STH 21											
5	L2	236	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.3
2	T1	835	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.6
12	R2	215	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.0
Approach		1286	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.4
All Vehicles		3151	2.7	0.898	17.7	LOS B	9.6	254.0	0.65	0.80	28.9

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	276	2.0	532	0.518	100	16.4	LOS B	2.3	59.5	Full	1600	0.0	0.0
Lane 2	120	2.0	532	0.226	100	9.9	LOS A	0.7	16.9	Full	1600	0.0	0.0
Approach	396	2.0		0.518		14.4	LOS B	2.3	59.5				
East: STH 21													
Lane 1	503	2.0	840	0.598	100	13.4	LOS B	4.8	121.1	Full	1600	0.0	0.0
Lane 2 ^d	503	2.0	840	0.598	100	13.4	LOS B	4.8	121.1	Full	1600	0.0	0.0
Approach	1005	2.0		0.598		13.4	LOS B	4.8	121.1				
North: Koeller St													
Lane 1 ^d	464	7.0	517	0.898	100	46.4	LOS D	9.6	254.0	Full	1600	0.0	0.0
Approach	464	7.0		0.898		46.4	LOS D	9.6	254.0				
West: STH 21													
Lane 1	643	2.0	1055	0.610	100	11.6	LOS B	5.4	137.0	Full	1600	0.0	0.0
Lane 2 ^d	643	2.0	1055	0.610	100	11.6	LOS B	5.4	137.0	Full	1600	0.0	0.0
Approach	1286	2.0		0.610		11.6	LOS B	5.4	137.0				
Intersection	3151	2.7		0.898		17.7	LOS B	9.6	254.0				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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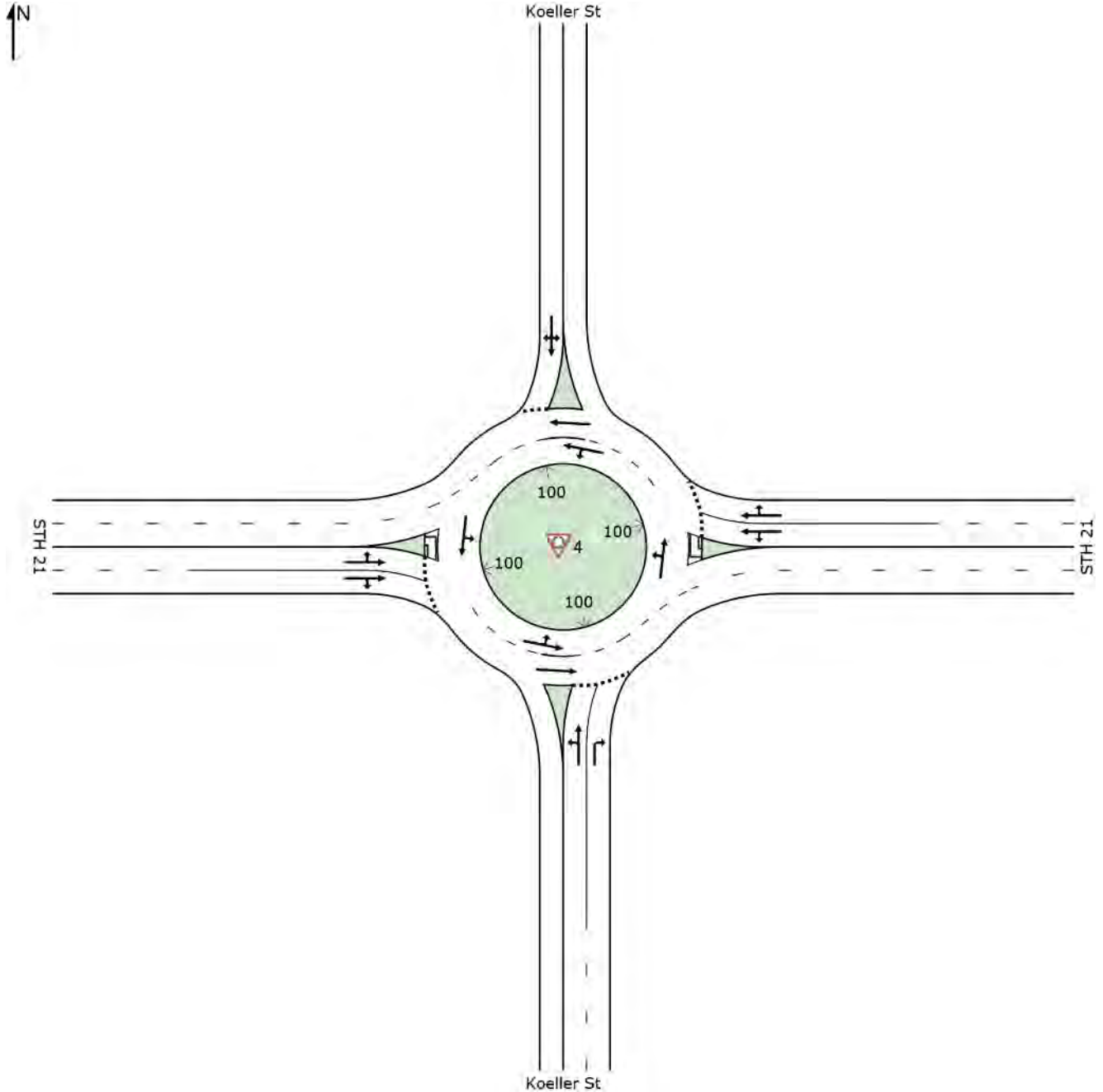
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SITE LAYOUT

Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout



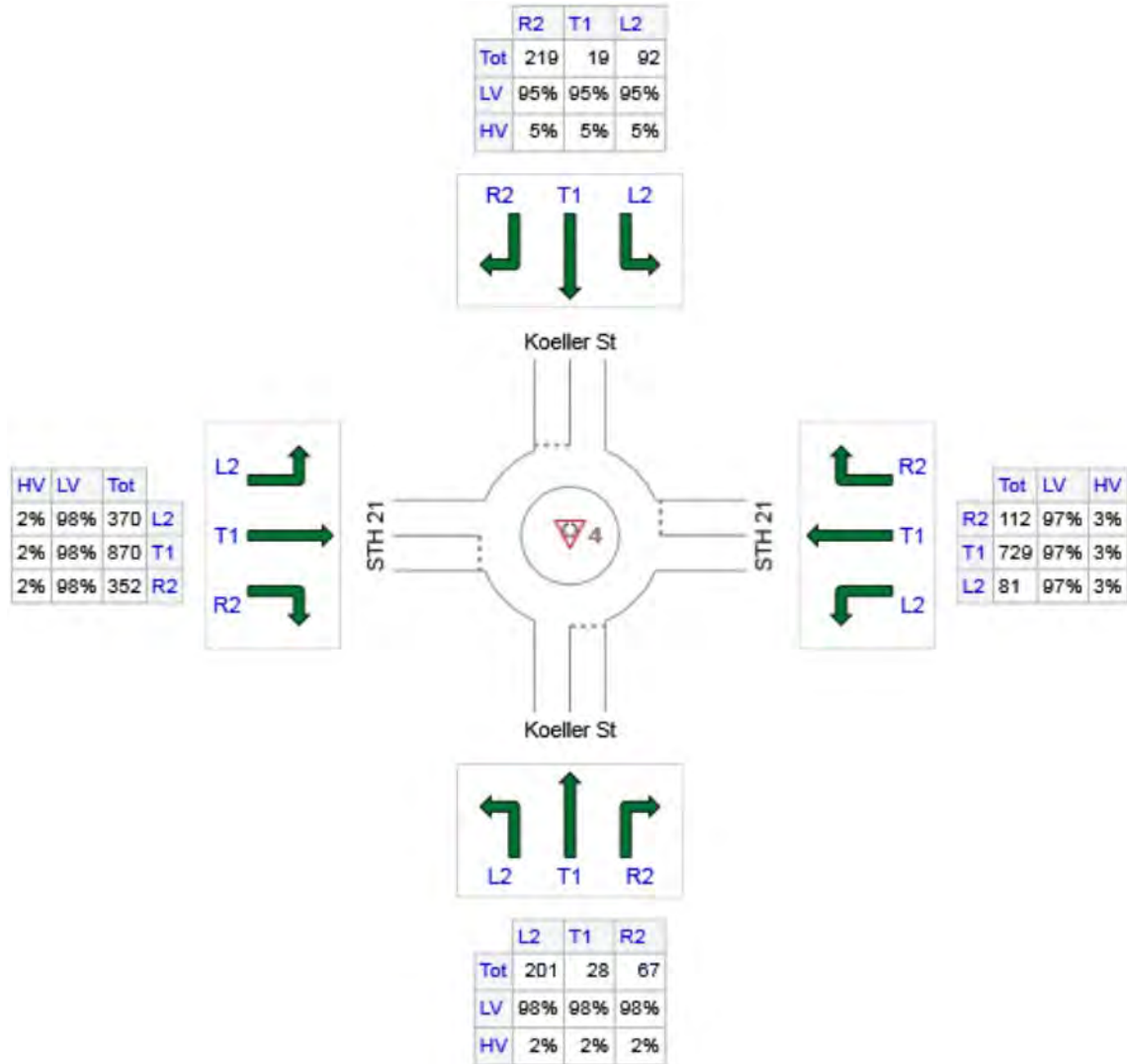
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	296	290	6
E: STH 21	922	894	28
N: Koeller St	330	314	17
W: STH 21	1592	1560	32
Total	3140	3058	82

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	228	2.0	0.631	25.6	LOS C	2.9	74.6	0.84	1.03	25.5
8	T1	32	2.0	0.631	25.6	LOS C	2.9	74.6	0.84	1.03	25.5
18	R2	76	2.0	0.185	11.6	LOS B	0.5	13.0	0.72	0.72	30.9
Approach		336	2.0	0.631	22.5	LOS C	2.9	74.6	0.81	0.96	26.5
East: STH 21											
1	L2	92	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.3
6	T1	828	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.4
16	R2	127	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	27.8
Approach		1048	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.3
North: Koeller St											
7	L2	105	5.0	0.718	26.1	LOS C	4.5	117.7	0.81	1.09	26.1
4	T1	22	5.0	0.718	26.1	LOS C	4.5	117.7	0.81	1.09	26.0
14	R2	249	5.0	0.718	26.1	LOS C	4.5	117.7	0.81	1.09	25.4
Approach		375	5.0	0.718	26.1	LOS C	4.5	117.7	0.81	1.09	25.6
West: STH 21											
5	L2	420	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.7
2	T1	989	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.9
12	R2	400	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.5
Approach		1809	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.8
All Vehicles		3568	2.6	0.856	22.9	LOS C	26.2	666.2	0.84	1.15	27.0

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	260	2.0	413	0.631	100	25.6	LOS C	2.9	74.6	Full	1600	0.0	0.0
Lane 2	76	2.0	413	0.185	100	11.6	LOS B	0.5	13.0	Full	1600	0.0	0.0
Approach	336	2.0		0.631		22.5	LOS C	2.9	74.6				
East: STH 21													
Lane 1	524	3.0	727	0.720	100	20.2	LOS C	6.7	172.3	Full	1600	0.0	0.0
Lane 2 ^d	524	3.0	727	0.720	100	20.2	LOS C	6.7	172.3	Full	1600	0.0	0.0
Approach	1048	3.0		0.720		20.2	LOS C	6.7	172.3				
North: Koeller St													
Lane 1 ^d	375	5.0	522	0.718	100	26.1	LOS C	4.5	117.7	Full	1600	0.0	0.0
Approach	375	5.0		0.718		26.1	LOS C	4.5	117.7				
West: STH 21													
Lane 1	905	2.0	1056	0.856	100	23.9	LOS C	26.2	666.2	Full	1600	0.0	0.0
Lane 2 ^d	905	2.0	1056	0.856	100	23.9	LOS C	26.2	666.2	Full	1600	0.0	0.0
Approach	1809	2.0		0.856		23.9	LOS C	26.2	666.2				
Intersection	3568	2.6		0.856		22.9	LOS C	26.2	666.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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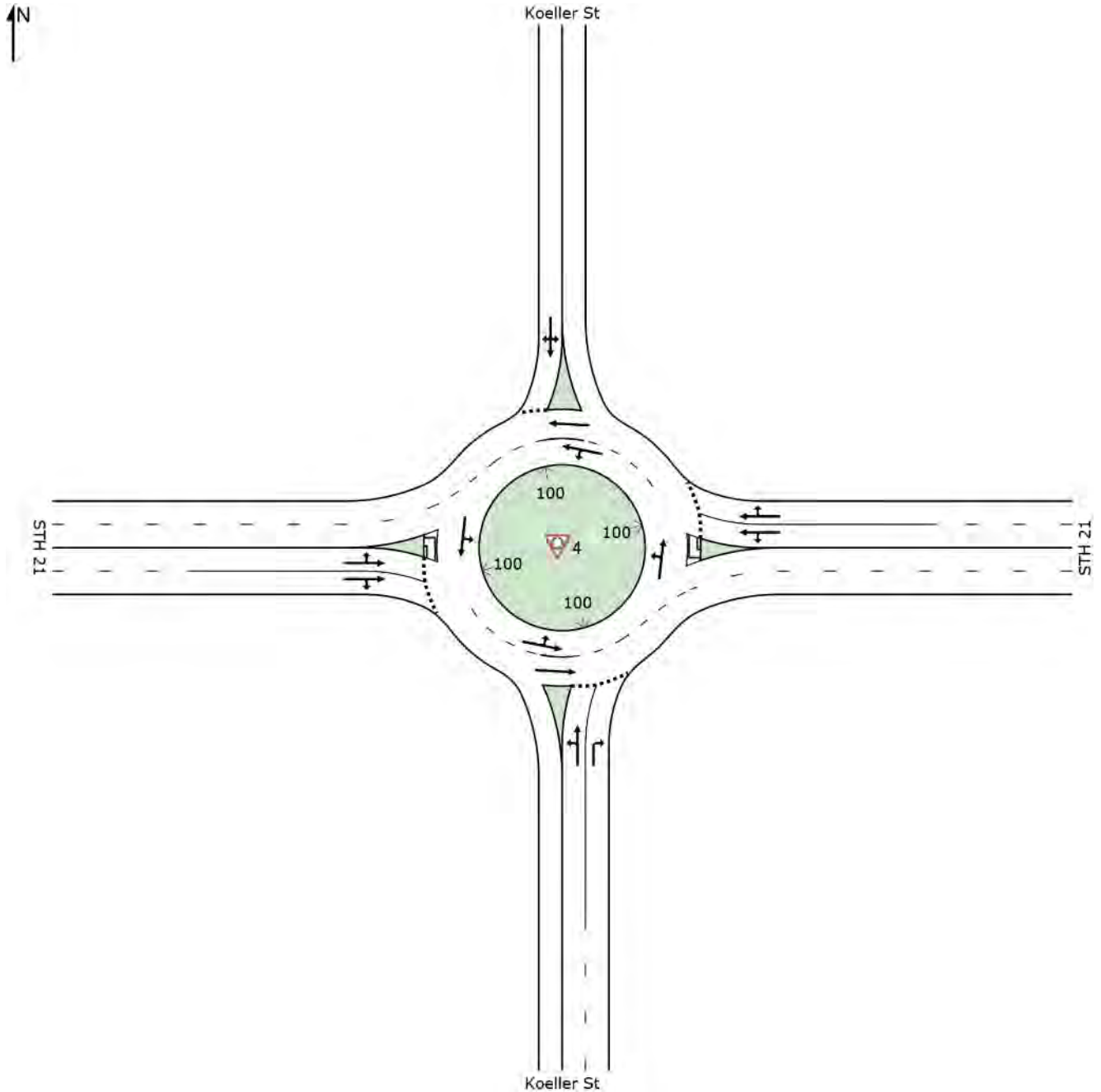
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SITE LAYOUT

 Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout



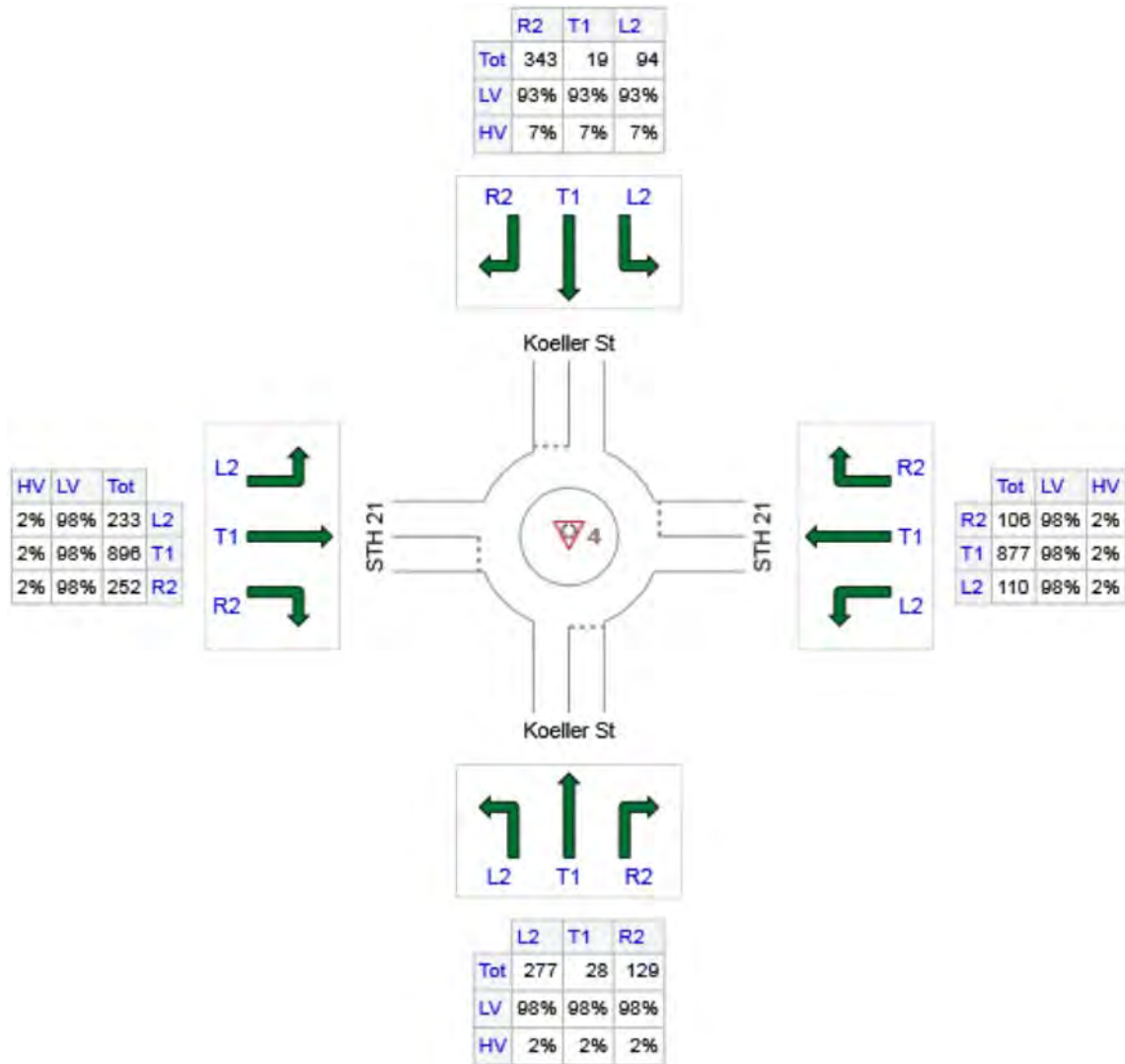
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	434	425	9
E: STH 21	1093	1071	22
N: Koeller St	456	424	32
W: STH 21	1381	1353	28
Total	3364	3274	90

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	283	2.0	0.621	21.3	LOS C	3.2	81.0	0.79	0.98	26.8
8	T1	29	2.0	0.621	21.3	LOS C	3.2	81.0	0.79	0.98	26.7
18	R2	132	2.0	0.263	11.0	LOS B	0.8	20.5	0.67	0.69	31.2
Approach		443	2.0	0.621	18.3	LOS B	3.2	81.0	0.76	0.90	27.9
East: STH 21											
1	L2	112	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.5
6	T1	895	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.6
16	R2	108	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.0
Approach		1115	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.6
North: Koeller St											
7	L2	96	7.0	1.001	72.0	LOS F	15.5	408.9	1.00	2.05	17.1
4	T1	19	7.0	1.001	72.0	LOS F	15.5	408.9	1.00	2.05	17.0
14	R2	350	7.0	1.001	72.0	LOS F	15.5	408.9	1.00	2.05	16.8
Approach		465	7.0	1.001	72.0	LOS E	15.5	408.9	1.00	2.05	16.8
West: STH 21											
5	L2	238	2.0	0.672	13.5	LOS B	8.5	215.3	0.59	0.65	30.5
2	T1	914	2.0	0.672	13.5	LOS B	8.5	215.3	0.59	0.65	30.8
12	R2	257	2.0	0.672	13.5	LOS B	8.5	215.3	0.59	0.65	30.2
Approach		1409	2.0	0.672	13.5	LOS B	8.5	215.3	0.59	0.65	30.6
All Vehicles		3433	2.7	1.001	23.1	LOS C	15.5	408.9	0.72	0.98	27.0

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic Without Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	311	2.0	501	0.621	100	21.3	LOS C	3.2	81.0	Full	1600	0.0	0.0
Lane 2	132	2.0	501	0.263	100	11.0	LOS B	0.8	20.5	Full	1600	0.0	0.0
Approach	443	2.0		0.621		18.3	LOS B	3.2	81.0				
East: STH 21													
Lane 1	558	2.0	816	0.684	100	16.8	LOS B	6.7	169.8	Full	1600	0.0	0.0
Lane 2 ^d	558	2.0	816	0.684	100	16.8	LOS B	6.7	169.8	Full	1600	0.0	0.0
Approach	1115	2.0		0.684		16.8	LOS B	6.7	169.8				
North: Koeller St													
Lane 1 ^d	465	7.0	465	1.001	100	72.0	LOS F	15.5	408.9	Full	1600	0.0	0.0
Approach	465	7.0		1.001		72.0	LOS E	15.5	408.9				
West: STH 21													
Lane 1	705	2.0	1048	0.672	100	13.5	LOS B	8.5	215.3	Full	1600	0.0	0.0
Lane 2 ^d	705	2.0	1048	0.672	100	13.5	LOS B	8.5	215.3	Full	1600	0.0	0.0
Approach	1409	2.0		0.672		13.5	LOS B	8.5	215.3				
Intersection	3433	2.7		1.001		23.1	LOS C	15.5	408.9				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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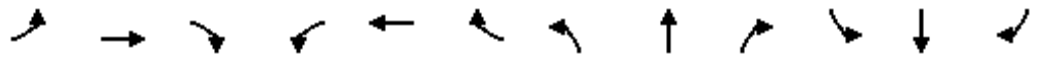
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Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	123	758	69	58	658	82	62	13	35	47	8	98
Future Volume (vph)	123	758	69	58	658	82	62	13	35	47	8	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1048			790			629			389	
Travel Time (s)		23.8			18.0			17.2			10.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1068	0	0	896	0	0	85	39	0	62	110
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	60.5	60.5		60.5	60.5		45.9	45.9	45.9	45.9	45.9	45.9
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	55.0	55.0		55.0	55.0		40.0	40.0	40.0	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		5.5			5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Max	Max		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.57			0.42			0.42	0.14		0.32	0.33
Control Delay		6.8			5.1			37.4	11.5		34.6	9.6

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		6.8			5.1			37.4	11.5		34.6	9.6
Queue Length 50th (ft)		105			73			38	0		27	0
Queue Length 95th (ft)		185			125			79	25		62	40
Internal Link Dist (ft)		968			710			549			309	
Turn Bay Length (ft)												100
Base Capacity (vph)		1882			2109			730	878		706	911
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.57			0.42			0.12	0.04		0.09	0.12

Intersection Summary

Area Type: Other

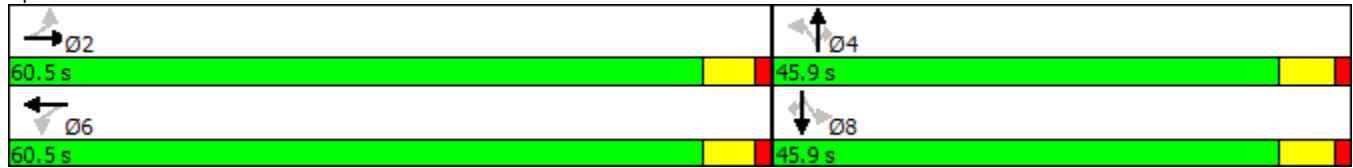
Cycle Length: 106.4

Actuated Cycle Length: 74.3

Natural Cycle: 50

Control Type: Semi Act-Uncoord



















Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

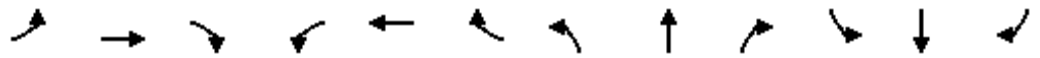
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	758	69	58	658	82	62	13	35	47	8	98
Future Volume (veh/h)	123	758	69	58	658	82	62	13	35	47	8	98
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	852	78	65	739	92	70	15	24	53	9	68
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	278	1674	155	173	1874	231	243	44	206	255	37	206
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	301	2324	216	165	2601	321	1206	339	1583	1287	282	1583
Grp Volume(v), veh/h	468	0	600	431	0	465	85	0	24	62	0	68
Grp Sat Flow(s),veh/h/ln	1183	0	1657	1465	0	1622	1545	0	1583	1569	0	1583
Q Serve(g_s), s	6.9	0.0	12.1	0.4	0.0	8.6	1.1	0.0	1.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	15.5	0.0	12.1	12.5	0.0	8.6	3.5	0.0	1.0	2.4	0.0	3.0
Prop In Lane	0.29		0.13	0.15		0.20	0.82		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	913	0	1194	1110	0	1169	287	0	206	292	0	206
V/C Ratio(X)	0.51	0.00	0.50	0.39	0.00	0.40	0.30	0.00	0.12	0.21	0.00	0.33
Avail Cap(c_a), veh/h	913	0	1194	1110	0	1169	864	0	830	861	0	830
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	0.0	4.7	3.9	0.0	4.2	30.3	0.0	29.3	29.9	0.0	30.2
Incr Delay (d2), s/veh	2.1	0.0	1.5	0.2	0.0	0.2	0.6	0.0	0.2	0.4	0.0	0.9
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(95%),veh/ln	8.9	0.0	9.8	5.9	0.0	6.9	3.0	0.0	0.8	2.2	0.0	2.4
LnGrp Delay(d),s/veh	6.9	0.0	6.2	4.1	0.0	4.4	30.9	0.0	29.6	30.3	0.0	31.1
LnGrp LOS	A		A	A		A	C		C	C		C
Approach Vol, veh/h		1068			896			109			130	
Approach Delay, s/veh		6.5			4.3			30.6			30.7	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.5		15.8		60.5		15.8				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		55.0		40.0		55.0		40.0				
Max Q Clear Time (g_c+I1), s		17.5		5.5		14.5		5.0				
Green Ext Time (p_c), s		21.3		1.2		22.2		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			8.2									
HCM 2010 LOS			A									

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕	↕		↕	↕
Traffic Volume (vph)	113	866	50	38	833	54	73	9	45	74	11	94
Future Volume (vph)	113	866	50	38	833	54	73	9	45	74	11	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1073			790			629			339	
Travel Time (s)		24.4			18.0			17.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1061	0	0	954	0	0	84	46	0	87	97
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	60.5	60.5		60.5	60.5		45.9	45.9	45.9	45.9	45.9	45.9
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	55.0	55.0		55.0	55.0		40.0	40.0	40.0	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		5.5			5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	6.0	6.0	6.0
Recall Mode	Max	Max		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.59			0.44			0.45	0.17		0.46	0.31
Control Delay		7.6			5.7			38.6	11.0		38.9	9.7

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		7.6			5.7			38.6	11.0		38.9	9.7
Queue Length 50th (ft)		103			78			38	0		39	0
Queue Length 95th (ft)		186			135			81	27		82	39
Internal Link Dist (ft)		993			710			549			259	
Turn Bay Length (ft)												100
Base Capacity (vph)		1795			2167			660	837		665	862
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.59			0.44			0.13	0.05		0.13	0.11

Intersection Summary

Area Type: Other

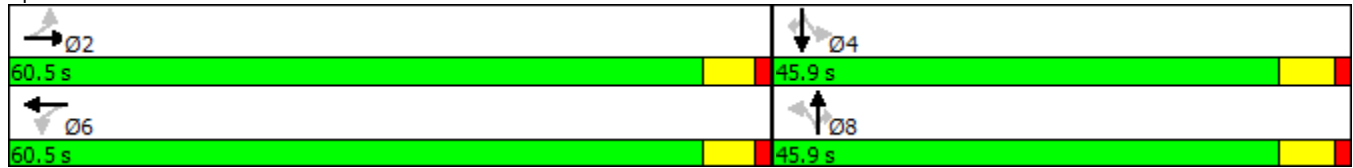
Cycle Length: 106.4

Actuated Cycle Length: 77.7

Natural Cycle: 50

Control Type: Semi Act-Uncoord



















Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2025 Total Traffic - Without Improvements

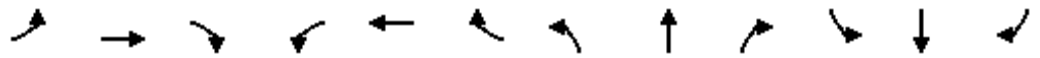
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	866	50	38	833	54	73	9	45	74	11	94
Future Volume (veh/h)	113	866	50	38	833	54	73	9	45	74	11	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	116	893	52	39	859	56	75	9	28	76	11	60
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	1811	106	109	2213	142	265	27	207	260	32	207
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	258	2515	147	81	3072	197	1350	207	1583	1315	244	1583
Grp Volume(v), veh/h	470	0	591	482	0	472	84	0	28	87	0	60
Grp Sat Flow(s),veh/h/ln	1250	0	1669	1689	0	1660	1557	0	1583	1559	0	1583
Q Serve(g_s), s	3.5	0.0	11.7	0.0	0.0	8.5	0.0	0.0	1.2	0.1	0.0	2.6
Cycle Q Clear(g_c), s	12.0	0.0	11.7	7.5	0.0	8.5	3.3	0.0	1.2	3.4	0.0	2.6
Prop In Lane	0.25		0.09	0.08		0.12	0.89		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	959	0	1202	1268	0	1196	292	0	207	292	0	207
V/C Ratio(X)	0.49	0.00	0.49	0.38	0.00	0.39	0.29	0.00	0.14	0.30	0.00	0.29
Avail Cap(c_a), veh/h	959	0	1202	1268	0	1196	857	0	829	860	0	829
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	4.6	4.0	0.0	4.2	30.3	0.0	29.4	30.3	0.0	30.0
Incr Delay (d2), s/veh	1.8	0.0	1.4	0.2	0.0	0.2	0.5	0.0	0.3	0.6	0.0	0.8
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(95%),veh/ln	8.2	0.0	9.7	6.9	0.0	7.0	3.0	0.0	1.0	3.1	0.0	2.1
LnGrp Delay(d),s/veh	6.0	0.0	6.1	4.2	0.0	4.4	30.8	0.0	29.7	30.9	0.0	30.8
LnGrp LOS	A		A	A		A	C		C	C		C
Approach Vol, veh/h		1061			954			112			147	
Approach Delay, s/veh		6.0			4.3			30.5			30.9	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.5		15.9		60.5		15.9				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		55.0		40.0		55.0		40.0				
Max Q Clear Time (g_c+I1), s		14.0		5.4		10.5		5.3				
Green Ext Time (p_c), s		22.6		1.4		23.5		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			8.1									
HCM 2010 LOS			A									

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - Without Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕		↕	↕
Traffic Volume (vph)	123	821	73	63	717	82	64	13	36	47	8	98
Future Volume (vph)	123	821	73	63	717	82	64	13	36	47	8	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1048			790			629			389	
Travel Time (s)		23.8			18.0			17.2			10.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1142	0	0	969	0	0	87	40	0	62	110
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	60.5	60.5		60.5	60.5		45.9	45.9	45.9	45.9	45.9	45.9
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	55.0	55.0		55.0	55.0		40.0	40.0	40.0	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		5.5			5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Max	Max		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.61			0.47			0.43	0.15		0.32	0.33
Control Delay		7.6			5.6			37.6	11.4		34.5	9.6

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - Without Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		7.6			5.6			37.6	11.4		34.5	9.6
Queue Length 50th (ft)		120			83			39	0		27	0
Queue Length 95th (ft)		215			145			81	25		62	40
Internal Link Dist (ft)		968			710			549			309	
Turn Bay Length (ft)												100
Base Capacity (vph)		1859			2058			728	878		705	910
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.61			0.47			0.12	0.05		0.09	0.12

Intersection Summary

Area Type: Other

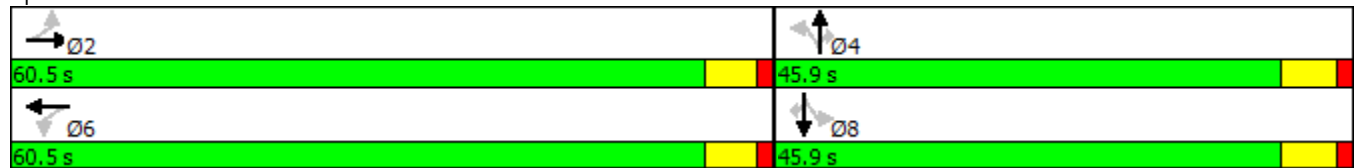
Cycle Length: 106.4

Actuated Cycle Length: 74.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord



















Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2045 Total Traffic - Without Improvements



















AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	821	73	63	717	82	64	13	36	47	8	98
Future Volume (veh/h)	123	821	73	63	717	82	64	13	36	47	8	98
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	922	82	71	806	92	72	15	24	53	9	68
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	256	1683	153	169	1845	211	244	43	206	255	37	206
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	272	2337	212	158	2561	293	1213	331	1583	1290	283	1583
Grp Volume(v), veh/h	500	0	642	459	0	510	87	0	24	62	0	68
Grp Sat Flow(s),veh/h/ln	1162	0	1658	1386	0	1627	1544	0	1583	1572	0	1583
Q Serve(g_s), s	8.3	0.0	13.5	1.4	0.0	9.7	1.2	0.0	1.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	18.0	0.0	13.5	14.9	0.0	9.7	3.6	0.0	1.0	2.4	0.0	3.0
Prop In Lane	0.28		0.13	0.15		0.18	0.83		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	898	0	1194	1053	0	1172	287	0	206	292	0	206
V/C Ratio(X)	0.56	0.00	0.54	0.44	0.00	0.44	0.30	0.00	0.12	0.21	0.00	0.33
Avail Cap(c_a), veh/h	898	0	1194	1053	0	1172	863	0	830	861	0	830
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.1	0.0	4.9	4.0	0.0	4.3	30.4	0.0	29.3	29.9	0.0	30.2
Incr Delay (d2), s/veh	2.5	0.0	1.7	0.3	0.0	0.3	0.6	0.0	0.2	0.4	0.0	0.9
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(95%),veh/ln	9.9	0.0	10.9	6.6	0.0	7.7	3.1	0.0	0.8	2.2	0.0	2.4
LnGrp Delay(d),s/veh	7.6	0.0	6.6	4.3	0.0	4.6	31.0	0.0	29.6	30.3	0.0	31.1
LnGrp LOS	A		A	A		A	C		C	C		C
Approach Vol, veh/h		1142			969			111			130	
Approach Delay, s/veh		7.1			4.5			30.7			30.7	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.5		15.8		60.5		15.8				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		55.0		40.0		55.0		40.0				
Max Q Clear Time (g_c+I1), s		20.0		5.6		16.9		5.0				
Green Ext Time (p_c), s		22.5		1.2		23.8		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - Without Improvements

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	937	53	41	912	54	75	9	47	74	11	94
Future Volume (vph)	113	937	53	41	912	54	75	9	47	74	11	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1073			790			629			339	
Travel Time (s)		24.4			18.0			17.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1137	0	0	1038	0	0	86	48	0	87	97
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	60.5	60.5		60.5	60.5		45.9	45.9	45.9	45.9	45.9	45.9
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	55.0	55.0		55.0	55.0		40.0	40.0	40.0	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		5.5			5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	6.0	6.0	6.0
Recall Mode	Max	Max		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.63			0.48			0.51	0.19		0.51	0.33
Control Delay		8.0			5.8			41.4	11.2		41.3	10.1

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - Without Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		8.0			5.8			41.4	11.2		41.3	10.1
Queue Length 50th (ft)		117			88			39	0		39	0
Queue Length 95th (ft)		214			155			82	28		82	39
Internal Link Dist (ft)		993			710			549			259	
Turn Bay Length (ft)												100
Base Capacity (vph)		1800			2177			668	849		674	872
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			0	0		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.63			0.48			0.13	0.06		0.13	0.11

Intersection Summary

Area Type: Other

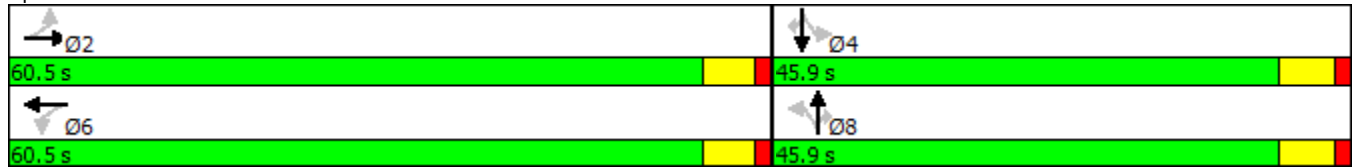
Cycle Length: 106.4

Actuated Cycle Length: 76.7

Natural Cycle: 55

Control Type: Semi Act-Uncoord



















Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

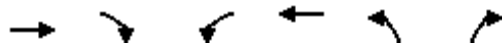
2045 Total Traffic - Without Improvements

PM Peak

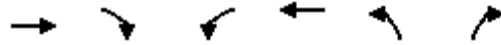
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	937	53	41	912	54	75	9	47	74	11	94
Future Volume (veh/h)	113	937	53	41	912	54	75	9	47	74	11	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	116	966	55	42	940	56	77	9	29	76	11	60
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	1914	109	112	2315	136	226	16	146	222	19	146
Arrive On Green	0.75	0.75	0.75	0.75	0.75	0.75	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	239	2546	145	79	3079	180	1442	169	1583	1405	210	1583
Grp Volume(v), veh/h	502	0	635	522	0	516	86	0	29	87	0	60
Grp Sat Flow(s),veh/h/ln	1260	0	1670	1675	0	1663	1611	0	1583	1615	0	1583
Q Serve(g_s), s	1.1	0.0	11.1	0.0	0.0	8.2	0.0	0.0	1.2	0.0	0.0	2.6
Cycle Q Clear(g_c), s	9.3	0.0	11.1	7.1	0.0	8.2	3.4	0.0	1.2	3.4	0.0	2.6
Prop In Lane	0.23		0.09	0.08		0.11	0.90		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	1008	0	1255	1313	0	1251	242	0	146	241	0	146
V/C Ratio(X)	0.50	0.00	0.51	0.40	0.00	0.41	0.36	0.00	0.20	0.36	0.00	0.41
Avail Cap(c_a), veh/h	1008	0	1255	1313	0	1251	894	0	866	898	0	866
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	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.1	0.0	3.6	3.1	0.0	3.3	31.7	0.0	30.7	31.7	0.0	31.3
Incr Delay (d2), s/veh	1.8	0.0	1.5	0.2	0.0	0.2	0.9	0.0	0.7	0.9	0.0	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(95%),veh/ln	6.9	0.0	9.3	6.4	0.0	6.6	3.1	0.0	1.0	3.1	0.0	2.2
LnGrp Delay(d),s/veh	4.9	0.0	5.1	3.3	0.0	3.5	32.5	0.0	31.4	32.6	0.0	33.2
LnGrp LOS	A		A	A		A	C		C	C		C
Approach Vol, veh/h		1137			1038			115			147	
Approach Delay, s/veh		5.0			3.4			32.2			32.8	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.5		12.6		60.5		12.6				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		55.0		40.0		55.0		40.0				
Max Q Clear Time (g_c+I1), s		13.1		5.4		10.2		5.4				
Green Ext Time (p_c), s		25.5		1.4		26.6		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay				7.3								
HCM 2010 LOS				A								

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - Without Improvements
AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	750	128	0	612	178	0	
Future Volume (vph)	750	128	0	612	178	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	997	0	0	695	202	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	50.0				19.0		21.0
Total Split (%)	55.6%				21.1%		23%
Maximum Green (s)	45.0				14.0		16.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.57			0.27	0.74		
Control Delay	16.8			4.3	26.8		

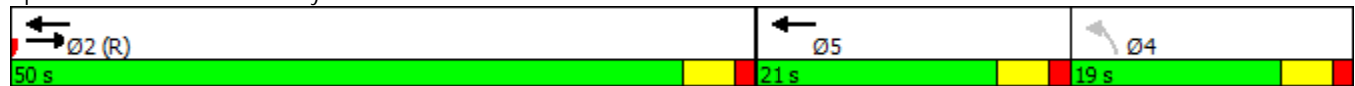


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.6	0.0		
Total Delay	16.8			4.9	26.8		
Queue Length 50th (ft)	192			56	6		
Queue Length 95th (ft)	243			74	m#70		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1746			2570	272		
Starvation Cap Reductn	0			1405	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.57			0.60	0.74		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

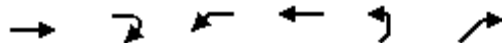
Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

2025 Total Traffic - Without Improvements

AM Peak

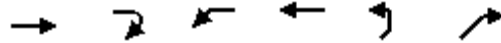


Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	750	0	190	612	0	172	
Future Volume (vph)	750	0	190	612	0	172	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	852	0	216	695	0	195	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		15.0			15.0	
Total Split (s)	50.0		19.0			21.0	
Total Split (%)	55.6%		21.1%			23%	
Maximum Green (s)	45.5		14.5			16.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.48		0.39	0.20		0.12	
Control Delay	2.8		36.3	0.1		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2025 Total Traffic - Without Improvements

AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.2		0.0	0.0		0.0	
Total Delay	2.9		36.3	0.1		0.2	
Queue Length 50th (ft)	14		57	0		0	
Queue Length 95th (ft)	16		89	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1789		547	3505		1596	
Starvation Cap Reductn	247		0	0		0	
Spillback Cap Reductn	0		0	83		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.55		0.39	0.20		0.12	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Total Traffic - Without Improvements

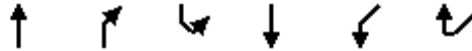
AM Peak

	↑	↗	↖	↓	↙	↘	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↗	
Traffic Volume (vph)	178	172	0	128	190	0	
Future Volume (vph)	178	172	0	128	190	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	202	195	0	145	216	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	15.0				15.0		22.5
Total Split (s)	19.0				21.0		50.0
Total Split (%)	21.1%				23.3%		56%
Maximum Green (s)	14.5				16.5		45.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.68	0.12		0.11	0.35		
Control Delay	48.5	0.2		1.1	4.0		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Total Traffic - Without Improvements

AM Peak



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.3	0.0		1.1	0.1		
Total Delay	48.8	0.2		2.2	4.1		
Queue Length 50th (ft)	110	0		4	2		
Queue Length 95th (ft)	#191	0		6	3		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	297	1568		1335	623		
Starvation Cap Reductn	0	0		994	46		
Spillback Cap Reductn	6	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.69	0.12		0.43	0.37		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	221	242	106	102	60
Average Queue (ft)	134	156	57	43	47
95th Queue (ft)	203	231	92	93	70
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	0	1	3	2	52
Queuing Penalty (veh)	1	3	10	5	93
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	R
Maximum Queue (ft)	55	58	90	102	24	78
Average Queue (ft)	9	17	46	43	1	12
95th Queue (ft)	36	46	82	84	14	47
Link Distance (ft)	64	64	2124	2124		78
Upstream Blk Time (%)	0	0				0
Queuing Penalty (veh)	1	1				0
Storage Bay Dist (ft)					225	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	413	57	56	33	41
Average Queue (ft)	181	3	16	6	5
95th Queue (ft)	379	29	47	22	24
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			1		
Queuing Penalty (veh)			2		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

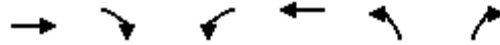
Zone Summary

Zone wide Queuing Penalty: 117

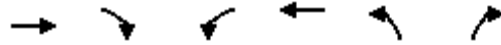
Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - Without Improvements

PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	807	168	0	768	144	0	
Future Volume (vph)	807	168	0	768	144	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	994	0	0	784	147	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	40.0				26.0		24.0
Total Split (%)	44.4%				28.9%		27%
Maximum Green (s)	35.0				21.0		19.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.74			0.34	0.36		
Control Delay	26.8			7.3	5.7		

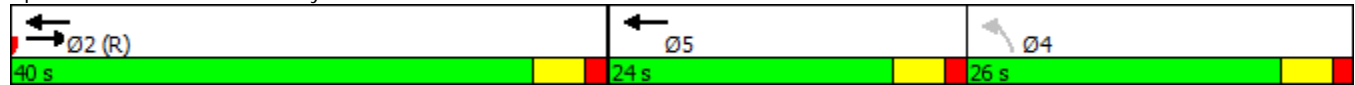


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.8	0.8		
Total Delay	26.8			8.2	6.5		
Queue Length 50th (ft)	242			92	4		
Queue Length 95th (ft)	317			122	7		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1347			2320	413		
Starvation Cap Reductn	0			1159	103		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.74			0.68	0.47		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

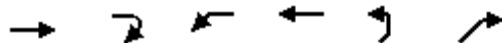
Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

2025 Total Traffic - Without Improvements

PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	807	0	213	768	0	263	
Future Volume (vph)	807	0	213	768	0	263	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	823	0	217	784	0	268	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		22.5			22.5	
Total Split (s)	40.0		26.0			24.0	
Total Split (%)	44.4%		28.9%			27%	
Maximum Green (s)	35.5		21.5			19.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.60		0.26	0.22		0.17	
Control Delay	3.9		28.9	0.1		0.2	

Lanes, Volumes, Timings
 3: Connector & STH 21

2025 Total Traffic - Without Improvements

PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.5		0.0	0.0		0.0	
Total Delay	4.4		28.9	0.2		0.2	
Queue Length 50th (ft)	15		52	0		0	
Queue Length 95th (ft)	17		82	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1382		820	3539		1611	
Starvation Cap Reductn	215		0	0		0	
Spillback Cap Reductn	0		0	454		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.71		0.26	0.25		0.17	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Total Traffic - Without Improvements

PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↘	
Traffic Volume (vph)	144	263	0	168	213	0	
Future Volume (vph)	144	263	0	168	213	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	147	268	0	171	217	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	22.5				22.5		22.5
Total Split (s)	24.0				26.0		40.0
Total Split (%)	26.7%				28.9%		44%
Maximum Green (s)	19.5				21.5		35.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)	7.0				7.0		7.0
Flash Dont Walk (s)	11.0				11.0		11.0
Pedestrian Calls (#/hr)	0				0		0
v/c Ratio	0.36	0.17		0.14	0.26		
Control Delay	33.1	0.2		1.4	4.6		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2025 Total Traffic - Without Improvements

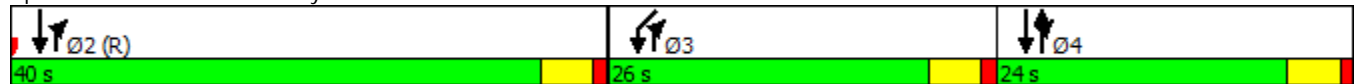
PM Peak

	↑	↗	↘	↓	↙	↖	Ø2
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		2.1	0.2		
Total Delay	33.1	0.2		3.4	4.8		
Queue Length 50th (ft)	72	0		5	4		
Queue Length 95th (ft)	127	0		m6	6		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	403	1583		1231	820		
Starvation Cap Reductn	0	0		922	197		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.36	0.17		0.55	0.35		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	250	262	144	154	59
Average Queue (ft)	185	207	92	93	21
95th Queue (ft)	258	276	134	158	55
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	2	6	13	9	10
Queuing Penalty (veh)	12	27	50	35	14
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	54	64	96	106	12	20	104
Average Queue (ft)	14	17	45	47	0	1	24
95th Queue (ft)	44	49	80	89	6	10	71
Link Distance (ft)	64	64	2124	2124			78
Upstream Blk Time (%)	0	1					1
Queuing Penalty (veh)	0	3					2
Storage Bay Dist (ft)					225	225	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	171	12	62	25	33
Average Queue (ft)	82	1	23	7	6
95th Queue (ft)	147	9	57	22	25
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			3		
Queuing Penalty (veh)			6		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

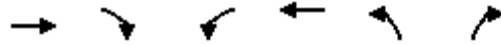
Zone Summary

Zone wide Queuing Penalty: 149

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - Without Improvements

AM Peak

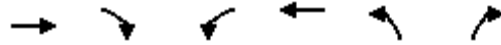


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	806	138	0	654	198	0	
Future Volume (vph)	806	138	0	654	198	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1073	0	0	743	225	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5			5
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0		10.0
Minimum Split (s)	40.0				26.0		24.0
Total Split (s)	50.0				19.0		21.0
Total Split (%)	55.6%				21.1%		23%
Maximum Green (s)	45.0				14.0		16.0
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.5				1.5		1.5
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.61			0.29	0.83		
Control Delay	17.6			4.4	33.9		

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - Without Improvements

AM Peak

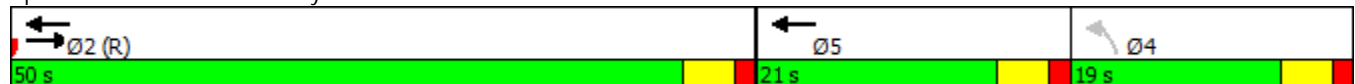


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.6	0.0		
Total Delay	17.6			5.0	33.9		
Queue Length 50th (ft)	214			62	17		
Queue Length 95th (ft)	269			80	m#70		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1746			2570	272		
Starvation Cap Reductn	0			1341	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.61			0.60	0.83		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

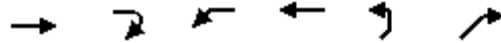
Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

2045 Total Traffic - Without Improvements

AM Peak

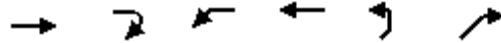


Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↗	
Traffic Volume (vph)	806	0	202	654	0	183	
Future Volume (vph)	806	0	202	654	0	183	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	916	0	230	743	0	208	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		15.0			15.0	
Total Split (s)	50.0		19.0			21.0	
Total Split (%)	55.6%		21.1%			23%	
Maximum Green (s)	45.5		14.5			16.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.51		0.42	0.21		0.13	
Control Delay	2.8		36.7	0.1		0.2	

Lanes, Volumes, Timings
 3: Connector & STH 21

2045 Total Traffic - Without Improvements

AM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.2		0.0	0.0		0.0	
Total Delay	3.0		36.7	0.1		0.2	
Queue Length 50th (ft)	15		61	0		0	
Queue Length 95th (ft)	17		94	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1789		547	3505		1596	
Starvation Cap Reductn	249		0	0		0	
Spillback Cap Reductn	0		0	126		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.59		0.42	0.22		0.13	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Total Traffic - Without Improvements

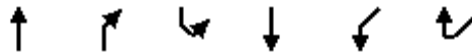
AM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↖	
Traffic Volume (vph)	198	183	0	138	202	0	
Future Volume (vph)	198	183	0	138	202	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	225	208	0	157	230	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	15.0				15.0		22.5
Total Split (s)	19.0				21.0		50.0
Total Split (%)	21.1%				23.3%		56%
Maximum Green (s)	14.5				16.5		45.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.76	0.13		0.12	0.37		
Control Delay	53.9	0.2		1.1	4.1		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Total Traffic - Without Improvements

AM Peak



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.8	0.0		1.3	0.1		
Total Delay	54.7	0.2		2.4	4.2		
Queue Length 50th (ft)	124	0		4	2		
Queue Length 95th (ft)	#223	0		7	3		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	297	1568		1335	623		
Starvation Cap Reductn	0	0		993	35		
Spillback Cap Reductn	8	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.78	0.13		0.46	0.39		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	244	251	120	124	60
Average Queue (ft)	152	171	62	49	53
95th Queue (ft)	239	257	105	102	58
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	1	2	4	2	74
Queuing Penalty (veh)	3	9	13	8	148
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	NE
Directions Served	T	T	L	L	R
Maximum Queue (ft)	40	53	118	509	72
Average Queue (ft)	10	13	49	45	12
95th Queue (ft)	31	39	87	86	48
Link Distance (ft)	64	64	2124	2124	78
Upstream Blk Time (%)	0	0		0	0
Queuing Penalty (veh)	0	1		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	550	104	57	37	41
Average Queue (ft)	328	4	18	5	6
95th Queue (ft)	588	66	51	22	26
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			1		
Queuing Penalty (veh)			2		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

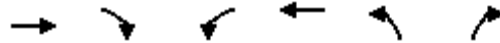
Zone Summary

Zone wide Queuing Penalty: 185

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - Without Improvements

PM Peak

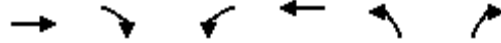


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑			↑↑	↘		
Traffic Volume (vph)	865	181	0	823	161	0	
Future Volume (vph)	865	181	0	823	161	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	0		1	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	25		
Link Distance (ft)	297			179	140		
Travel Time (s)	6.8			4.1	3.8		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1068	0	0	840	164	0	
Turn Type	NA			NA	Perm		
Protected Phases	2			2 5		5	
Permitted Phases					4		
Detector Phase	2			2 5	4		
Switch Phase							
Minimum Initial (s)	10.0				10.0	10.0	
Minimum Split (s)	40.0				26.0	24.0	
Total Split (s)	40.0				26.0	24.0	
Total Split (%)	44.4%				28.9%	27%	
Maximum Green (s)	35.0				21.0	19.0	
Yellow Time (s)	3.5				3.5	3.5	
All-Red Time (s)	1.5				1.5	1.5	
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	5.0				5.0		
Lead/Lag					Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	
Vehicle Extension (s)	3.0				3.0	3.0	
Minimum Gap (s)	3.0				3.0	3.0	
Time Before Reduce (s)	0.0				0.0	0.0	
Time To Reduce (s)	0.0				0.0	0.0	
Recall Mode	Max				Max	Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.79			0.36	0.40		
Control Delay	28.8			7.5	6.1		

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - Without Improvements

PM Peak

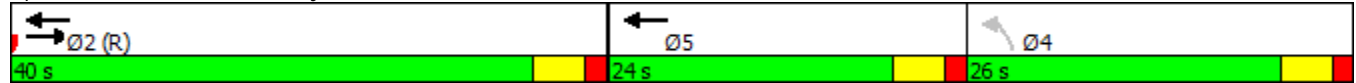


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Queue Delay	0.0			0.8	0.7		
Total Delay	28.8			8.3	6.7		
Queue Length 50th (ft)	268			101	5		
Queue Length 95th (ft)	351			132	8		
Internal Link Dist (ft)	217			99	60		
Turn Bay Length (ft)							
Base Capacity (vph)	1347			2320	413		
Starvation Cap Reductn	0			1093	76		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.79			0.68	0.49		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

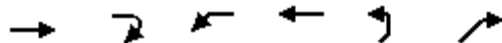
Splits and Phases: 2: N Sawyer St & STH 21



Lanes, Volumes, Timings
3: Connector & STH 21

2045 Total Traffic - Without Improvements

PM Peak

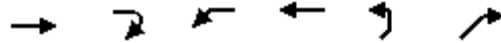


Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Lane Configurations	↑↑		↖↗	↑↑		↖	
Traffic Volume (vph)	865	0	226	823	0	280	
Future Volume (vph)	865	0	226	823	0	280	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		0	2		0	1	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	179			2124	226		
Travel Time (s)	4.1			48.3	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	883	0	231	840	0	286	
Turn Type	NA		Prot	NA		pt+ov	
Protected Phases	2		3	2 3 4		3 4	4
Permitted Phases						2	
Detector Phase	2		3	2 3 4		3 4	
Switch Phase							
Minimum Initial (s)	5.0		5.0			5.0	
Minimum Split (s)	22.5		22.5			22.5	
Total Split (s)	40.0		26.0			24.0	
Total Split (%)	44.4%		28.9%			27%	
Maximum Green (s)	35.5		21.5			19.5	
Yellow Time (s)	3.5		3.5			3.5	
All-Red Time (s)	1.0		1.0			1.0	
Lost Time Adjust (s)	0.0		0.0				
Total Lost Time (s)	4.5		4.5				
Lead/Lag			Lead			Lag	
Lead-Lag Optimize?			Yes			Yes	
Vehicle Extension (s)	3.0		3.0			3.0	
Minimum Gap (s)	3.0		3.0			3.0	
Time Before Reduce (s)	0.0		0.0			0.0	
Time To Reduce (s)	0.0		0.0			0.0	
Recall Mode	Max		Max			Max	
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
v/c Ratio	0.64		0.28	0.24		0.18	
Control Delay	4.6		29.1	0.2		0.2	

Lanes, Volumes, Timings
3: Connector & STH 21

2045 Total Traffic - Without Improvements

PM Peak



Lane Group	EBT	EBR	WBL	WBT	NEL	NER	Ø4
Queue Delay	0.7		0.0	0.0		0.0	
Total Delay	5.4		29.1	0.2		0.2	
Queue Length 50th (ft)	16		55	0		0	
Queue Length 95th (ft)	36		87	0		0	
Internal Link Dist (ft)	99			2044	146		
Turn Bay Length (ft)							
Base Capacity (vph)	1382		820	3539		1611	
Starvation Cap Reductn	216		0	0		0	
Spillback Cap Reductn	0		0	521		0	
Storage Cap Reductn	0		0	0		0	
Reduced v/c Ratio	0.76		0.28	0.28		0.18	

Intersection Summary

Area Type: Other

Cycle Length: 90

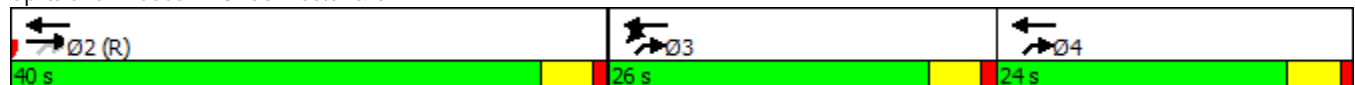
Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Splits and Phases: 3: Connector & STH 21



Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Total Traffic - Without Improvements

PM Peak

	↑	↗	↖	↓	↙	↘	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Lane Configurations	↑	↗		↑	↗	↘	
Traffic Volume (vph)	161	280	0	181	226	0	
Future Volume (vph)	161	280	0	181	226	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)		0	0		0	0	
Storage Lanes		1	0		2	0	
Taper Length (ft)			100		100		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	25			25	30		
Link Distance (ft)	836			140	226		
Travel Time (s)	22.8			3.8	5.1		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	164	286	0	185	231	0	
Turn Type	NA	custom		NA	Prot		
Protected Phases	4	2 3 4		2 4	3		2
Permitted Phases							
Detector Phase	4	2 3 4		2 4	3		
Switch Phase							
Minimum Initial (s)	5.0				5.0		5.0
Minimum Split (s)	22.5				22.5		22.5
Total Split (s)	24.0				26.0		40.0
Total Split (%)	26.7%				28.9%		44%
Maximum Green (s)	19.5				21.5		35.5
Yellow Time (s)	3.5				3.5		3.5
All-Red Time (s)	1.0				1.0		1.0
Lost Time Adjust (s)	0.0				0.0		
Total Lost Time (s)	4.5				4.5		
Lead/Lag	Lag				Lead		
Lead-Lag Optimize?	Yes				Yes		
Vehicle Extension (s)	3.0				3.0		3.0
Minimum Gap (s)	3.0				3.0		3.0
Time Before Reduce (s)	0.0				0.0		0.0
Time To Reduce (s)	0.0				0.0		0.0
Recall Mode	Max				Max		Max
Walk Time (s)	7.0				7.0		7.0
Flash Dont Walk (s)	11.0				11.0		11.0
Pedestrian Calls (#/hr)	0				0		0
v/c Ratio	0.41	0.18		0.15	0.28		
Control Delay	33.9	0.2		1.8	4.6		

Lanes, Volumes, Timings
4: N Sawyer St & Connector

2045 Total Traffic - Without Improvements

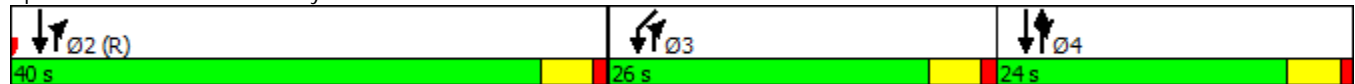
PM Peak

	↑	↗	↘	↓	↙	↖	
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	Ø2
Queue Delay	0.0	0.0		2.5	0.2		
Total Delay	33.9	0.2		4.2	4.9		
Queue Length 50th (ft)	81	0		5	4		
Queue Length 95th (ft)	140	0		m13	6		
Internal Link Dist (ft)	756			60	146		
Turn Bay Length (ft)							
Base Capacity (vph)	403	1583		1231	820		
Starvation Cap Reductn	0	0		921	183		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.41	0.18		0.60	0.36		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: N Sawyer St & Connector



Intersection: 2: N Sawyer St & STH 21

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	250	262	143	152	68
Average Queue (ft)	200	219	88	87	24
95th Queue (ft)	272	278	129	147	59
Link Distance (ft)	232	232	64	64	50
Upstream Blk Time (%)	4	7	11	8	12
Queuing Penalty (veh)	22	39	47	34	20
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Connector & STH 21

Movement	EB	EB	WB	WB	WB	WB	NE
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	71	63	114	116	4	19	108
Average Queue (ft)	21	22	50	52	0	1	31
95th Queue (ft)	58	57	93	98	2	11	83
Link Distance (ft)	64	64	2124	2124			78
Upstream Blk Time (%)	1	1					1
Queuing Penalty (veh)	6	4					3
Storage Bay Dist (ft)					225	225	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: N Sawyer St & Connector

Movement	NB	NB	SB	SW	SW
Directions Served	T	R	T	L	L
Maximum Queue (ft)	190	66	72	30	32
Average Queue (ft)	101	4	29	7	5
95th Queue (ft)	170	30	64	24	23
Link Distance (ft)	811	811	50	78	78
Upstream Blk Time (%)			5		
Queuing Penalty (veh)			9		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 184

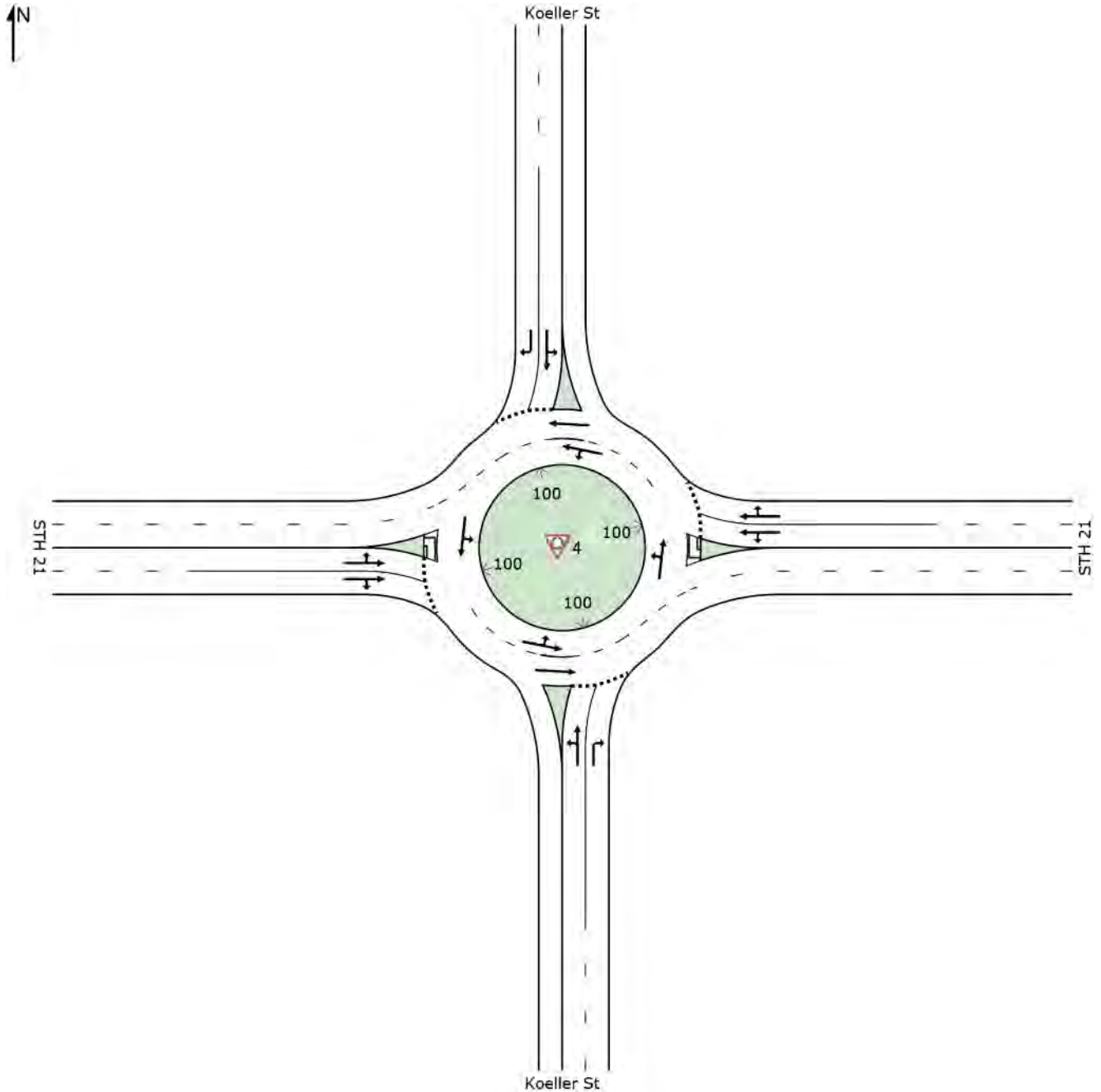
APPENDIX G

Transportation System with Improvements
with Total Traffic Operational Analysis

SITE LAYOUT

 Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout



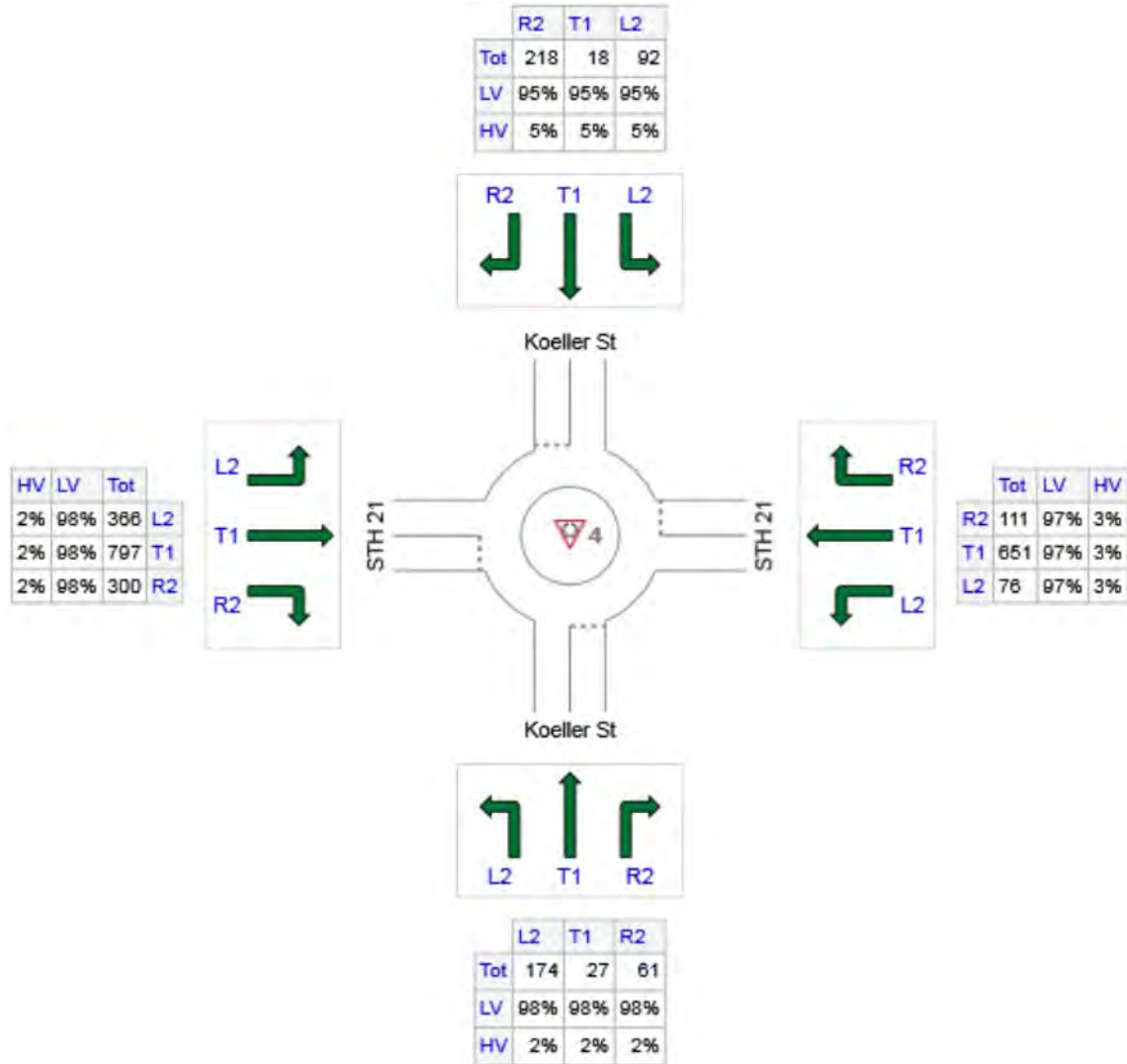
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	262	257	5
E: STH 21	838	813	25
N: Koeller St	328	312	16
W: STH 21	1463	1434	29
Total	2891	2815	76

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	198	2.0	0.519	19.3	LOS B	2.1	54.5	0.79	0.92	27.5
8	T1	31	2.0	0.519	19.3	LOS B	2.1	54.5	0.79	0.92	27.4
18	R2	69	2.0	0.158	10.5	LOS B	0.4	11.1	0.69	0.69	31.4
Approach		298	2.0	0.519	17.2	LOS B	2.1	54.5	0.77	0.87	28.3
East: STH 21											
1	L2	86	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.9
6	T1	740	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.9
16	R2	126	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.3
Approach		952	3.0	0.636	16.0	LOS B	4.9	126.4	0.71	0.93	29.8
North: Koeller St											
7	L2	105	5.0	0.218	9.1	LOS A	0.6	16.4	0.59	0.59	31.2
4	T1	20	5.0	0.218	9.1	LOS A	0.6	16.4	0.59	0.59	31.1
14	R2	248	5.0	0.432	13.2	LOS B	1.7	45.5	0.66	0.76	30.2
Approach		373	5.0	0.432	11.8	LOS B	1.7	45.5	0.64	0.70	30.5
West: STH 21											
5	L2	416	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.4
2	T1	906	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.8
12	R2	341	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.4
Approach		1663	2.0	0.783	18.3	LOS B	17.0	431.9	0.73	0.92	28.6
All Vehicles		3285	2.6	0.783	16.8	LOS B	17.0	431.9	0.72	0.89	29.1

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller AM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	228	2.0	440	0.519	100	19.3	LOS B	2.1	54.5	Full	1600	0.0	0.0
Lane 2	69	2.0	440	0.158	100	10.5	LOS B	0.4	11.1	Full	1600	0.0	0.0
Approach	298	2.0		0.519		17.2	LOS B	2.1	54.5				
East: STH 21													
Lane 1	476	3.0	749	0.636	100	16.0	LOS B	4.9	126.4	Full	1600	0.0	0.0
Lane 2 ^d	476	3.0	749	0.636	100	16.0	LOS B	4.9	126.4	Full	1600	0.0	0.0
Approach	952	3.0		0.636		16.0	LOS B	4.9	126.4				
North: Koeller St													
Lane 1	125	5.0	573	0.218	100	9.1	LOS A	0.6	16.4	Full	1600	0.0	0.0
Lane 2 ^d	248	5.0	573	0.432	100	13.2	LOS B	1.7	45.5	Full	1600	0.0	0.0
Approach	373	5.0		0.432		11.8	LOS B	1.7	45.5				
West: STH 21													
Lane 1	831	2.0	1062	0.783	100	18.3	LOS B	17.0	431.9	Full	1600	0.0	0.0
Lane 2 ^d	831	2.0	1062	0.783	100	18.3	LOS B	17.0	431.9	Full	1600	0.0	0.0
Approach	1663	2.0		0.783		18.3	LOS B	17.0	431.9				
Intersection	3285	2.6		0.783		16.8	LOS B	17.0	431.9				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

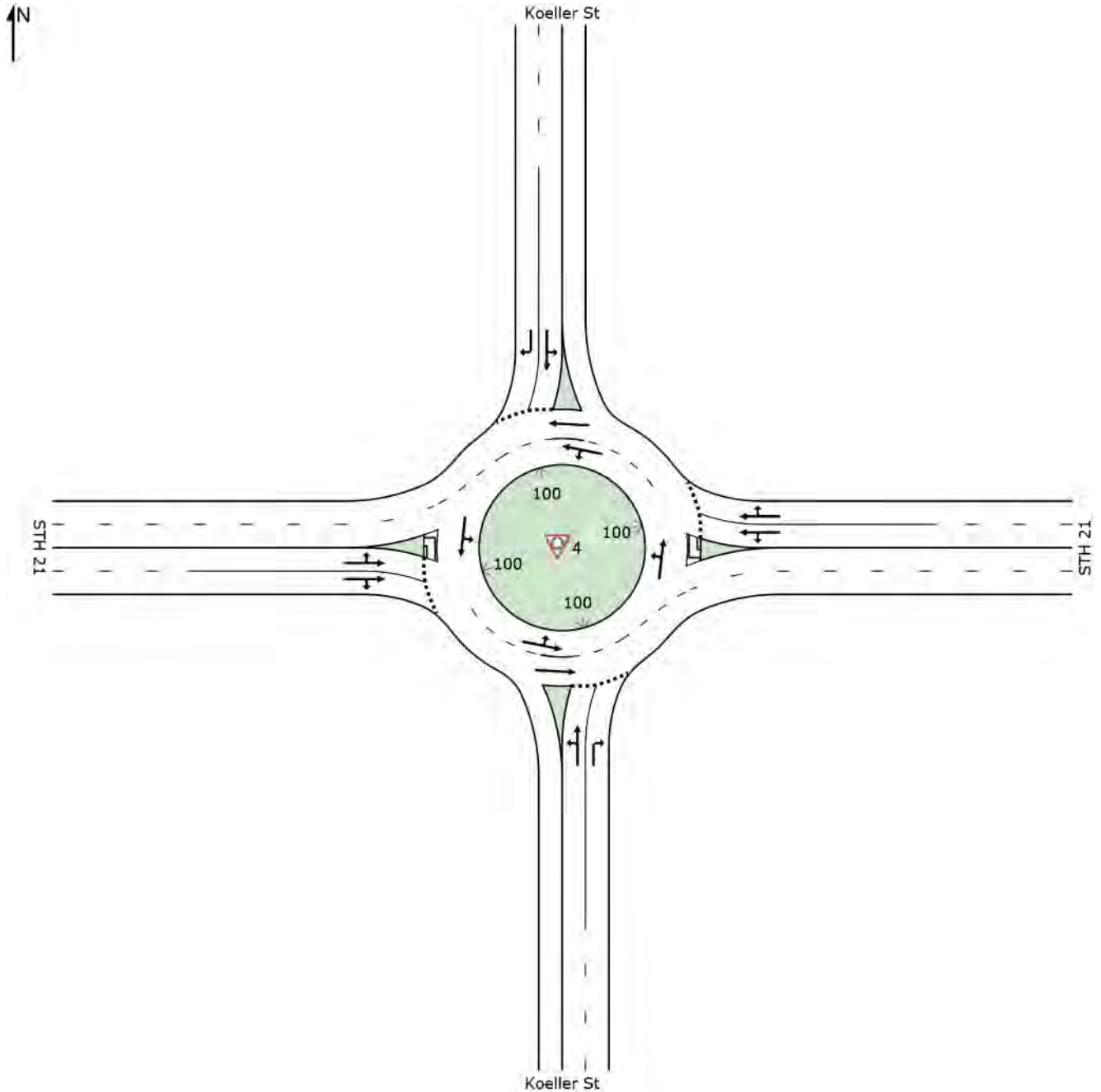
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout



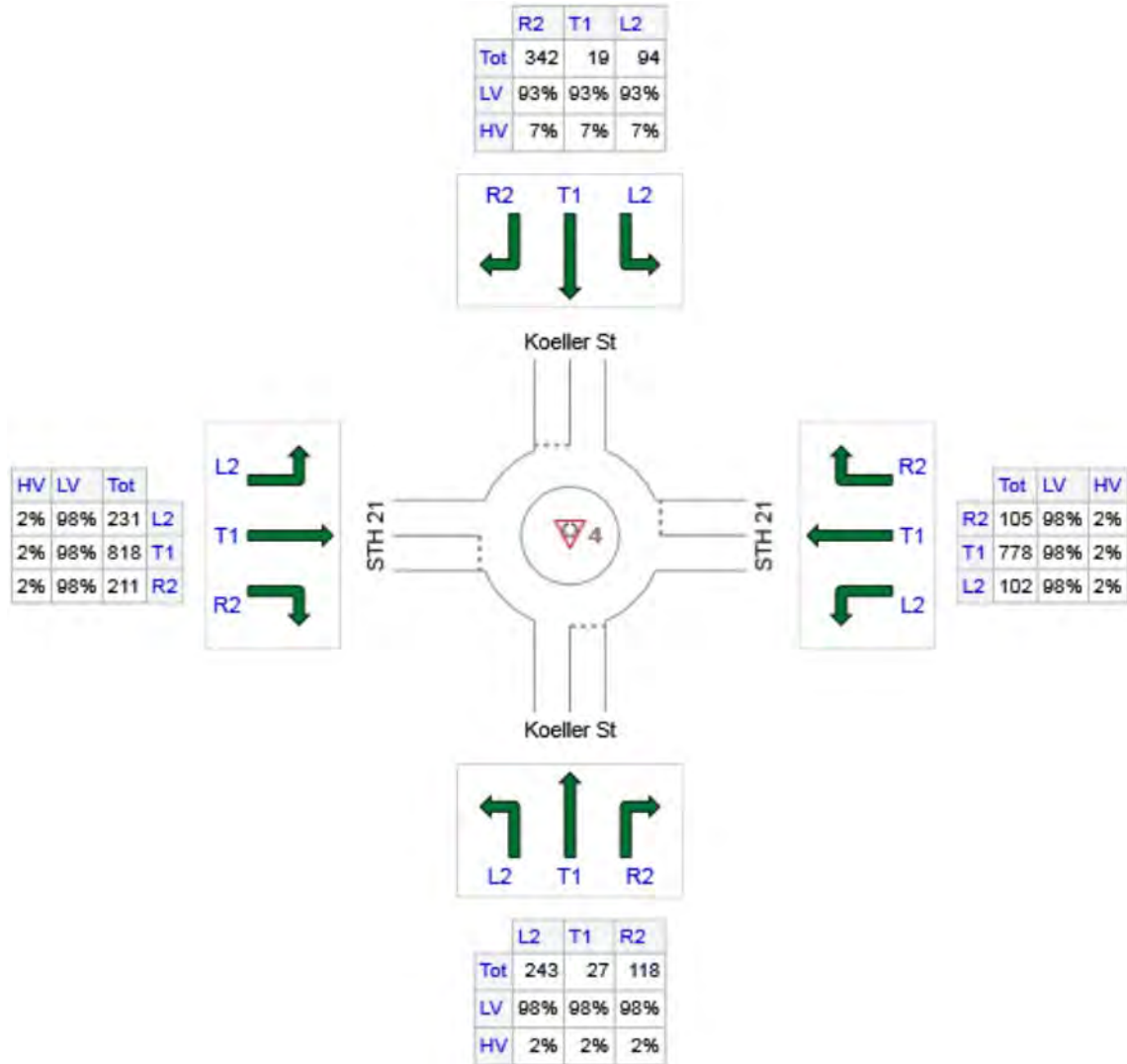
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	388	380	8
E: STH 21	985	965	20
N: Koeller St	455	423	32
W: STH 21	1260	1235	25
Total	3088	3003	85

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	248	2.0	0.518	16.4	LOS B	2.3	59.5	0.74	0.87	28.4
8	T1	28	2.0	0.518	16.4	LOS B	2.3	59.5	0.74	0.87	28.3
18	R2	120	2.0	0.226	9.9	LOS A	0.7	16.9	0.64	0.64	31.7
Approach		396	2.0	0.518	14.4	LOS B	2.3	59.5	0.71	0.80	29.3
East: STH 21											
1	L2	104	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.9
6	T1	794	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	31.0
16	R2	107	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.3
Approach		1005	2.0	0.598	13.4	LOS B	4.8	121.1	0.66	0.84	30.9
North: Koeller St											
7	L2	96	7.0	0.223	10.1	LOS B	0.6	16.4	0.63	0.63	30.7
4	T1	19	7.0	0.223	10.1	LOS B	0.6	16.4	0.63	0.63	30.7
14	R2	349	7.0	0.675	23.6	LOS C	3.8	101.5	0.78	1.03	26.4
Approach		464	7.0	0.675	20.3	LOS C	3.8	101.5	0.74	0.93	27.4
West: STH 21											
5	L2	236	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.3
2	T1	835	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.6
12	R2	215	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.0
Approach		1286	2.0	0.610	11.6	LOS B	5.4	137.0	0.53	0.50	31.4
All Vehicles		3151	2.7	0.675	13.8	LOS B	5.4	137.0	0.62	0.71	30.3

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller PM - 2025 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand	Flows		Deg.	Lane	Average	Level of	95% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Koeller St													
Lane 1 ^d	276	2.0	532	0.518	100	16.4	LOS B	2.3	59.5	Full	1600	0.0	0.0
Lane 2	120	2.0	532	0.226	100	9.9	LOS A	0.7	16.9	Full	1600	0.0	0.0
Approach	396	2.0		0.518		14.4	LOS B	2.3	59.5				
East: STH 21													
Lane 1	503	2.0	840	0.598	100	13.4	LOS B	4.8	121.1	Full	1600	0.0	0.0
Lane 2 ^d	503	2.0	840	0.598	100	13.4	LOS B	4.8	121.1	Full	1600	0.0	0.0
Approach	1005	2.0		0.598		13.4	LOS B	4.8	121.1				
North: Koeller St													
Lane 1	115	7.0	517	0.223	100	10.1	LOS B	0.6	16.4	Full	1600	0.0	0.0
Lane 2 ^d	349	7.0	517	0.675	100	23.6	LOS C	3.8	101.5	Full	1600	0.0	0.0
Approach	464	7.0		0.675		20.3	LOS C	3.8	101.5				
West: STH 21													
Lane 1	643	2.0	1055	0.610	100	11.6	LOS B	5.4	137.0	Full	1600	0.0	0.0
Lane 2 ^d	643	2.0	1055	0.610	100	11.6	LOS B	5.4	137.0	Full	1600	0.0	0.0
Approach	1286	2.0		0.610		11.6	LOS B	5.4	137.0				
Intersection	3151	2.7		0.675		13.8	LOS B	5.4	137.0				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

^d Dominant lane on roundabout approach

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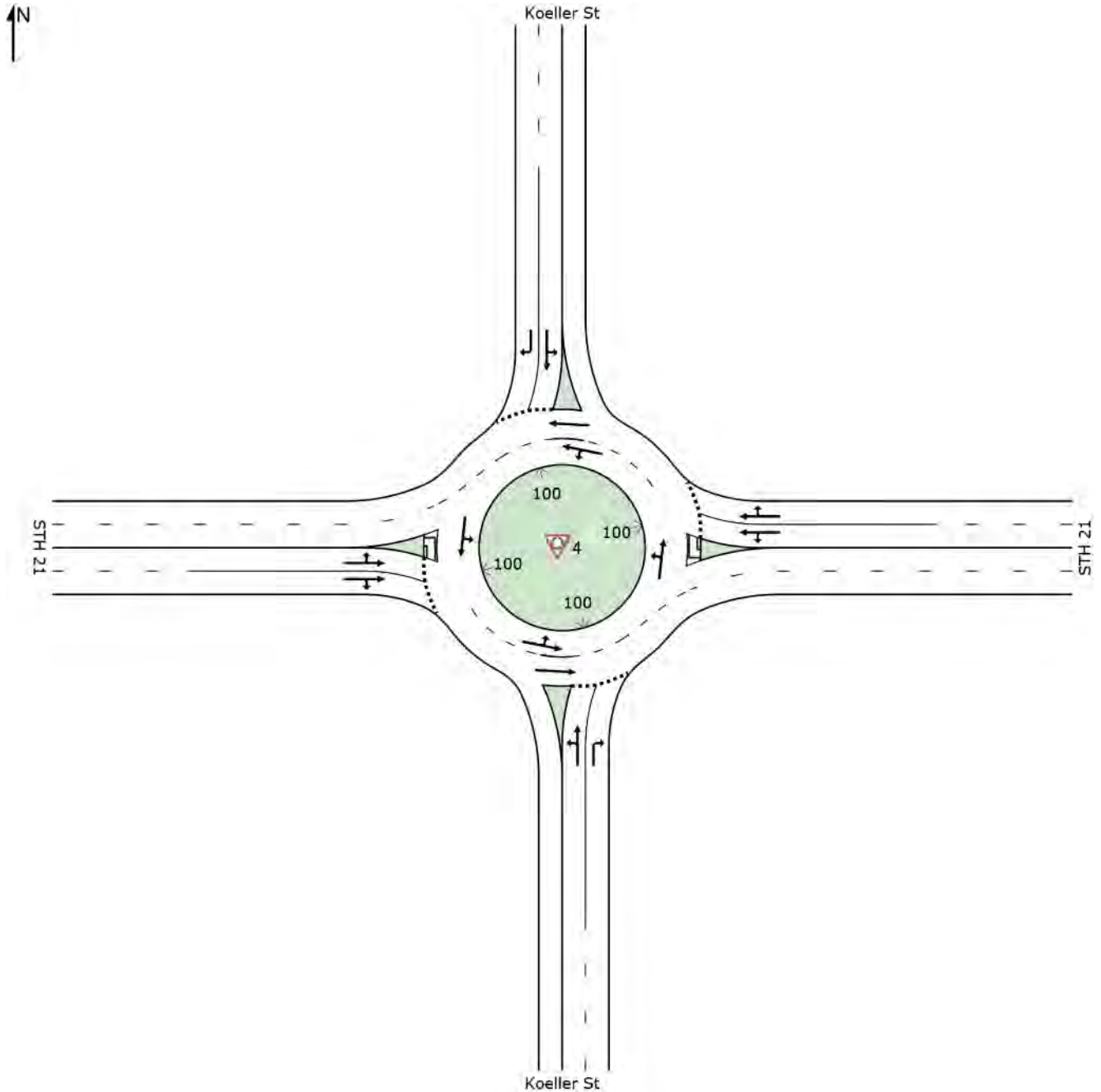
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Project: G:\Oshkosh\Oshkosh Ave TIA\6_Modeling\Sidra\Oshkosh.sip7

SITE LAYOUT

 Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout



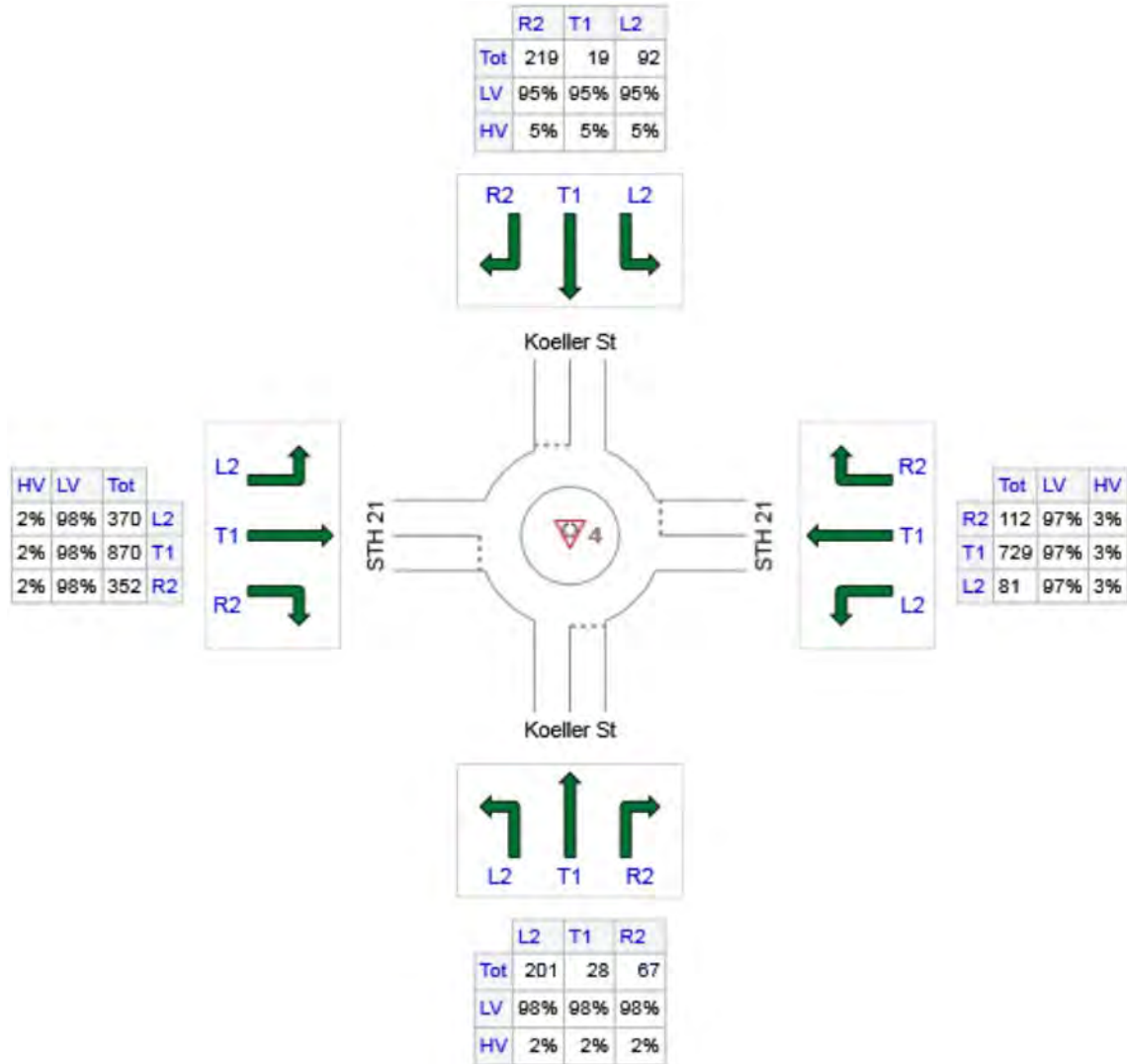
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	296	290	6
E: STH 21	922	894	28
N: Koeller St	330	314	17
W: STH 21	1592	1560	32
Total	3140	3058	82

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	228	2.0	0.631	25.6	LOS C	2.9	74.6	0.84	1.03	25.5
8	T1	32	2.0	0.631	25.6	LOS C	2.9	74.6	0.84	1.03	25.5
18	R2	76	2.0	0.185	11.6	LOS B	0.5	13.0	0.72	0.72	30.9
Approach		336	2.0	0.631	22.5	LOS C	2.9	74.6	0.81	0.96	26.5
East: STH 21											
1	L2	92	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.3
6	T1	828	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.4
16	R2	127	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	27.8
Approach		1048	3.0	0.720	20.2	LOS C	6.7	172.3	0.77	1.07	28.3
North: Koeller St											
7	L2	105	5.0	0.242	10.3	LOS B	0.7	18.1	0.64	0.64	30.7
4	T1	22	5.0	0.242	10.3	LOS B	0.7	18.1	0.64	0.64	30.7
14	R2	249	5.0	0.477	15.4	LOS B	2.0	51.4	0.71	0.83	29.3
Approach		375	5.0	0.477	13.7	LOS B	2.0	51.4	0.69	0.77	29.8
West: STH 21											
5	L2	420	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.7
2	T1	989	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.9
12	R2	400	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.5
Approach		1809	2.0	0.856	23.9	LOS C	26.2	666.2	0.88	1.25	26.8
All Vehicles		3568	2.6	0.856	21.6	LOS C	26.2	666.2	0.82	1.12	27.5

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller AM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	260	2.0	413	0.631	100	25.6	LOS C	2.9	74.6	Full	1600	0.0	0.0
Lane 2	76	2.0	413	0.185	100	11.6	LOS B	0.5	13.0	Full	1600	0.0	0.0
Approach	336	2.0		0.631		22.5	LOS C	2.9	74.6				
East: STH 21													
Lane 1	524	3.0	727	0.720	100	20.2	LOS C	6.7	172.3	Full	1600	0.0	0.0
Lane 2 ^d	524	3.0	727	0.720	100	20.2	LOS C	6.7	172.3	Full	1600	0.0	0.0
Approach	1048	3.0		0.720		20.2	LOS C	6.7	172.3				
North: Koeller St													
Lane 1	126	5.0	522	0.242	100	10.3	LOS B	0.7	18.1	Full	1600	0.0	0.0
Lane 2 ^d	249	5.0	522	0.477	100	15.4	LOS B	2.0	51.4	Full	1600	0.0	0.0
Approach	375	5.0		0.477		13.7	LOS B	2.0	51.4				
West: STH 21													
Lane 1	905	2.0	1056	0.856	100	23.9	LOS C	26.2	666.2	Full	1600	0.0	0.0
Lane 2 ^d	905	2.0	1056	0.856	100	23.9	LOS C	26.2	666.2	Full	1600	0.0	0.0
Approach	1809	2.0		0.856		23.9	LOS C	26.2	666.2				
Intersection	3568	2.6		0.856		21.6	LOS C	26.2	666.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

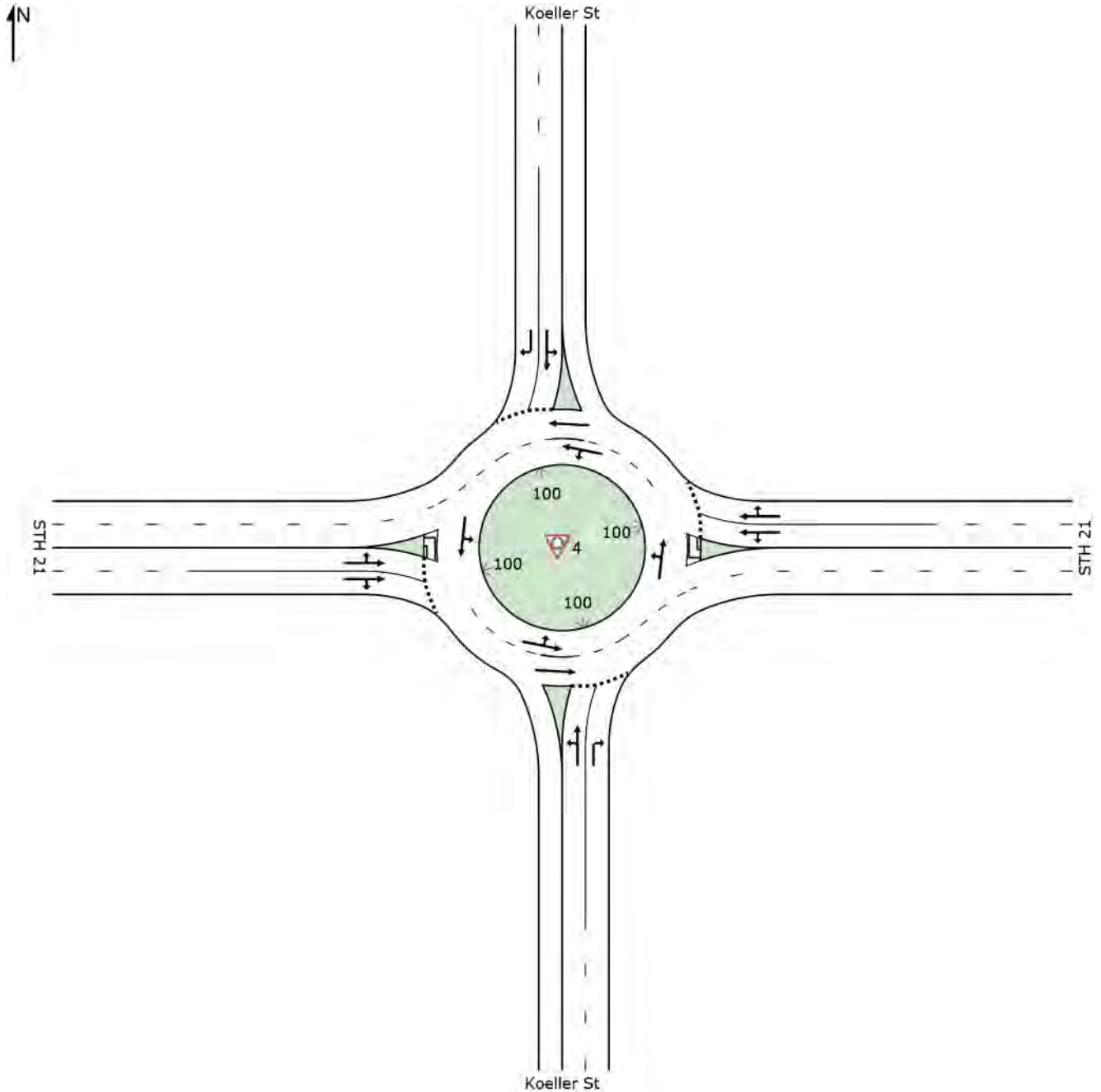
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

SITE LAYOUT

 Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout



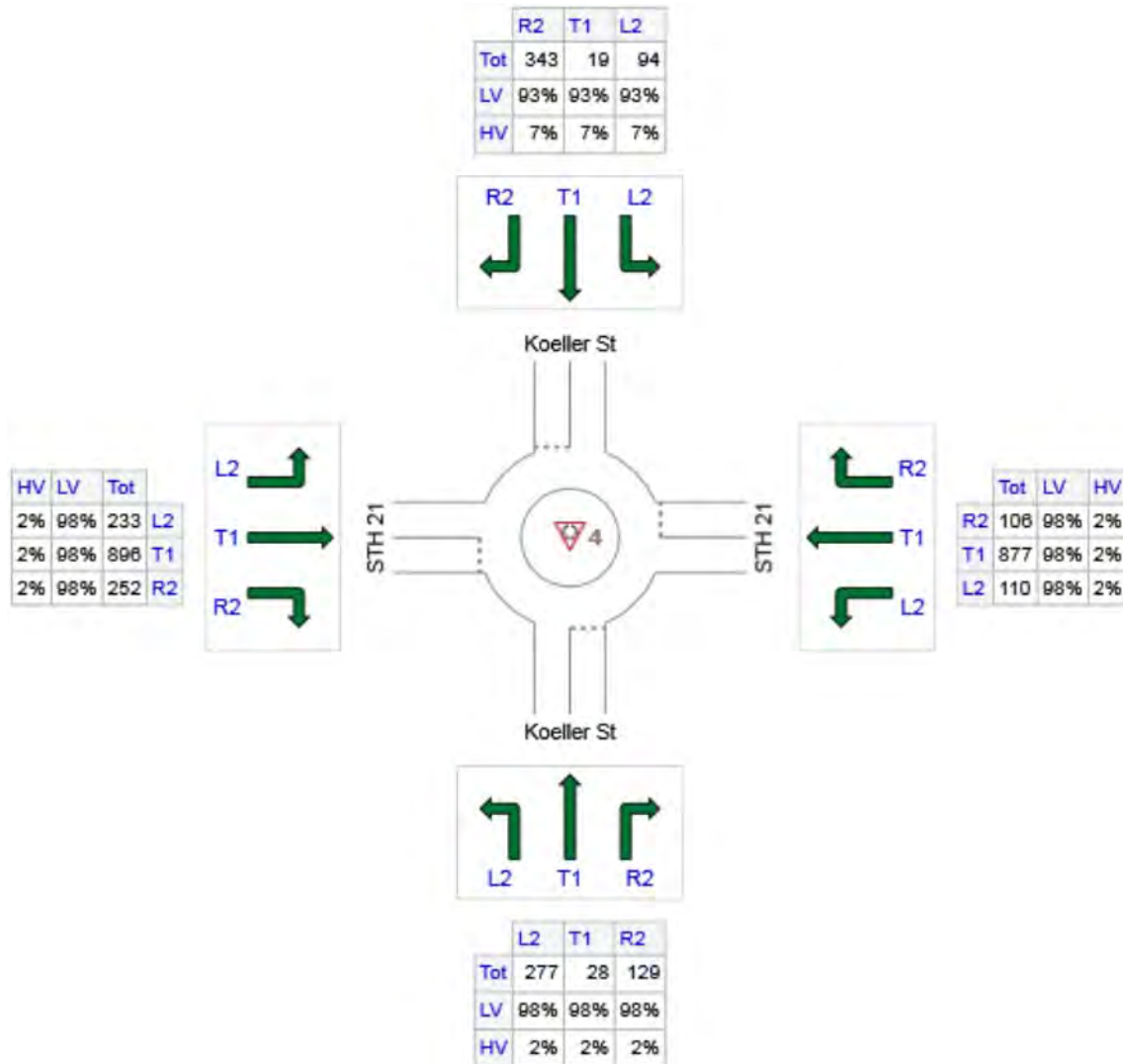
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Koeller St	434	425	9
E: STH 21	1093	1071	22
N: Koeller St	456	424	32
W: STH 21	1381	1353	28
Total	3364	3274	90

MOVEMENT SUMMARY

Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Koeller St											
3	L2	283	2.0	0.621	21.3	LOS C	3.2	81.0	0.79	0.98	26.8
8	T1	29	2.0	0.621	21.3	LOS C	3.2	81.0	0.79	0.98	26.7
18	R2	132	2.0	0.263	11.0	LOS B	0.8	20.5	0.67	0.69	31.2
Approach		443	2.0	0.621	18.3	LOS B	3.2	81.0	0.76	0.90	27.9
East: STH 21											
1	L2	112	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.5
6	T1	895	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.6
16	R2	108	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.0
Approach		1115	2.0	0.684	16.8	LOS B	6.7	169.8	0.73	0.99	29.6
North: Koeller St											
7	L2	96	7.0	0.248	11.5	LOS B	0.7	18.6	0.67	0.69	30.2
4	T1	19	7.0	0.248	11.5	LOS B	0.7	18.6	0.67	0.69	30.1
14	R2	350	7.0	0.753	31.5	LOS C	4.7	123.1	0.84	1.16	24.1
Approach		465	7.0	0.753	26.6	LOS C	4.7	123.1	0.80	1.04	25.5
West: STH 21											
5	L2	238	2.0	0.672	13.5	LOS B	8.5	215.4	0.59	0.65	30.5
2	T1	914	2.0	0.672	13.5	LOS B	8.5	215.4	0.59	0.65	30.8
12	R2	257	2.0	0.672	13.5	LOS B	8.5	215.4	0.59	0.65	30.2
Approach		1409	2.0	0.672	13.5	LOS B	8.5	215.4	0.59	0.65	30.6
All Vehicles		3433	2.7	0.753	17.0	LOS B	8.5	215.4	0.69	0.85	29.1

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

Roundabout LOS Method: Same as Signalised Intersections.

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 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

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

LANE SUMMARY

Site: 4 [STH 21 & Koeller PM - 2045 Total Traffic With Improvements]

Oshkosh Avenue Area TIA
Roundabout

Lane Use and Performance													
	Demand Total	Flows HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Koeller St													
Lane 1 ^d	311	2.0	501	0.621	100	21.3	LOS C	3.2	81.0	Full	1600	0.0	0.0
Lane 2	132	2.0	501	0.263	100	11.0	LOS B	0.8	20.5	Full	1600	0.0	0.0
Approach	443	2.0		0.621		18.3	LOS B	3.2	81.0				
East: STH 21													
Lane 1	558	2.0	816	0.684	100	16.8	LOS B	6.7	169.8	Full	1600	0.0	0.0
Lane 2 ^d	558	2.0	816	0.684	100	16.8	LOS B	6.7	169.8	Full	1600	0.0	0.0
Approach	1115	2.0		0.684		16.8	LOS B	6.7	169.8				
North: Koeller St													
Lane 1	115	7.0	465	0.248	100	11.5	LOS B	0.7	18.6	Full	1600	0.0	0.0
Lane 2 ^d	350	7.0	465	0.753	100	31.5	LOS C	4.7	123.1	Full	1600	0.0	0.0
Approach	465	7.0		0.753		26.6	LOS C	4.7	123.1				
West: STH 21													
Lane 1	705	2.0	1048	0.672	100	13.5	LOS B	8.5	215.4	Full	1600	0.0	0.0
Lane 2 ^d	705	2.0	1048	0.672	100	13.5	LOS B	8.5	215.4	Full	1600	0.0	0.0
Approach	1409	2.0		0.672		13.5	LOS B	8.5	215.4				
Intersection	3433	2.7		0.753		17.0	LOS B	8.5	215.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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

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

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

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

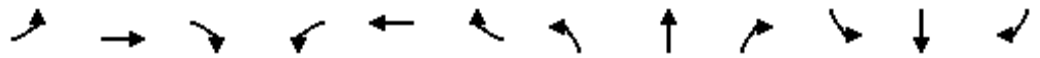
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	758	69	58	658	82	62	13	35	47	8	98
Future Volume (vph)	123	758	69	58	658	82	62	13	35	47	8	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	150		0	0		0	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1029			790			629			282	
Travel Time (s)		23.4			18.0			17.2			7.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	930	0	65	831	0	0	85	39	0	62	110
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	63.0	63.0		63.0	63.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	66.3%	66.3%		66.3%	66.3%		33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
Maximum Green (s)	57.5	57.5		57.5	57.5		26.1	26.1	26.1	26.1	26.1	26.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Min	Min		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.37	0.44		0.20	0.40		0.25	0.09			0.19	0.23
Control Delay	10.5	7.1		7.9	6.7		18.5	7.8			17.8	6.2

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	10.5	7.1		7.9	6.7			18.5	7.8		17.8	6.2
Queue Length 50th (ft)	19	70		8	58			15	0		11	0
Queue Length 95th (ft)	56	116		27	100			60	20		46	33
Internal Link Dist (ft)		949			710			549			202	
Turn Bay Length (ft)	150			150								100
Base Capacity (vph)	606	3465		522	3418			857	1024		829	1050
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.23	0.27		0.12	0.24			0.10	0.04		0.07	0.10

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 42.9

Natural Cycle: 45





















Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
 1: N Westfield St & STH 21

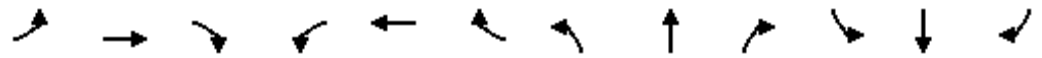
2025 Total Traffic - With Improvements
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	758	69	58	658	82	62	13	35	47	8	98
Future Volume (veh/h)	123	758	69	58	658	82	62	13	35	47	8	98
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	852	78	65	739	92	70	15	24	53	9	68
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	466	2074	190	424	1984	247	316	57	269	329	47	269
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	658	3279	300	593	3138	390	1188	336	1583	1258	278	1583
Grp Volume(v), veh/h	138	460	470	65	413	418	85	0	24	62	0	68
Grp Sat Flow(s),veh/h/ln	658	1770	1810	593	1752	1776	1524	0	1583	1536	0	1583
Q Serve(g_s), s	7.4	7.4	7.4	3.5	6.5	6.5	0.8	0.0	0.7	0.0	0.0	2.1
Cycle Q Clear(g_c), s	13.9	7.4	7.4	11.0	6.5	6.5	2.5	0.0	0.7	1.7	0.0	2.1
Prop In Lane	1.00		0.17	1.00		0.22	0.82		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	466	1119	1144	424	1108	1123	373	0	269	377	0	269
V/C Ratio(X)	0.30	0.41	0.41	0.15	0.37	0.37	0.23	0.00	0.09	0.16	0.00	0.25
Avail Cap(c_a), veh/h	707	1766	1806	641	1749	1772	787	0	717	786	0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	5.3	5.3	8.0	5.1	5.1	20.9	0.0	20.2	20.6	0.0	20.7
Incr Delay (d2), s/veh	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.0	0.1	0.2	0.0	0.5
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(95%),veh/ln	2.4	6.6	6.7	1.1	5.7	5.8	2.2	0.0	0.6	1.6	0.0	1.8
LnGrp Delay(d),s/veh	8.8	5.5	5.5	8.1	5.3	5.3	21.2	0.0	20.3	20.8	0.0	21.2
LnGrp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		1068			896			109			130	
Approach Delay, s/veh		5.9			5.5			21.0			21.0	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		41.9		15.7		41.9		15.7				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		57.5		26.1		57.5		26.1				
Max Q Clear Time (g_c+I1), s		15.9		4.5		13.0		4.1				
Green Ext Time (p_c), s		20.5		1.1		21.2		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				7.4								
HCM 2010 LOS				A								

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	750	128	190	612	10	178	10	172	5	20	10
Future Volume (vph)	5	750	128	190	612	10	178	10	172	5	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	50		0	300		0	0		50	0		40
Storage Lanes	1		0	1		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		325			1327			1018			396	
Travel Time (s)		7.4			30.2			27.8			9.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	997	0	216	706	0	202	11	195	0	29	11
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		1	6		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0		10.0	25.0		22.5	22.5	10.0	26.0	26.0	26.0
Total Split (s)	40.0	40.0		21.0	61.0		29.0	29.0	21.0	29.0	29.0	29.0
Total Split (%)	44.4%	44.4%		23.3%	67.8%		32.2%	32.2%	23.3%	32.2%	32.2%	32.2%
Maximum Green (s)	35.0	35.0		16.0	56.0		24.0	24.0	16.0	24.0	24.0	24.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		None	Min		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.02	0.73		0.58	0.33		0.64	0.03	0.26		0.07	0.03
Control Delay	15.8	21.8		15.5	7.1		36.0	23.7	9.8		23.9	0.1

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	15.8	21.8		15.5	7.1		36.0	23.7	9.8		23.9	0.1
Queue Length 50th (ft)	1	170		34	64		77	4	34		10	0
Queue Length 95th (ft)	10	307		103	117		166	17	78		33	0
Internal Link Dist (ft)		245			1247			938			316	
Turn Bay Length (ft)	50			300					50			40
Base Capacity (vph)	379	1853		519	2868		496	673	893		653	631
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.02	0.54		0.42	0.25		0.41	0.02	0.22		0.04	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 69.2

Natural Cycle: 65






















Control Type: Actuated-Uncoordinated

Splits and Phases: 2: N Sawyer St & STH 21



HCM 2010 Signalized Intersection Summary
2: N Sawyer St & STH 21

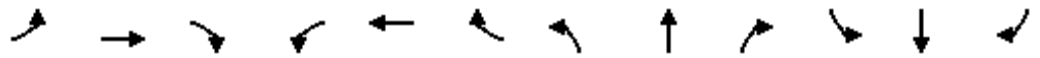
2025 Total Traffic - With Improvements
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	750	128	190	612	10	178	10	172	5	20	10
Future Volume (veh/h)	5	750	128	190	612	10	178	10	172	5	20	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1845	1845	1845	1900	1863	1863
Adj Flow Rate, veh/h	6	852	145	216	695	11	202	11	121	6	23	6
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	2	2	2
Cap, veh/h	459	1367	233	429	2248	36	390	349	450	109	308	300
Arrive On Green	0.45	0.45	0.45	0.10	0.64	0.64	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	739	3026	515	1757	3531	56	1369	1845	1568	178	1625	1583
Grp Volume(v), veh/h	6	498	499	216	345	361	202	11	121	29	0	6
Grp Sat Flow(s),veh/h/ln	739	1770	1772	1757	1752	1835	1369	1845	1568	1803	0	1583
Q Serve(g_s), s	0.3	12.3	12.3	3.3	5.1	5.1	7.1	0.3	3.4	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	12.3	12.3	3.3	5.1	5.1	7.8	0.3	3.4	0.7	0.0	0.2
Prop In Lane	1.00		0.29	1.00		0.03	1.00		1.00	0.21		1.00
Lane Grp Cap(c), veh/h	459	799	801	429	1115	1168	390	349	450	417	0	300
V/C Ratio(X)	0.01	0.62	0.62	0.50	0.31	0.31	0.52	0.03	0.27	0.07	0.00	0.02
Avail Cap(c_a), veh/h	576	1079	1080	747	1710	1790	703	771	809	816	0	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	12.0	12.0	8.6	4.7	4.7	21.9	19.0	15.8	19.2	0.0	18.9
Incr Delay (d2), s/veh	0.0	0.8	0.8	0.9	0.2	0.1	1.1	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	10.2	10.2	3.0	4.4	4.6	5.7	0.3	2.7	0.7	0.0	0.1
LnGrp Delay(d),s/veh	8.7	12.8	12.8	9.5	4.9	4.9	23.0	19.0	16.1	19.2	0.0	19.0
LnGrp LOS	A	B	B	A	A	A	C	B	B	B		B
Approach Vol, veh/h		1003			922			334			35	
Approach Delay, s/veh		12.8			6.0			20.4			19.2	
Approach LOS		B			A			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.6	30.9		15.9		41.5		15.9				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	16.0	35.0		24.0		56.0		24.0				
Max Q Clear Time (g_c+I1), s	5.3	14.3		2.7		7.1		9.8				
Green Ext Time (p_c), s	0.4	11.6		1.2		17.0		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				11.2								
HCM 2010 LOS				B								

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	866	50	38	833	54	73	9	45	74	11	94
Future Volume (vph)	113	866	50	38	833	54	73	9	45	74	11	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	150		0	0		0	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1029			790			629			282	
Travel Time (s)		23.4			18.0			17.2			7.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	945	0	39	915	0	0	84	46	0	87	97
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	63.0	63.0		63.0	63.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	66.3%	66.3%		66.3%	66.3%		33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
Maximum Green (s)	57.5	57.5		57.5	57.5		26.1	26.1	26.1	26.1	26.1	26.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Min	Min		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.35	0.44		0.12	0.43			0.26	0.11		0.26	0.20
Control Delay	10.7	7.3		6.9	7.2			18.5	7.4		18.6	6.3

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2025 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	10.7	7.3		6.9	7.2			18.5	7.4		18.6	6.3
Queue Length 50th (ft)	16	71		5	68			15	0		16	0
Queue Length 95th (ft)	51	123		18	118			60	22		61	31
Internal Link Dist (ft)		949			710			549			202	
Turn Bay Length (ft)	150			150								100
Base Capacity (vph)	537	3482		514	3478			817	1026		824	1044
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.22	0.27		0.08	0.26			0.10	0.04		0.11	0.09

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 43

Natural Cycle: 40

Control Type: Semi Act-Uncoord





















Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2025 Total Traffic - With Improvements

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	866	50	38	833	54	73	9	45	74	11	94
Future Volume (veh/h)	113	866	50	38	833	54	73	9	45	74	11	94
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	116	893	52	39	859	56	75	9	28	76	11	60
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	2163	126	423	2146	140	340	34	267	333	41	267
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	608	3399	198	591	3374	220	1322	204	1583	1289	241	1583
Grp Volume(v), veh/h	116	465	480	39	451	464	84	0	28	87	0	60
Grp Sat Flow(s),veh/h/ln	608	1770	1828	591	1770	1824	1526	0	1583	1530	0	1583
Q Serve(g_s), s	6.7	7.6	7.6	2.0	7.3	7.3	0.0	0.0	0.9	0.1	0.0	1.9
Cycle Q Clear(g_c), s	14.0	7.6	7.6	9.6	7.3	7.3	2.4	0.0	0.9	2.5	0.0	1.9
Prop In Lane	1.00		0.11	1.00		0.12	0.89		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	434	1126	1163	423	1126	1160	374	0	267	374	0	267
V/C Ratio(X)	0.27	0.41	0.41	0.09	0.40	0.40	0.22	0.00	0.10	0.23	0.00	0.22
Avail Cap(c_a), veh/h	646	1742	1799	628	1742	1795	774	0	707	776	0	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.6	5.2	5.2	7.6	5.2	5.2	21.2	0.0	20.6	21.2	0.0	21.0
Incr Delay (d2), s/veh	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.0	0.2	0.3	0.0	0.4
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(95%),veh/ln	2.1	6.6	6.9	0.6	6.4	6.6	2.2	0.0	0.7	2.3	0.0	1.6
LnGrp Delay(d),s/veh	8.9	5.5	5.5	7.7	5.4	5.4	21.5	0.0	20.7	21.5	0.0	21.4
LnGrp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		1061			954			112			147	
Approach Delay, s/veh		5.9			5.5			21.3			21.5	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.7		15.8		42.7		15.8				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		57.5		26.1		57.5		26.1				
Max Q Clear Time (g_c+I1), s		16.0		4.4		11.6		4.5				
Green Ext Time (p_c), s		21.2		1.2		22.2		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			7.5									
HCM 2010 LOS			A									

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	807	168	213	768	30	144	20	263	15	10	15
Future Volume (vph)	20	807	168	213	768	30	144	20	263	15	10	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	50		0	300		0	0		50	0		40
Storage Lanes	1		0	1		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		325			1327			1018			396	
Travel Time (s)		7.4			30.2			27.8			9.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	994	0	217	815	0	147	20	268	0	25	15
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		1	6		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0		10.0	25.0		22.5	22.5	10.0	26.0	26.0	26.0
Total Split (s)	40.0	40.0		21.0	61.0		29.0	29.0	21.0	29.0	29.0	29.0
Total Split (%)	44.4%	44.4%		23.3%	67.8%		32.2%	32.2%	23.3%	32.2%	32.2%	32.2%
Maximum Green (s)	35.0	35.0		16.0	56.0		24.0	24.0	16.0	24.0	24.0	24.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		None	Min		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.07	0.66		0.49	0.32		0.51	0.05	0.41		0.07	0.04
Control Delay	14.8	17.9		10.1	5.6		32.7	24.4	12.1		24.7	0.1

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2025 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	14.8	17.9		10.1	5.6		32.7	24.4	12.1		24.7	0.1
Queue Length 50th (ft)	4	150		29	63		51	6	50		8	0
Queue Length 95th (ft)	21	294		83	123		126	26	117		31	0
Internal Link Dist (ft)		245			1247			938			316	
Turn Bay Length (ft)	50			300					50			40
Base Capacity (vph)	389	2106		624	3018		590	796	838		672	725
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.05	0.47		0.35	0.27		0.25	0.03	0.32		0.04	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 62.4

Natural Cycle: 65






















Control Type: Actuated-Uncoordinated

Splits and Phases: 2: N Sawyer St & STH 21



HCM 2010 Signalized Intersection Summary
2: N Sawyer St & STH 21

2025 Total Traffic - With Improvements
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	807	168	213	768	30	144	20	263	15	10	15
Future Volume (veh/h)	20	807	168	213	768	30	144	20	263	15	10	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	823	171	217	784	31	147	20	166	15	10	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1350	281	440	2257	89	374	325	428	241	137	276
Arrive On Green	0.47	0.47	0.47	0.10	0.65	0.65	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	661	2891	601	1774	3471	137	1399	1863	1583	804	783	1583
Grp Volume(v), veh/h	20	499	495	217	400	415	147	20	166	25	0	9
Grp Sat Flow(s),veh/h/ln	661	1752	1739	1774	1770	1839	1399	1863	1583	1587	0	1583
Q Serve(g_s), s	0.9	12.1	12.1	3.2	5.8	5.8	4.7	0.5	4.9	0.0	0.0	0.3
Cycle Q Clear(g_c), s	0.9	12.1	12.1	3.2	5.8	5.8	5.3	0.5	4.9	0.6	0.0	0.3
Prop In Lane	1.00		0.35	1.00		0.07	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	435	819	812	440	1151	1196	374	325	428	378	0	276
V/C Ratio(X)	0.05	0.61	0.61	0.49	0.35	0.35	0.39	0.06	0.39	0.07	0.00	0.03
Avail Cap(c_a), veh/h	531	1074	1065	767	1735	1803	718	783	817	757	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	11.3	11.3	8.1	4.5	4.5	21.6	19.7	17.0	19.7	0.0	19.6
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.9	0.2	0.2	0.7	0.1	0.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	10.0	9.9	2.9	5.1	5.3	3.9	0.5	3.9	0.6	0.0	0.2
LnGrp Delay(d),s/veh	8.4	12.1	12.1	9.0	4.7	4.7	22.3	19.7	17.6	19.8	0.0	19.6
LnGrp LOS	A	B	B	A	A	A	C	B	B	B		B
Approach Vol, veh/h		1014			1032			333				34
Approach Delay, s/veh		12.0			5.6			19.8				19.7
Approach LOS		B			A			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.5	31.7		15.0		42.1		15.0				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	16.0	35.0		24.0		56.0		24.0				
Max Q Clear Time (g_c+I1), s	5.2	14.1		2.6		7.8		7.3				
Green Ext Time (p_c), s	0.4	12.6		1.2		19.0		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				10.4								
HCM 2010 LOS				B								

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	821	73	63	717	82	64	13	36	47	8	98
Future Volume (vph)	123	821	73	63	717	82	64	13	36	47	8	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	150		0	0		0	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1029			790			629			282	
Travel Time (s)		23.4			18.0			17.2			7.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	1004	0	71	898	0	0	87	40	0	62	110
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	63.0	63.0		63.0	63.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	66.3%	66.3%		66.3%	66.3%		33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
Maximum Green (s)	57.5	57.5		57.5	57.5		26.1	26.1	26.1	26.1	26.1	26.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Min	Min		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.40	0.46		0.24	0.41		0.27	0.10			0.20	0.23
Control Delay	11.0	7.1		8.5	6.7		20.5	8.4			19.7	6.7

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	11.0	7.1		8.5	6.7			20.5	8.4		19.7	6.7
Queue Length 50th (ft)	20	77		9	65			17	0		12	0
Queue Length 95th (ft)	61	133		31	115			67	21		51	35
Internal Link Dist (ft)		949			710			549			202	
Turn Bay Length (ft)	150			150								100
Base Capacity (vph)	541	3399		461	3356			811	973		785	1001
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.26	0.30		0.15	0.27			0.11	0.04		0.08	0.11

Intersection Summary

Area Type: Other

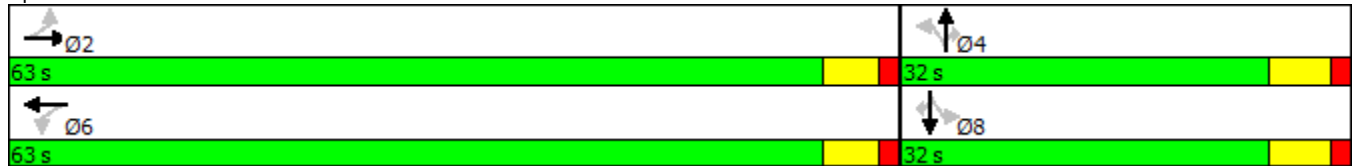
Cycle Length: 95

Actuated Cycle Length: 45.9

Natural Cycle: 45





















Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
1: N Westfield St & STH 21

2045 Total Traffic - With Improvements
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	821	73	63	717	82	64	13	36	47	8	98
Future Volume (veh/h)	123	821	73	63	717	82	64	13	36	47	8	98
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	922	82	71	806	92	72	15	24	53	9	68
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	448	2148	191	404	2072	236	300	53	254	312	45	254
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	618	3288	292	554	3171	362	1198	329	1583	1266	279	1583
Grp Volume(v), veh/h	138	496	508	71	445	453	87	0	24	62	0	68
Grp Sat Flow(s),veh/h/ln	618	1770	1811	554	1752	1781	1527	0	1583	1545	0	1583
Q Serve(g_s), s	8.2	8.3	8.3	4.3	7.2	7.2	1.0	0.0	0.8	0.0	0.0	2.3
Cycle Q Clear(g_c), s	15.4	8.3	8.3	12.6	7.2	7.2	2.8	0.0	0.8	1.8	0.0	2.3
Prop In Lane	1.00		0.16	1.00		0.20	0.83		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	448	1156	1183	404	1145	1163	353	0	254	357	0	254
V/C Ratio(X)	0.31	0.43	0.43	0.18	0.39	0.39	0.25	0.00	0.09	0.17	0.00	0.27
Avail Cap(c_a), veh/h	624	1662	1701	563	1646	1672	741	0	675	741	0	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.5	5.1	5.1	8.2	4.9	4.9	22.7	0.0	21.9	22.3	0.0	22.5
Incr Delay (d2), s/veh	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.0	0.2	0.2	0.0	0.6
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(95%),veh/ln	2.6	7.3	7.5	1.2	6.4	6.5	2.4	0.0	0.6	1.7	0.0	1.9
LnGrp Delay(d),s/veh	8.9	5.4	5.4	8.4	5.2	5.1	23.0	0.0	22.1	22.6	0.0	23.1
LnGrp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		1142			969			111			130	
Approach Delay, s/veh		5.8			5.4			22.8			22.8	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.5		15.7		45.5		15.7				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		57.5		26.1		57.5		26.1				
Max Q Clear Time (g_c+I1), s		17.4		4.8		14.6		4.3				
Green Ext Time (p_c), s		22.6		1.1		23.4		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				7.4								
HCM 2010 LOS				A								

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↗	↗
Traffic Volume (vph)	5	806	138	202	654	10	198	10	183	5	20	10
Future Volume (vph)	5	806	138	202	654	10	198	10	183	5	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	50		0	300		0	0		50	0		40
Storage Lanes	1		0	1		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		325			1327			1018			396	
Travel Time (s)		7.4			30.2			27.8			9.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	1073	0	230	754	0	225	11	208	0	29	11
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		1	6		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0		10.0	25.0		22.5	22.5	10.0	26.0	26.0	26.0
Total Split (s)	40.0	40.0		21.0	61.0		29.0	29.0	21.0	29.0	29.0	29.0
Total Split (%)	44.4%	44.4%		23.3%	67.8%		32.2%	32.2%	23.3%	32.2%	32.2%	32.2%
Maximum Green (s)	35.0	35.0		16.0	56.0		24.0	24.0	16.0	24.0	24.0	24.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		None	Min		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.02	0.77		0.63	0.35		0.70	0.03	0.28		0.07	0.03
Control Delay	16.6	24.2		20.3	7.5		39.9	24.2	10.9		24.5	0.1

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	16.6	24.2		20.3	7.5		39.9	24.2	10.9		24.5	0.1
Queue Length 50th (ft)	2	212		46	77		97	4	45		11	0
Queue Length 95th (ft)	10	340		126	126		185	17	89		33	0
Internal Link Dist (ft)		245			1247			938			316	
Turn Bay Length (ft)	50			300					50			40
Base Capacity (vph)	340	1740		483	2725		465	631	862		614	598
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.02	0.62		0.48	0.28		0.48	0.02	0.24		0.05	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.3

Natural Cycle: 65






















Control Type: Actuated-Uncoordinated

Splits and Phases: 2: N Sawyer St & STH 21



HCM 2010 Signalized Intersection Summary
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	806	138	202	654	10	198	10	183	5	20	10
Future Volume (veh/h)	5	806	138	202	654	10	198	10	183	5	20	10
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1845	1845	1845	1900	1863	1863
Adj Flow Rate, veh/h	6	916	157	230	743	11	225	11	128	6	23	6
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	2	2	2
Cap, veh/h	438	1377	236	405	2248	33	399	374	475	109	326	321
Arrive On Green	0.46	0.46	0.46	0.10	0.64	0.64	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	707	3023	518	1757	3536	52	1369	1845	1568	192	1607	1583
Grp Volume(v), veh/h	6	536	537	230	368	386	225	11	128	29	0	6
Grp Sat Flow(s),veh/h/ln	707	1770	1771	1757	1752	1835	1369	1845	1568	1799	0	1583
Q Serve(g_s), s	0.3	14.7	14.7	3.9	6.0	6.0	8.7	0.3	3.8	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	14.7	14.7	3.9	6.0	6.0	9.5	0.3	3.8	0.8	0.0	0.2
Prop In Lane	1.00		0.29	1.00		0.03	1.00		1.00	0.21		1.00
Lane Grp Cap(c), veh/h	438	806	807	405	1114	1167	399	374	475	435	0	321
V/C Ratio(X)	0.01	0.67	0.67	0.57	0.33	0.33	0.56	0.03	0.27	0.07	0.00	0.02
Avail Cap(c_a), veh/h	515	999	1000	683	1582	1657	651	714	763	756	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	13.2	13.2	10.1	5.2	5.2	23.4	19.8	16.4	20.0	0.0	19.8
Incr Delay (d2), s/veh	0.0	1.2	1.2	1.3	0.2	0.2	1.3	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	11.9	11.9	3.6	5.3	5.5	6.8	0.3	3.0	0.7	0.0	0.2
LnGrp Delay(d),s/veh	9.3	14.4	14.4	11.4	5.4	5.4	24.6	19.9	16.7	20.1	0.0	19.8
LnGrp LOS	A	B	B	B	A	A	C	B	B	C		B
Approach Vol, veh/h		1079			984			364			35	
Approach Delay, s/veh		14.4			6.8			21.7			20.0	
Approach LOS		B			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.2	33.2		17.6		44.4		17.6				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	16.0	35.0		24.0		56.0		24.0				
Max Q Clear Time (g_c+I1), s	5.9	16.7		2.8		8.0		11.5				
Green Ext Time (p_c), s	0.5	11.6		1.3		19.0		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				12.5								
HCM 2010 LOS				B								

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	937	53	41	912	54	75	9	47	74	11	94
Future Volume (vph)	113	937	53	41	912	54	75	9	47	74	11	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	150		0	0		0	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1029			790			629			282	
Travel Time (s)		23.4			18.0			17.2			7.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	1021	0	42	996	0	0	86	48	0	87	97
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	2	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.5	15.5		15.5	15.5		15.9	15.9	15.9	15.9	15.9	15.9
Total Split (s)	63.0	63.0		63.0	63.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	66.3%	66.3%		66.3%	66.3%		33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
Maximum Green (s)	57.5	57.5		57.5	57.5		26.1	26.1	26.1	26.1	26.1	26.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.9	5.9		5.9	5.9
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		1.4	1.4	1.4	1.4	1.4	1.4
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0	15.0	15.0	15.0	15.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	Min	Min		None	None		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.38	0.46		0.14	0.45			0.27	0.11		0.28	0.21
Control Delay	11.5	7.2		7.0	7.1			20.6	7.9		20.6	6.7

Lanes, Volumes, Timings
1: N Westfield St & STH 21

2045 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	11.5	7.2		7.0	7.1			20.6	7.9		20.6	6.7
Queue Length 50th (ft)	16	80		5	77			17	0		17	0
Queue Length 95th (ft)	56	141		19	136			66	24		67	33
Internal Link Dist (ft)		949			710			549			202	
Turn Bay Length (ft)	150			150								100
Base Capacity (vph)	471	3416		455	3416			773	975		779	994
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.25	0.30		0.09	0.29			0.11	0.05		0.11	0.10

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 45.9

Natural Cycle: 50





















Control Type: Semi Act-Uncoord

Splits and Phases: 1: N Westfield St & STH 21



HCM 2010 Signalized Intersection Summary
 1: N Westfield St & STH 21






















2045 Total Traffic - With Improvements
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	937	53	41	912	54	75	9	47	74	11	94
Future Volume (veh/h)	113	937	53	41	912	54	75	9	47	74	11	94
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	116	966	55	42	940	56	77	9	29	76	11	60
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	2241	128	403	2235	133	321	32	251	314	38	251
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	563	3404	194	550	3394	202	1332	200	1583	1297	242	1583
Grp Volume(v), veh/h	116	502	519	42	490	506	86	0	29	87	0	60
Grp Sat Flow(s),veh/h/ln	563	1770	1829	550	1770	1827	1531	0	1583	1539	0	1583
Q Serve(g_s), s	7.6	8.4	8.4	2.5	8.2	8.2	0.0	0.0	1.0	0.0	0.0	2.1
Cycle Q Clear(g_c), s	15.8	8.4	8.4	10.9	8.2	8.2	2.6	0.0	1.0	2.7	0.0	2.1
Prop In Lane	1.00		0.11	1.00		0.11	0.90		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	413	1165	1204	403	1165	1203	353	0	251	353	0	251
V/C Ratio(X)	0.28	0.43	0.43	0.10	0.42	0.42	0.24	0.00	0.12	0.25	0.00	0.24
Avail Cap(c_a), veh/h	561	1633	1687	549	1633	1686	726	0	663	729	0	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.8	5.1	5.1	7.7	5.0	5.0	23.2	0.0	22.5	23.2	0.0	22.9
Incr Delay (d2), s/veh	0.4	0.3	0.2	0.1	0.2	0.2	0.4	0.0	0.2	0.4	0.0	0.5
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(95%),veh/ln	2.2	7.4	7.6	0.7	7.2	7.5	2.4	0.0	0.8	2.5	0.0	1.7
LnGrp Delay(d),s/veh	9.1	5.3	5.3	7.8	5.3	5.3	23.5	0.0	22.7	23.5	0.0	23.4
LnGrp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		1137			1038			115			147	
Approach Delay, s/veh		5.7			5.4			23.3			23.5	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.5		15.8		46.5		15.8				
Change Period (Y+Rc), s		5.5		5.9		5.5		5.9				
Max Green Setting (Gmax), s		57.5		26.1		57.5		26.1				
Max Q Clear Time (g_c+I1), s		17.8		4.6		12.9		4.7				
Green Ext Time (p_c), s		23.2		1.2		24.8		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				7.5								
HCM 2010 LOS				A								

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	865	181	226	823	30	161	20	280	20	10	15
Future Volume (vph)	20	865	181	226	823	30	161	20	280	20	10	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	50		0	300		0	0		50	0		40
Storage Lanes	1		0	1		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			30	
Link Distance (ft)		325			1327			1018			396	
Travel Time (s)		7.4			30.2			27.8			9.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	1068	0	231	871	0	164	20	286	0	30	15
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		1	6		8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0		10.0	25.0		22.5	22.5	10.0	26.0	26.0	26.0
Total Split (s)	40.0	40.0		21.0	61.0		29.0	29.0	21.0	29.0	29.0	29.0
Total Split (%)	44.4%	44.4%		23.3%	67.8%		32.2%	32.2%	23.3%	32.2%	32.2%	32.2%
Maximum Green (s)	35.0	35.0		16.0	56.0		24.0	24.0	16.0	24.0	24.0	24.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		None	Min		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.75		0.61	0.39		0.57	0.05	0.39		0.09	0.04
Control Delay	15.8	21.7		17.4	6.7		35.0	25.0	13.0		25.4	0.2

Lanes, Volumes, Timings
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	15.8	21.7		17.4	6.7		35.0	25.0	13.0		25.4	0.2
Queue Length 50th (ft)	5	183		35	75		64	7	64		10	0
Queue Length 95th (ft)	22	338		123	143		139	26	132		35	0
Internal Link Dist (ft)		245			1247			938			316	
Turn Bay Length (ft)	50			300					50			40
Base Capacity (vph)	316	1813		516	2892		496	672	859		570	625
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.06	0.59		0.45	0.30		0.33	0.03	0.33		0.05	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 69.3

Natural Cycle: 65






















Control Type: Actuated-Uncoordinated

Splits and Phases: 2: N Sawyer St & STH 21



HCM 2010 Signalized Intersection Summary
2: N Sawyer St & STH 21

2045 Total Traffic - With Improvements
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	865	181	226	823	30	161	20	280	20	10	15
Future Volume (veh/h)	20	865	181	226	823	30	161	20	280	20	10	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	20	883	185	231	840	31	164	20	178	20	10	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	423	1386	290	427	2306	85	363	314	422	255	108	267
Arrive On Green	0.48	0.48	0.48	0.10	0.66	0.66	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	627	2886	604	1774	3481	128	1399	1863	1583	910	641	1583
Grp Volume(v), veh/h	20	536	532	231	427	444	164	20	178	30	0	9
Grp Sat Flow(s),veh/h/ln	627	1752	1738	1774	1770	1840	1399	1863	1583	1550	0	1583
Q Serve(g_s), s	1.0	13.6	13.6	3.4	6.4	6.4	5.5	0.5	5.5	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.0	13.6	13.6	3.4	6.4	6.4	6.3	0.5	5.5	0.8	0.0	0.3
Prop In Lane	1.00		0.35	1.00		0.07	1.00		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	423	841	834	427	1172	1219	363	314	422	363	0	267
V/C Ratio(X)	0.05	0.64	0.64	0.54	0.36	0.36	0.45	0.06	0.42	0.08	0.00	0.03
Avail Cap(c_a), veh/h	493	1036	1028	733	1674	1741	694	755	797	722	0	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	11.5	11.5	8.8	4.4	4.4	23.0	20.7	17.9	20.8	0.0	20.6
Incr Delay (d2), s/veh	0.0	0.9	0.9	1.1	0.2	0.2	0.9	0.1	0.7	0.1	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(95%),veh/ln	0.3	10.8	10.8	3.3	5.7	5.9	4.7	0.5	4.5	0.8	0.0	0.2
LnGrp Delay(d),s/veh	8.3	12.4	12.4	9.9	4.6	4.6	23.9	20.8	18.6	20.9	0.0	20.6
LnGrp LOS	A	B	B	A	A	A	C	C	B	C		C
Approach Vol, veh/h		1088			1102			362				39
Approach Delay, s/veh		12.4			5.7			21.1				20.8
Approach LOS		B			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.8	33.4		15.0		44.2		15.0				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	16.0	35.0		24.0		56.0		24.0				
Max Q Clear Time (g_c+I1), s	5.4	15.6		2.8		8.4		8.3				
Green Ext Time (p_c), s	0.5	12.8		1.4		21.2		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay				10.9								
HCM 2010 LOS				B								