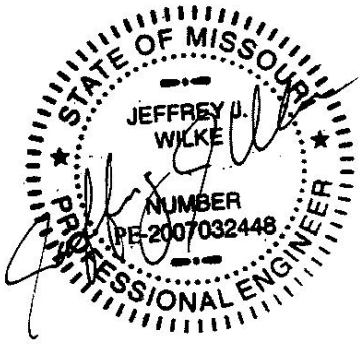
Traffic Impact Study

Home Depot C-Store

LEE'S SUMMIT, MISSOURI

MAY 2022



5/13/2022

Prepared By:

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1.0 INTRODUCTION

This report serves as the traffic analysis for the Home Depot C-Store development, located at the southeast corner of the Hamblen Road and Oldham Parkway intersection in Lee's Summit, Missouri. The location of the development site is shown on **Exhibit 1** in **Appendix A**.

The following traffic analysis focused on two analysis years: The Existing Year (2022) and the Horizon Year (2042).

1.1 REPORT PURPOSE AND OBJECTIVES

The purpose of this study is to address traffic and transportation impacts of the proposed development on surrounding streets and intersections. This traffic impact study was prepared based on criteria set forth by the City of Lee's Summit. The following information is provided:

- A description and map of the existing and proposed street network to be affected by the proposed development. This information includes existing and proposed roadway characteristics as well as existing year (2022) and horizon year (2042) traffic volumes.
- Trip generation calculations based on the Institute of Traffic Engineers (ITE) *Trip Generation Manual*, 11th Edition, for the proposed development. In addition, projected trip distributions onto the street network are provided.
- Analysis of impacts of the traffic generated by the proposed development on the street network, including analysis of peak period levels of service (LOS), delay times, and queuing at study area intersections.
- Review of access management at the site driveway intersections.
- Discussion of potential improvements and traffic management measures identified to mitigate operational concerns.

In summary, the study is to determine the trip generation of the Home Depot C-Store development, assign new development trips to the street network, analyze various scenarios to determine the impacts of proposed site traffic, and identify potential mitigation measures needed to achieve acceptable operations at the study intersections.

2.0 EXISTING CONDITIONS

2.1 STUDY AREA

The proposed development site is located in a commercial area south of the US-50 Highway and Route 291 north junction. The site is currently a vacant pad site located to the west of the parking lot for the Home Depot store. The Home Depot store site developed more than 20 years ago and is located southeast of the site. The pad site has been vacant since the store was constructed. Another vacant pad site with an existing parking aisle is located directly south of the site. The surrounding area consist of commercial land uses. Several small buildings for different businesses and a contractor's office are located to the west of the site across Hamblen Road. To the north of the site across Oldham Parkway is an Aldi grocery store.

Through discussion with City staff, the following intersections were included within the study area for the traffic analysis. The list provides the existing intersection control for each of the study intersections.

- Hamblen Road & Oldham Parkway (Traffic Signal)
- Hamblen Road & Home Depot driveway (Side Street Stop)
- Oldham Parkway & Home Depot driveway (Side Street Stop)

2.2 STREET NETWORK

The existing street network within the study area includes Hamblen Road, Oldham Parkway and two driveways to the Home Depot parking lot. The following provides a summary of the existing street network within the study area:

Hamblen Road is a north-south minor arterial street along the west edge of the site. North of the site the street provides access to the regional highway system at a diamond interchange with US-50 Highway, where Hamblen Road becomes Route 291 Highway. Hamblen Road is a four-lane divided street with curbs and gutters and a short, raised median to the north of Oldham Parkway. South of Oldham Parkway the street narrows to three lanes with a center two-way left-turn lane. There are no sidewalks or bicycle facilities along Hamblen Road near the development site. The posted speed limit is 35 miles per hour (mph).

Improvements are currently being designed for the US-50 Highway and Route 291 north junction. The improvements will add capacity to the interchange and increase spacing between intersections on Route 291 Highway just north of the interchange. No capacity improvements are expected at the study intersections as part of the project, but the additional capacity at the nearby intersections should improve traffic flow and reduce congestion along the Hamblen Road/Route 291 corridor.

Oldham Parkway is an east-west commercial collector roadway located along the north edge of the proposed development site. Adjacent to the site the street has two lanes in the eastbound direction, one lane in the westbound direction. There are curbs and gutters and a raised median east of the Hamblen Road intersection. The raised median ends and a center two-way left-turn lane is provided to the east of the Home Depot driveway. Farther to the east the curb and gutter ends, the street narrows to two lanes, and Oldham Parkway serves as the frontage road along the south side of US-50 Highway. There are sidewalks along both sides of Oldham Parkway adjacent to the development site, but they are not continuous along the north side of the street. There are no bicycle facilities along Oldham Parkway. The posted speed limit is 40 mph.

Driveway 1 is located along the south edge of the development site and provides access to Home Depot. This existing private driveway along Hamblen Road is located 430 feet south of the Oldham Parkway

intersection, when measured between centerlines. The driveway is 40 feet wide, providing two exiting lanes and one entering lane. Driveway 1 has a throat length of 48 feet between Hamblen Road and the first drive aisle on the south side of the driveway. The distance to the first drive aisle along the north side of Driveway 1 is roughly 200 feet.

Driveway 2 is located east of the development site and provides access to Home Depot. This existing private driveway along Oldham Parkway is located 465 feet east of the Hamblen Road intersection, when measured between centerlines. The driveway is 30 feet wide, providing one exiting lane and one entering lane. Driveway 2 has a throat length of 67 feet between Oldham Parkway and the first drive aisle within the parking lot.

2.3 DATA COLLECTION

Turning Movement Counts (TMCs) were collected the study intersections on Thursday, March 31st, 2022. The turning movement count data collected is included in **Appendix B**. The AM peak hour occurred between 7:15 AM and 8:15 AM, and the PM peak hour occurred between 4:30 PM and 5:30 PM. The existing conditions peak hour turning movement volumes are shown on **Exhibit 2**. For analysis purposes, southbound U-Turn movements at Hamblen Road & Oldham Parkway were included in the southbound left-turn volume. The existing geometry with lane configurations and intersection control at the study intersections is shown on **Exhibit 3**.

3.0 PROPOSED DEVELOPMENT

3.1 SITE DESCRIPTION

The proposed Home Depot C-Store development includes a 6,250 square foot convenience store facing Hamblen Road. In front of the store there will be 16 gasoline fueling positions under a canopy. Parking will be provided along the front of the store. An east-west drive aisle with parking on each side will be located in the northeast portion of the site connecting to Driveway 2. The proposed development site plan is included in **Appendix C** for reference.

3.2 SITE CIRCULATION

The proposed development will be accessed from two access points along private driveways internal to the Home Depot site. One access at the south side of the site will connect to Driveway 1, just east of Hamblen Road aligning with an existing drive aisle on the south side of Driveway 1. The other access point is the drive aisle in the northeast portion of the site that will connect to Driveway 2.

3.3 TRIP GENERATION

Trip generation estimates were prepared using the ITE *Trip Generation Manual*, 11th Edition. **Table 1** shows the expected trips to be generated by the proposed development. The total trip generation is anticipated to be 5,532 daily trips, 506 trips during the AM peak hour (253 entering and 253 exiting), and 430 trips during the PM peak hour (215 entering and 215 exiting). **Appendix D** provides the calculations used to determine the trip generation of the proposed development.

TABLE 1: PROPOSED DEVELOPMENT TRIP GENERATION

Land Use Description	ITE LUC	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Convenience Store/Gas Station	945	16 Fueling Positions	5,532	253	253	506	215	215	430
Pass-By Trips			3,485	159	159	318	135	135	270
Net New Site Trips			2,968	94	94	188	80	80	160

Pass-by trips are common at gas stations. Pass-by trips occur when a driver already traveling on the street adjacent to the development makes a trip to the development while in route to another destination. For the purposes of this study, pass-by traffic would consist of existing traffic on Hamblen Road and on Oldham Parkway making a trip to the development. Therefore, pass-by trips do not add new trips to the street network, but they do increase turning movements in and out of the development site.

The errata to the *Trip Generation Handbook* published by ITE, dated February 6, 2018 indicates an average pass-by trip percentage of 63 percent during both peak hours for the Convenience Market with Gasoline Pumps land use. That pass-by trip percentage was applied to the trip generation for the proposed development as indicated in **Table 1**.

3.4 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The estimated new site trips generated by the proposed development were assigned to the street network based on the trip distribution summarized in **Table 2**. This distribution is based on existing traffic patterns,

the expected service area of the proposed development, and engineering judgment. The detailed distribution patterns through the study intersections are shown on **Exhibit 4**.

TABLE 2: PROPOSED DEVELOPMENT TRIP DISTRIBUTION

Direction To/From	Percentage
North on Hamblen Road	45%
South on Hamblen Road	30%
East on Oldham Parkway	25%
Total	**100%**

Pass-by trips were accounted for using percentages similar to the distributions in **Table 2**. **Exhibit 5** shows the development trip assignment, including the pass-by trips.

The proposed development trip assignments and pass-by trips were added to the Existing (Year 2022) traffic volumes. **Exhibit 6** illustrates the Existing plus Development peak hour traffic volumes.

4.0 ACCESS MANAGEMENT

The City of Lee's Summit *Access Management Code* (AMC) provides guidance for the design of driveways, access spacing, and the need for turn lanes at intersections. These items are discussed in the following paragraphs.

4.1 ACCESS SPACING

The AMC includes requirements for minimum spacing between street connections, depending on street classification. Along minor arterial roadways such as Hamblen Road, the minimum spacing is 400 feet, measured between centerlines. Driveway 1 meets the minimum spacing requirement from Oldham Parkway, but it is only 275 from the next driveway to the south. There are also existing private driveways on the west side of Hamblen Road that are less than the minimum spacing from Driveway 1. These are all existing driveways and there is no practical way to improve these connection spacings with the proposed development.

For commercial collectors, the minimum spacing is 300 feet. Driveway 2 meets the minimum spacing from Hamblen Road, but the next driveway to the east is 285 feet away. These driveways were like constructed before the AMC was adopted, and the spacings very nearly satisfy the minimum requirements. Driveway 2 is located to align with the driveway on the north side of Oldham Parkway, which is indicative of good access management.

4.2 DRIVEWAY THROAT LENGTH

A driveways throat length is the distance along a driveway from the intersecting roadway to the first location on site where a driver can make a turn. Adequate throat lengths minimize the potential for inbound traffic to queue onto the public street. The throat length also provides space for outbound traffic to queue without adversely impacting site circulation.

The throat length requirements in the AMC are based on the two-way traffic volume on the driveway and the adjacent street classification. Driveway 1 is projected to have 400 or more vehicles per hour during the peak hour. As such the minimum throat length is 150 feet. The existing driveway currently has a throat length of 48 feet to the drive aisle on the south side of the driveway, which does not meet the minimum throat length requirement. The access to the proposed development is planned to align with the existing drive aisle.

Consideration should be given to relocating the site access on Driveway 1 east to align with the drive aisle along the front of the proposed convenience store. This would increase the throat length to approximately 110 feet along the north side of the driveway. Queue lengths projected at the driveway will be discussed in the analysis section of this study.

Driveway 2 is projected to have a volume of less than 300 vehicles per hour during the peak hours. Therefore, the minimum throat length is 100 feet. The existing throat length is only 67 feet. The throat length cannot be increased without significant modifications to the existing Home Depot parking lot. Queue lengths projected at the driveway will be discussed in the analysis section of this study.

4.3 TURN LANE ANALYSIS

The AMC also provides requirements for right- and left-turn lanes based on traffic volumes and street classifications. At Hamblen Road and Driveway 1 there is already an existing southbound left-turn lane. On a minor arterial street, a right-turn lane is warranted if there are 60 or more right turns during a peak hour. The volumes in **Exhibit 6** indicate that 100 northbound right-turns are projected during each peak hour. Therefore, a northbound right-turn lane is warranted at the Hamblen Road and Driveway 1 intersection. The AMC indicates that a right-turn lane at this location should be a minimum of 150 feet in length plus taper. There is not enough distance between Driveway 1 and the next driveway to the south to accommodate a turn lane of that length. As a result, the northbound right-turn lane should be 100 feet in length plus a 60-foot taper.

Additionally, there is an existing curb inlet along the east side of Hamblen Road, approximately 100 feet south of Driveway 1. The large (7'x7') curb inlet has a 42-inch pipe, a 33-inch x 52-inch elliptical pipe, and a 15-inch pipe entering the structure. The curb inlet would be impacted by widening for a right-turn lane. Given that a standard length turn lane cannot be constructed, and it will impact a large existing curb inlet, the benefits of the right-turn lane may not outweigh the cost to construct the lane.

At Oldham Parkway and Driveway 2 there is an existing westbound left-turn lane. On a commercial collector street, a right-turn lane is warranted if there are 100 or more right-turns during a peak hour. The volumes in **Exhibit 6** indicate that 57 and 79 eastbound right-turns are projected during the AM and PM peak hours, respectively. Therefore, an eastbound right-turn lane is not warranted at Driveway 2.

The recommended geometry with lane configurations and intersection control at the study intersections for Existing plus Development conditions is shown on **Exhibit 7**.

5.0 FUTURE CONDITIONS

The traffic analysis focused on two analysis years: existing year (2022) and horizon year (2042). To develop the future conditions traffic volume projections, background traffic growth was added to the existing traffic volumes, then the proposed development site trips were added.

To estimate background traffic growth, the existing traffic volumes at the study intersections were assumed to increase at a rate of 1% per year. The annual growth rate was estimated from historical traffic volumes in the area provided on the Missouri Department of Transportation's website. The turning movements at the private driveway intersections were not increased. The Future (Year 2042) peak hour traffic volumes are shown on **Exhibit 8**.

6.0 INTERSECTION CAPACITY ANALYSIS

6.1 LEVEL OF SERVICE OVERVIEW

Intersection capacity analysis was performed at the study intersections for the following scenarios:

- Existing Conditions (Year 2022)
- Existing plus Development Conditions
- Future Conditions (Year 2042)

The capacity analysis was performed for the weekday AM and PM peak hours using Synchro traffic modeling software to determine intersection delay and level of service (LOS). Calculations were performed based on the methodologies outlined in the *Highway Capacity Manual (HCM)*, 6th Edition, which is published by the Transportation Research Board.

LOS is a quantitative measure used by traffic engineers to describe the operations of an intersection. It ranges from A to F, with A being the best and F being the worst level of operation. LOS A conditions are characterized by minimal vehicle delay and free-flow conditions, while LOS F is characterized by long vehicle delay – usually when demand exceeds available roadway capacity. **Table 3** shows the definition of LOS for unsignalized and signalized intersections.

TABLE 3: LEVEL OF SERVICE

Level of Service	Average Control Delay (seconds/vehicle) at:	
	Unsignalized Intersections	Signalized Intersections
A	0 – 10	0 – 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Levels of service are evaluated based on the movement groupings which are required to yield to other traffic. Typically, these are left turns off the major street and the side street approaches for two-way stop-controlled intersections. For signalized intersections each movement grouping is evaluated, and LOS is evaluated for the intersection as a whole.

The City of Lee's Summit has adopted LOS C as the minimum desirable LOS. However, LOS D and E may be considered acceptable for low to moderate traffic volumes, the availability of alternate routes, and the duration of activity resulting in lower LOS.

Traffic queues were also evaluated as part of the analyses. Long traffic queues which extend beyond the amount of storage available, either between intersections or within turn lanes, can have significant impacts on operations. The 95th percentile vehicular queues were analyzed to ensure the analyses are reflective of the physical constraints of the study intersections and to identify if additional storage is needed for turn lanes. The 95th percentile queue represents the queue length that has only a 5% chance of being exceeded during the analysis period.

6.2 EXISTING (YEAR 2022) ANALYSIS

Capacity analysis was conducted for Existing (Year 2022) traffic conditions at the study intersections to determine baseline conditions for the existing analysis year. The analysis was performed for weekday AM and PM peak hours and is based on the lane configurations, traffic controls, and traffic volumes shown in **Exhibits 2** and **3**.

Table 4 provides a summary of the capacity analysis at the study intersections. The Synchro reports are provided in **Appendix E**.

TABLE 4: EXISTING (YEAR 2022) PEAK HOUR CONDITIONS

Intersection	Control	Movement	Operational Analysis Results					
			AM Peak Hour			PM Peak Hour		
			Delay (sec/veh)	LOS	95% Queue	Delay (sec/veh)	LOS	95% Queue
Hamblen Road & Driveway 1	Side Street Stop	WBL	15.1	C	< 50'	23.4	C	< 50'
		WBR	10.7	B	< 50'	11.9	B	< 50'
		SBL	8.2	A	< 50'	8.7	A	< 50'
Hamblen Road & Oldham Parkway	Traffic Signal	WBL	14.4	B	< 50'	17.6	B	57'
		WBR	12.0	B	< 50'	11.8	B	101'
		NBT/R	13.6	B	79'	20.9	C	142'
		SBL	8.3	A	< 50'	12.5	B	112'
		SBT	5.4	A	67'	7.9	A	137'
		Overall	**10.0**	**A**	--	**13.7**	**B**	--
Oldham Parkway & Driveway 2	Side Street Stop	NB	12.2	B	< 50'	20.0	C	< 50'
		EBL	7.7	A	< 50'	8.1	A	< 50'
		WBL	7.8	A	< 50'	8.1	A	< 50'
		SG	11.0	B	< 50'	13.9	B	< 50'

Based on the analysis results in **Table 4**, all intersections currently operate at acceptable LOS. The results indicate that all queues are contained within their respective turn lanes.

Some longer queues were observed on Hamblen Road during the counts during the PM peak hour. Between 5:00 PM and 5:30 PM, some long queues of northbound traffic extended back from the US-50 Highway interchange through Oldham Parkway and the intersection was blocked at times. One time during the PM peak hour the blockage resulted in the northbound through queue extending back to Driveway 1. This only occurred once during the traffic counts and the queue did clear during the next cycle of the signal. The improvements planned for the interchange should improve operations and alleviate the congestion observed on Hamblen Road.

6.3 EXISTING PLUS DEVELOPMENT ANALYSIS

Capacity analysis was conducted for Existing plus Development traffic conditions at the study intersections to determine the impact of site generated traffic from the proposed development. The analysis was performed for weekday AM and PM peak hours and is based on the lane configurations, traffic controls, and traffic volumes shown on **Exhibits 6** and **7**.

Table 5 provides a summary of the capacity analysis at the study intersections. The Synchro reports are provided in **Appendix E**.

TABLE 5: EXISTING PLUS DEVELOPMENT PEAK HOUR CONDITIONS

Intersection	Control	Movement	Operational Analysis Results					
			AM Peak Hour			PM Peak Hour		
			Delay (sec/veh)	LOS	95% Queue	Delay (sec/veh)	LOS	95% Queue
Hamblen Road & Driveway 1	Side Street Stop	WBL	22.5	C	< 50'	44.4	**E**	63'
		WBR	10.9	B	< 50'	12.3	B	< 50'
		SBL	8.6	A	< 50'	9.1	A	< 50'
Hamblen Road & Oldham Parkway	Traffic Signal	WBL	14.4	B	< 50'	18.1	B	60'
		WBR	11.9	B	< 50'	12.1	B	116'
		NBT/R	14.3	B	86'	21.4	C	157'
		SBL	8.6	A	50'	12.9	B	126'
		SBT	5.6	A	75'	8.2	A	149'
		Overall	**10.3**	**B**	--	**14.1**	**B**	--
Oldham Parkway & Driveway 2	Side Street Stop	NB	14.7	B	< 50'	30.7	**D**	70'
		EBL	7.6	A	< 50'	8.0	A	< 50'
		WBL	8.0	A	< 50'	8.3	A	< 50'
		SG	12.1	B	< 50'	15.2	C	< 50'

The analysis results in the table indicate that, most movements are projected to continue operating at acceptable LOS with the addition of traffic from the proposed development.

There are several movements that are projected to operate at undesirable levels of service in this scenario. The westbound left-turn movement at Hamblen Road & Driveway 1 is projected to operate at LOS E with 44.4 seconds of delay during the PM peak hour. Also, the northbound approach at Oldham Parkway & Driveway 2 is projected to operate at LOS D with 30.7 seconds of delay during the PM peak hour. While these LOS are lower for the PM peak hour, these movements operate acceptably during the AM peak hour. If these delays are unacceptable to drivers, alternate routes are available. Drivers can circulate through the Home Depot site to other driveways. Drivers can also make right turns out of the site instead of left turns and travel to the surrounding streets such as Century Drive and Bailey Road to reach the same destinations. For these reasons, no improvements are identified to mitigate the lower levels of service projected in this scenario.

The westbound queue lengths at Driveway 1 are projected to be 63 feet or less during both peak hours. This will block the proposed site access and existing drive aisle to the south. If the site access was shifted east as discussed in Section 4.2 of this study, the queues would not block the access.

Northbound queues at Driveway 2 are projected to be 70 feet during the PM peak hour, which will slightly exceed the throat length of the driveway. Inbound traffic will still be able to access the proposed gas station and Home Depot if 70-foot queues occur, therefore no operational concerns are expected in this scenario.

6.4 FUTURE (YEAR 2042) ANALYSIS

Capacity analysis was conducted for Future (Year 2042) traffic conditions at the study intersections to determine if improvements may be needed in the future. The analysis was performed for weekday AM and PM peak hours and is based on the traffic volumes shown on **Exhibit 8**. The lane configurations and traffic controls from the previous scenario shown on **Exhibit 7** were also used for this scenario.

Table 6 provides a summary of the capacity analysis at the study intersections. The Synchro reports are provided in **Appendix E**.

TABLE 6: FUTURE (YEAR 2042) PEAK HOUR CONDITIONS

Intersection	Control	Movement	Operational Analysis Results					
			AM Peak Hour			PM Peak Hour		
			Delay (sec/veh)	LOS	95% Queue	Delay (sec/veh)	LOS	95% Queue
Hamblen Road & Driveway 1	Side Street Stop	WBL	30.8	**D**	55'	90.7	**F**	108'
		WBR	11.8	B	< 50'	13.8	B	< 50'
		SBL	8.9	A	< 50'	9.6	A	< 50'
Hamblen Road & Oldham Parkway	Traffic Signal	WBL	15.5	B	< 50'	22.3	C	99'
		WBR	12.2	B	54'	14.2	B	224'
		NBT/R	16.7	B	113'	27.0	C	266'
		SBL	10.0	A	60'	18.3	B	278'
		SBT	6.4	A	94'	10.3	B	218'
		Overall	**11.7**	**B**	--	**18.0**	**B**	--
Oldham Parkway & Driveway 2	Side Street Stop	NB	17.1	C	< 50'	54.8	**F**	120'
		EBL	7.7	A	< 50'	8.2	A	< 50'
		WBL	8.1	A	< 50'	8.5	A	< 50'
		SG	12.5	B	< 50'	18.2	C	< 50'

The analysis results in **Table 6** indicate some lower levels of service are projected exiting the Home Depot driveways in the future. The westbound left-turn movement at Hamblen Road & Driveway 1 is projected to operate at LOS D and F during the AM and PM peak hours, respectively. The northbound approach at Oldham Parkway & Driveway 2 is projected to operate at LOS F during the PM peak hour. While these are lower levels of service, alternate routes to exit the site will be available to drivers. Along higher volume corridors it is not uncommon for stop-controlled side street movements to experience longer delays during peak times. Signalization is not appropriate at either of the driveways due to the proximity of the existing traffic signal at Hamblen Road & Oldham Parkway.

At the Hamblen Road & Oldham Parkway signalized intersection, the queues for the northbound through movement and southbound left-turn movement are projected to increase. If these queues become a concern, additional capacity and storage could be added for the southbound left-turn movement. The existing pavement is wide enough to allow for dual southbound left-turn lanes. Increasing the capacity of this movement would allow for signal timing changes that would decrease the queue lengths for the southbound left-turn and the northbound through movements.

The westbound queue lengths at Driveway 1 are projected to be 108 feet or less during both peak hours. This will block the proposed site access. If the access was shifted east as discussed in Section 4.2 of this study, the queues would be able to be contained on the driveway without blocking the site access.

Northbound queues at Driveway 2 are projected to be 120 feet during the PM peak hour, which will extend back into the parking aisles. If this level of queueing occurs in the future, consideration should be given to installing signage and pavement markings directing drivers not to block the internal intersection. Providing a short northbound right-turn lane on Driveway 2 would also reduce queue lengths.

6.0 CONCLUSIONS AND RECOMMENDATIONS

A traffic impact study for the Home Depot C-Store development has been prepared by Kimley-Horn. The proposed development site is located at the southeast corner of the Hamblen Road and Oldham Parkway intersection in Lee's Summit, Missouri. The purpose of this study was to assess the impact of the proposed development on the surrounding transportation system.

The following provides a summary of the analysis. Intersection capacity analysis was performed at the study intersections for the following scenarios:

- Existing (Year 2022)
- Existing plus Development
- Future (Year 2042)

Counts were collected in March 2022 to serve as the baseline for analysis. All study intersections were found to currently be operating at acceptable levels of service.

The proposed development is projected to generate 5,532 daily trips, with 506 trips during the AM peak hour and 430 trips during the PM peak hour. The site trips were added to the street network, and it was determined that a northbound right-turn lane will be warranted at Hamblen Road & Driveway 1. Given that a standard length turn lane cannot be constructed at this location, and a turn lane will impact a large existing curb inlet, the benefits of the right-turn lane may not outweigh the cost to construct the lane.

With the addition of development traffic most movements at the study intersections are projected to operate acceptably. No mitigations are identified for the movements that operate at lower levels of service. Queues on Driveway 1 are projected to block the proposed site access during the PM peak hour. Consideration should be given to relocating the site access east to align with the drive aisle along the front of the proposed convenience store.

In the Future (Year 2042) scenario, the existing traffic volumes were grown at a rate of 1% per year, and the proposed site trips were included. Overall, the study intersections are projected to operate similar to the previous scenario. Delays and queues are projected to increase for some movements exiting the Home Depot driveways. In the future, there may be a need for some modifications at the Oldham Parkway and Driveway 2 intersection if queues exceed the throat length of the driveway.

APPENDIX

Appendix A: EXHIBITS

Appendix B: TRAFFIC COUNT DATA

Appendix C: SITE PLAN

Appendix D: ITE TRIP GENERATION

Appendix E: SYNCHRO REPORTS

Appendix A: Exhibits

Kimley»Horn

EXHIBIT 1

PROJECT SITE LOCATION AND STUDY AREA

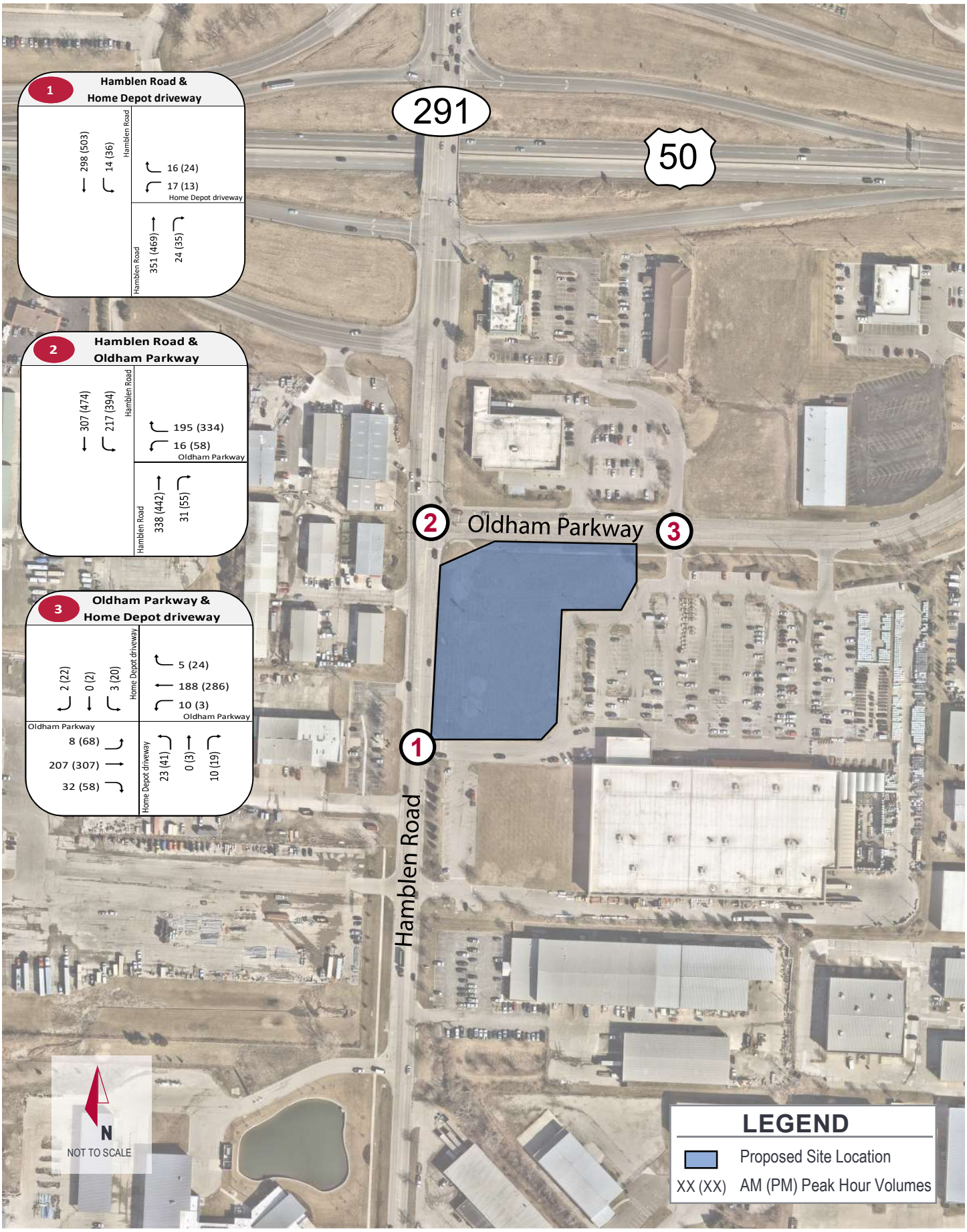

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EXHIBIT 2

EXISTING CONDITIONS (2022) PEAK HOUR TRAFFIC VOLUMES

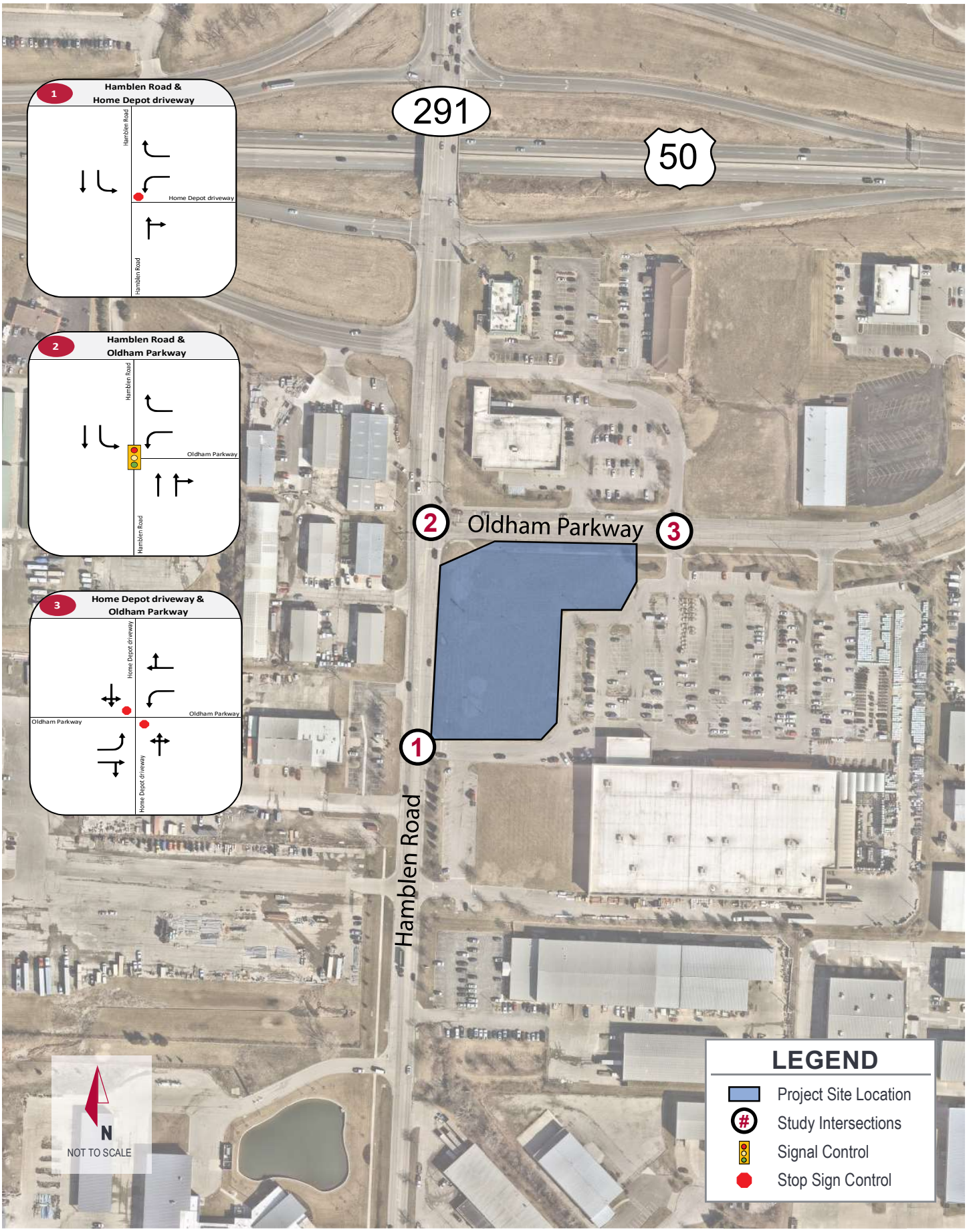

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EXHIBIT 3

EXISTING GEOMETRY AND INTERSECTION CONTROL

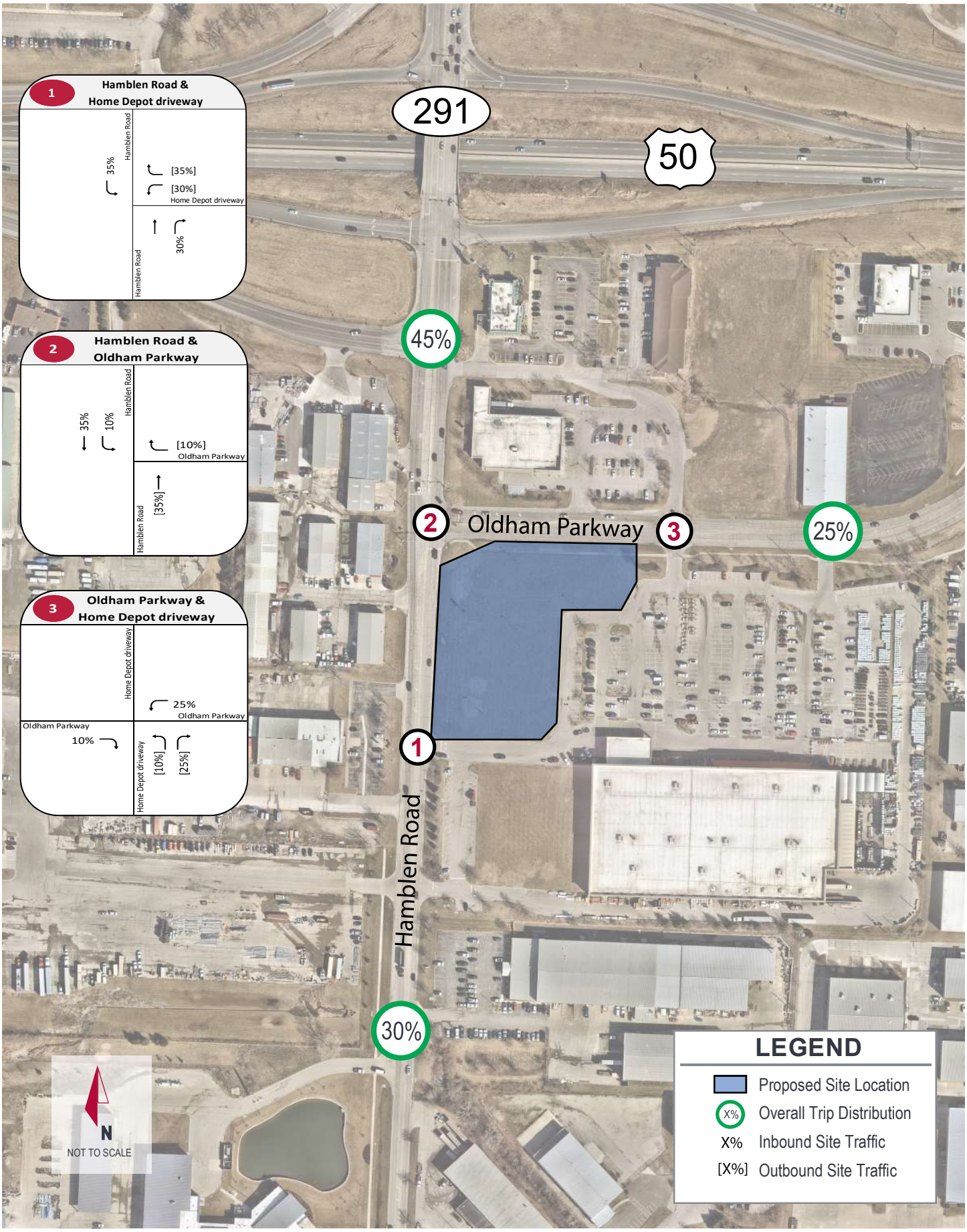

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EXHIBIT 4

TRIP DISTRIBUTION

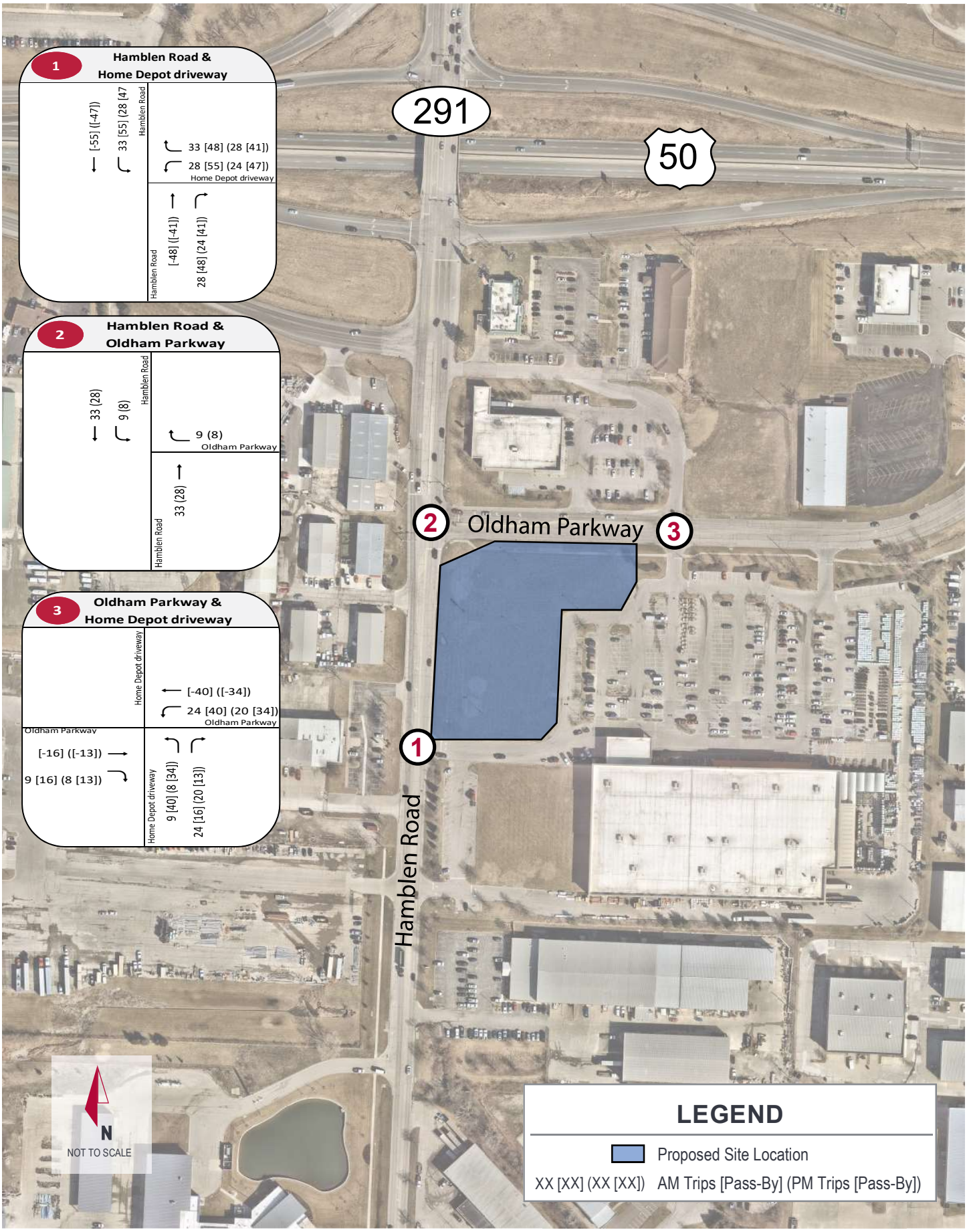

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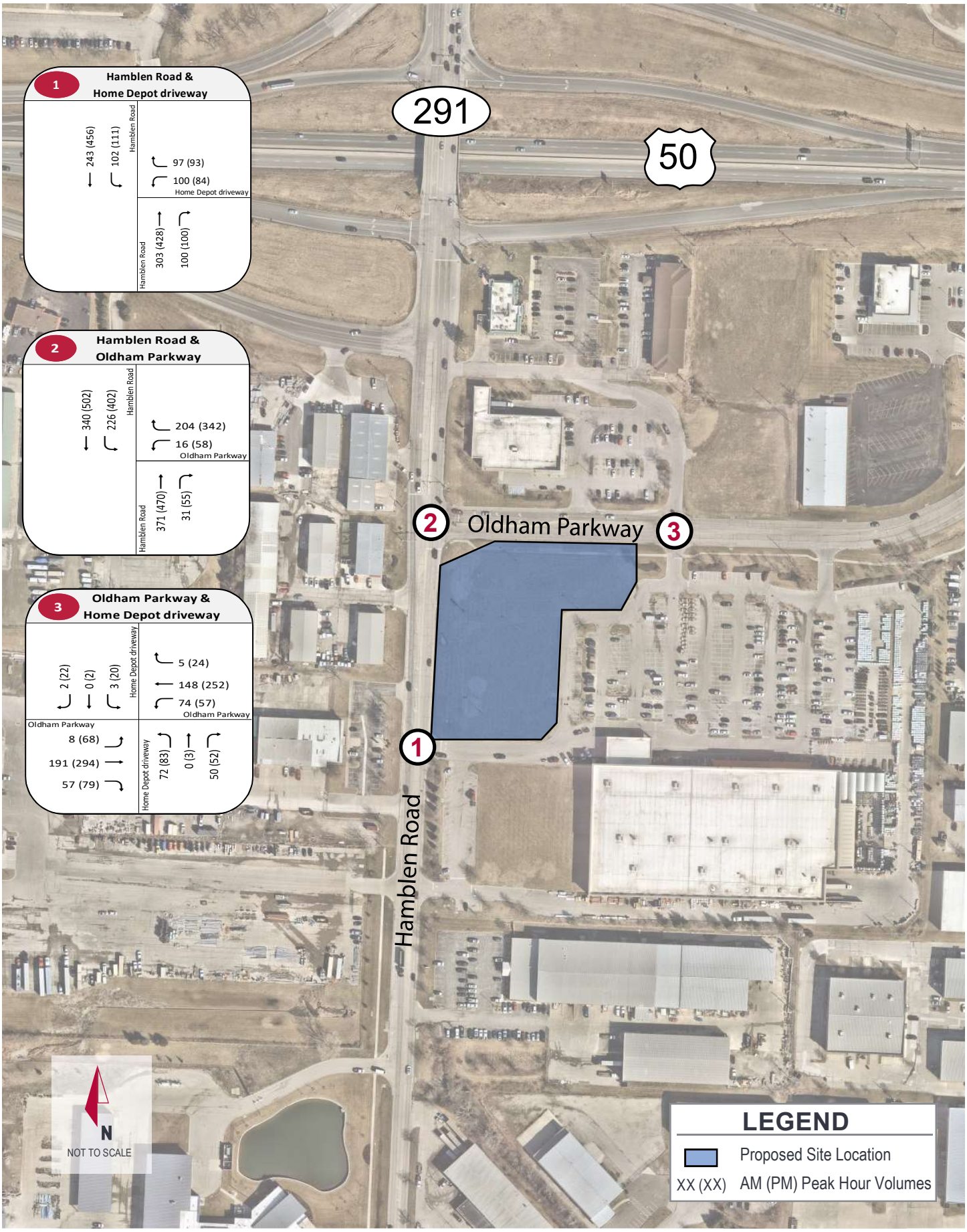
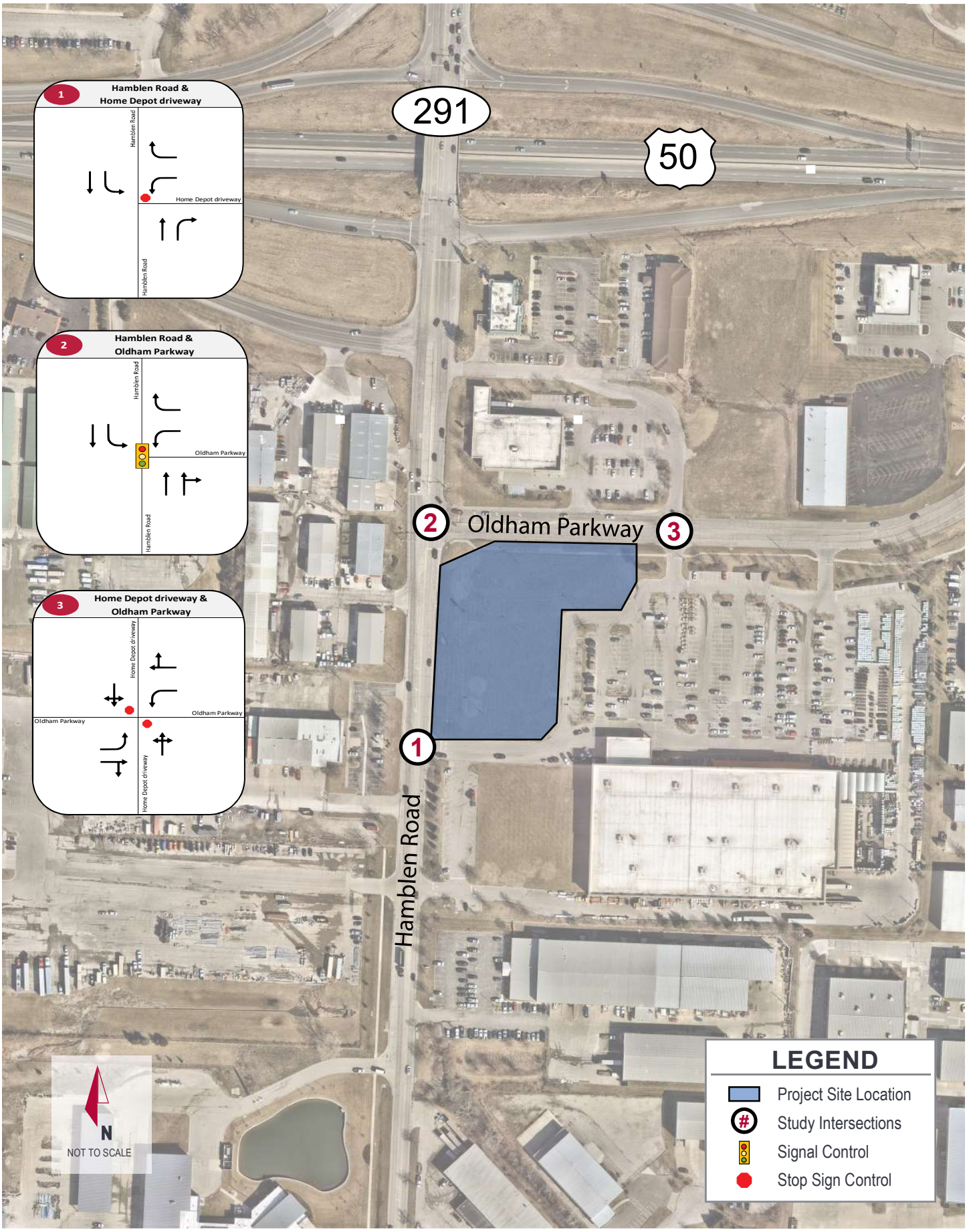
EXHIBIT 5
TRIP ASSIGNMENT



Kimley»Horn

EXHIBIT 6

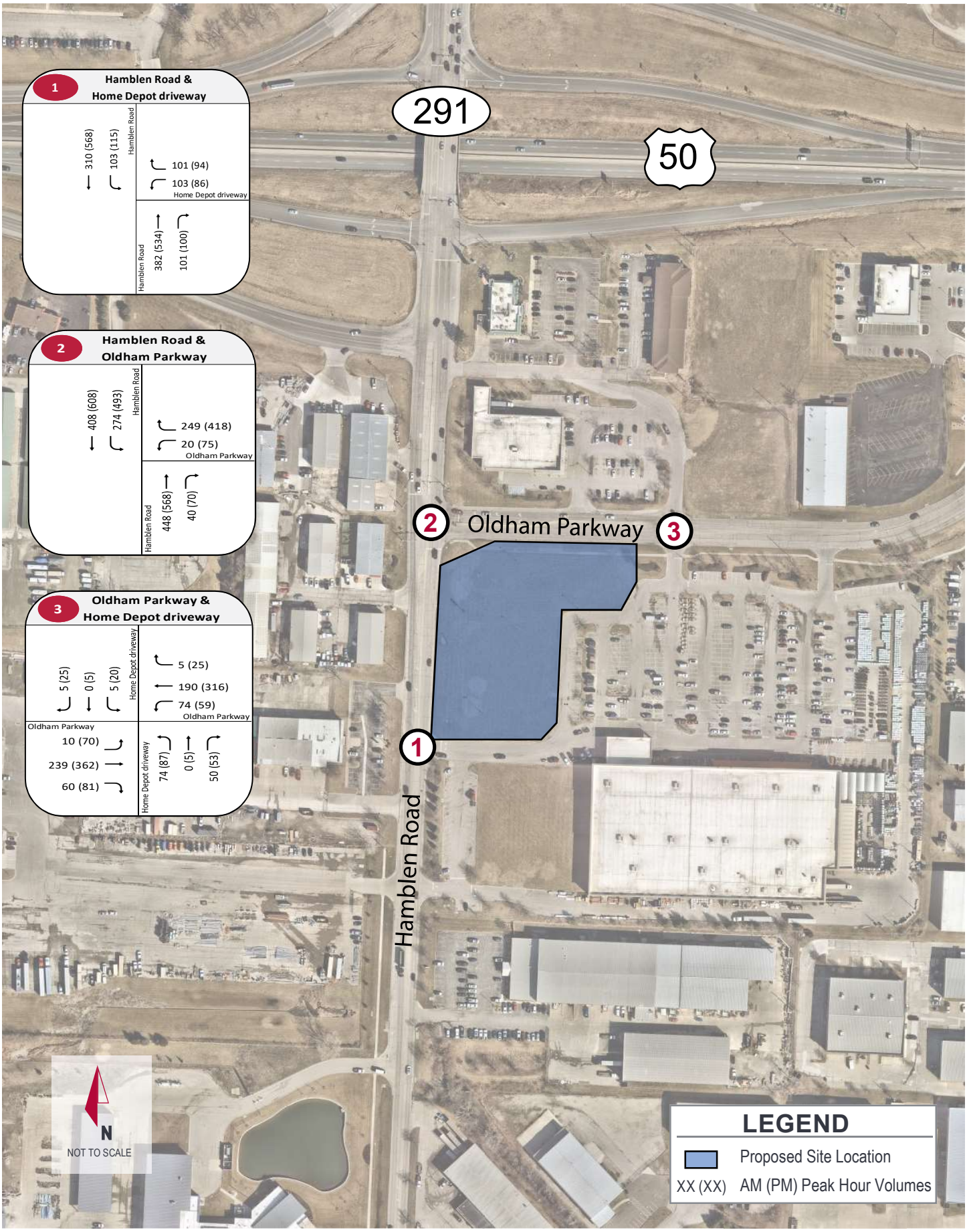
EXISTING PLUS DEVELOPMENT PEAK HOUR TRAFFIC



Kimley»Horn

EXHIBIT 7

EXISTING PLUS DEVELOPMENT GEOMETRY AND INTERSECTION CONTROL



Kimley»Horn

EXHIBIT 8

FUTURE CONDITIONS (YEAR 2042) PEAK HOUR TRAFFIC VOLUMES

Appendix B: Traffic Count Data

Hamblen Road & Home Depot driveway - TMC

Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

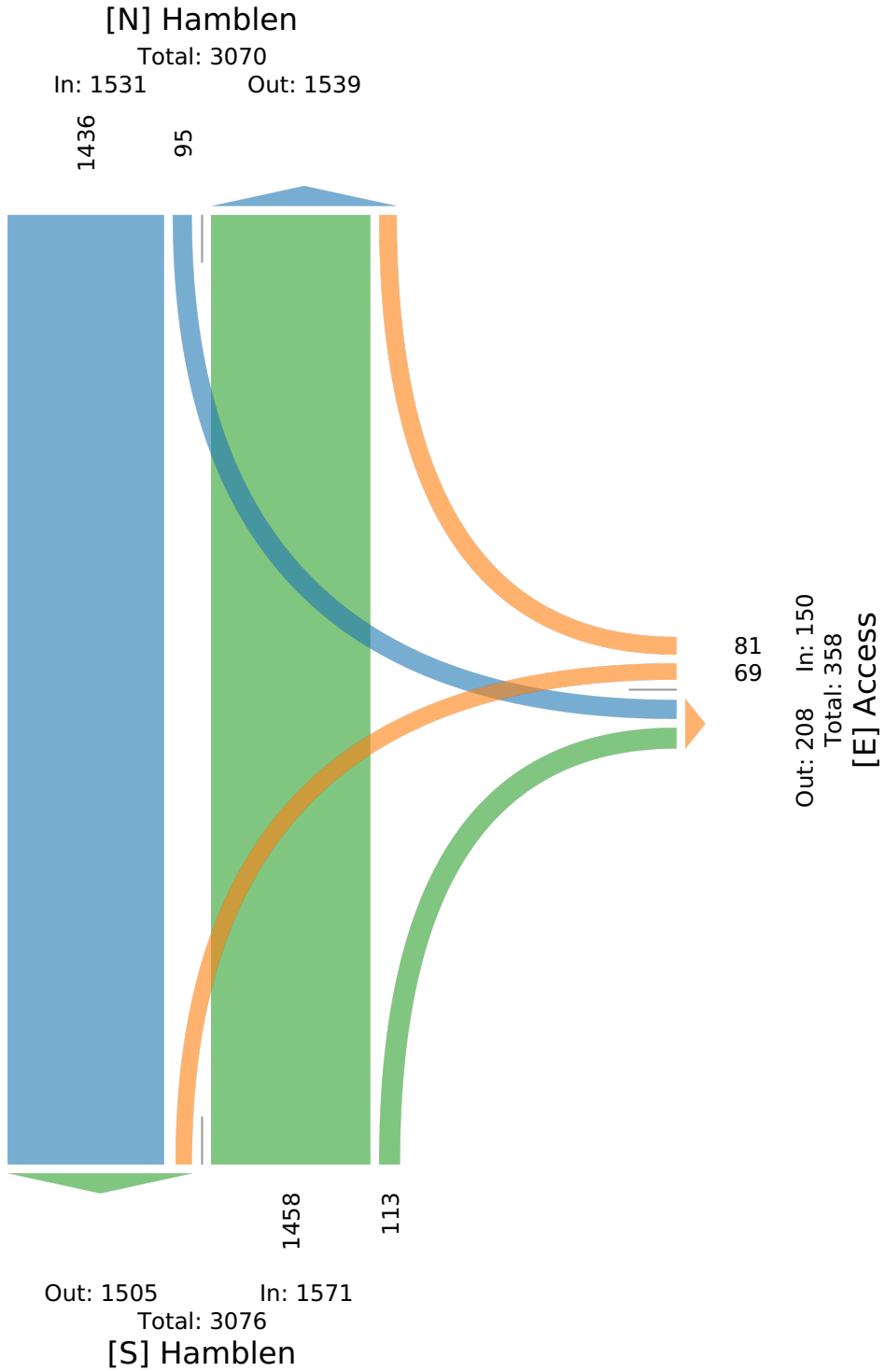
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Access				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 7:00AM	2	4	0	**6**	97	3	0	**100**	4	66	0	**70**	**176**
7:15AM	0	5	0	**5**	92	4	0	**96**	0	82	0	**82**	**183**
7:30AM	4	3	0	**7**	100	8	0	**108**	7	66	0	**73**	**188**
7:45AM	7	2	0	**9**	90	6	0	**96**	5	83	0	**88**	**193**
Hourly Total	13	14	0	**27**	379	21	0	**400**	16	297	0	**313**	**740**
8:00AM	6	6	0	**12**	69	6	0	**75**	2	67	0	**69**	**156**
8:15AM	4	4	0	**8**	82	8	0	**90**	7	59	0	**66**	**164**
8:30AM	1	6	0	**7**	62	10	0	**72**	6	60	0	**66**	**145**
8:45AM	7	8	0	**15**	83	11	0	**94**	9	52	0	**61**	**170**
Hourly Total	18	24	0	**42**	296	35	0	**331**	24	238	0	**262**	**635**
4:00PM	7	8	0	**15**	72	3	0	**75**	8	106	0	**114**	**204**
4:15PM	10	2	0	**12**	104	7	0	**111**	5	95	0	**100**	**223**
4:30PM	6	6	0	**12**	119	6	0	**125**	13	138	0	**151**	**288**
4:45PM	2	7	0	**9**	106	7	0	**113**	6	140	0	**146**	**268**
Hourly Total	25	23	0	**48**	401	23	0	**424**	32	479	0	**511**	**983**
5:00PM	2	5	0	**7**	148	11	0	**159**	11	124	0	**135**	**301**
5:15PM	3	6	0	**9**	96	11	0	**107**	6	101	0	**107**	**223**
5:30PM	5	3	0	**8**	57	5	0	**62**	3	111	0	**114**	**184**
5:45PM	3	6	0	**9**	81	7	0	**88**	3	86	0	**89**	**186**
Hourly Total	13	20	0	**33**	382	34	0	**416**	23	422	0	**445**	**894**
Total	69	81	0	**150**	1458	113	0	**1571**	95	1436	0	**1531**	**3252**
% Approach	46.0%	54.0%	0%	**-**	92.8%	7.2%	0%	**-**	6.2%	93.8%	0%	**-**	-
% Total	2.1%	2.5%	0%	**4.6%**	44.8%	3.5%	0%	**48.3%**	2.9%	44.2%	0%	**47.1%**	-
Lights	69	80	0	**149**	1386	111	0	**1497**	94	1355	0	**1449**	3095
% Lights	100%	98.8%	0%	**99.3%**	95.1%	98.2%	0%	**95.3%**	98.9%	94.4%	0%	**94.6%**	95.2%
Articulated Trucks	0	1	0	**1**	12	0	0	**12**	0	10	0	**10**	23
% Articulated Trucks	0%	1.2%	0%	**0.7%**	0.8%	0%	0%	**0.8%**	0%	0.7%	0%	**0.7%**	0.7%
Buses and Single-Unit Trucks	0	0	0	**0**	60	2	0	**62**	1	71	0	**72**	134
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	4.1%	1.8%	0%	**3.9%**	1.1%	4.9%	0%	**4.7%**	4.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Home Depot driveway - TMC
Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Hamblen Road & Home Depot driveway - TMC

Thu Mar 31, 2022
AM Peak (7 AM - 8 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

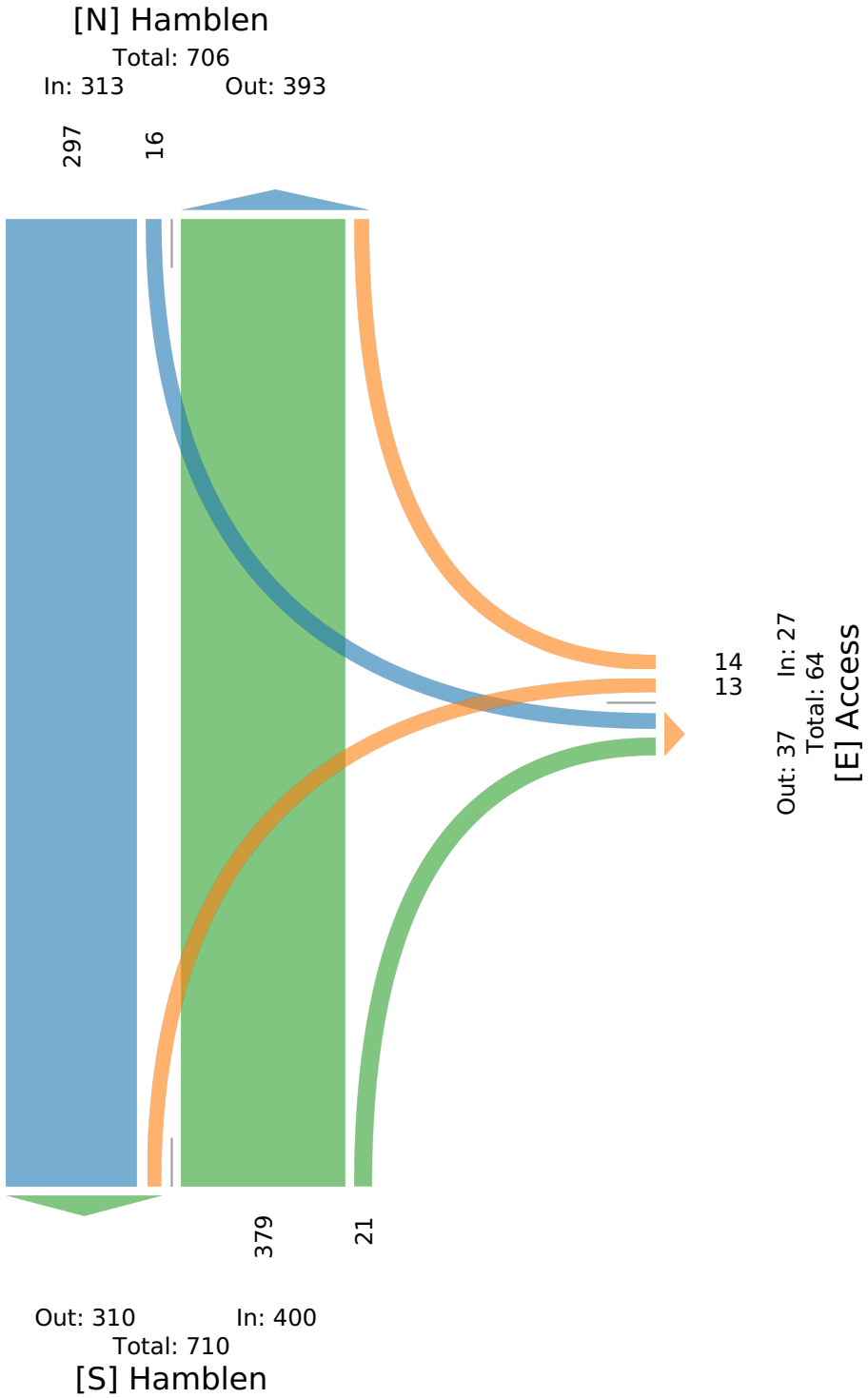
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Access				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 7:00AM	2	4	0	**6**	97	3	0	**100**	4	66	0	**70**	**176**
7:15AM	0	5	0	**5**	92	4	0	**96**	0	82	0	**82**	**183**
7:30AM	4	3	0	**7**	100	8	0	**108**	7	66	0	**73**	**188**
7:45AM	7	2	0	**9**	90	6	0	**96**	5	83	0	**88**	**193**
Total	13	14	0	**27**	379	21	0	**400**	16	297	0	**313**	**740**
% Approach	48.1%	51.9%	0%	**-**	94.8%	5.3%	0%	**-**	5.1%	94.9%	0%	**-**	-
% Total	1.8%	1.9%	0%	**3.6%**	51.2%	2.8%	0%	**54.1%**	2.2%	40.1%	0%	**42.3%**	-
PHF	0.464	0.700	-	**0.750**	0.948	0.656	-	**0.926**	0.571	0.895	-	**0.889**	0.959
Lights	13	14	0	**27**	344	21	0	**365**	16	287	0	**303**	695
% Lights	100%	100%	0%	**100%**	90.8%	100%	0%	**91.3%**	100%	96.6%	0%	**96.8%**	93.9%
Articulated Trucks	0	0	0	**0**	4	0	0	**4**	0	3	0	**3**	7
% Articulated Trucks	0%	0%	0%	**0%**	1.1%	0%	0%	**1.0%**	0%	1.0%	0%	**1.0%**	0.9%
Buses and Single-Unit Trucks	0	0	0	**0**	31	0	0	**31**	0	7	0	**7**	38
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	8.2%	0%	0%	**7.8%**	0%	2.4%	0%	**2.2%**	5.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Home Depot driveway - TMC
Thu Mar 31, 2022
AM Peak (7 AM - 8 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Hamblen Road & Home Depot driveway - TMC

Thu Mar 31, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

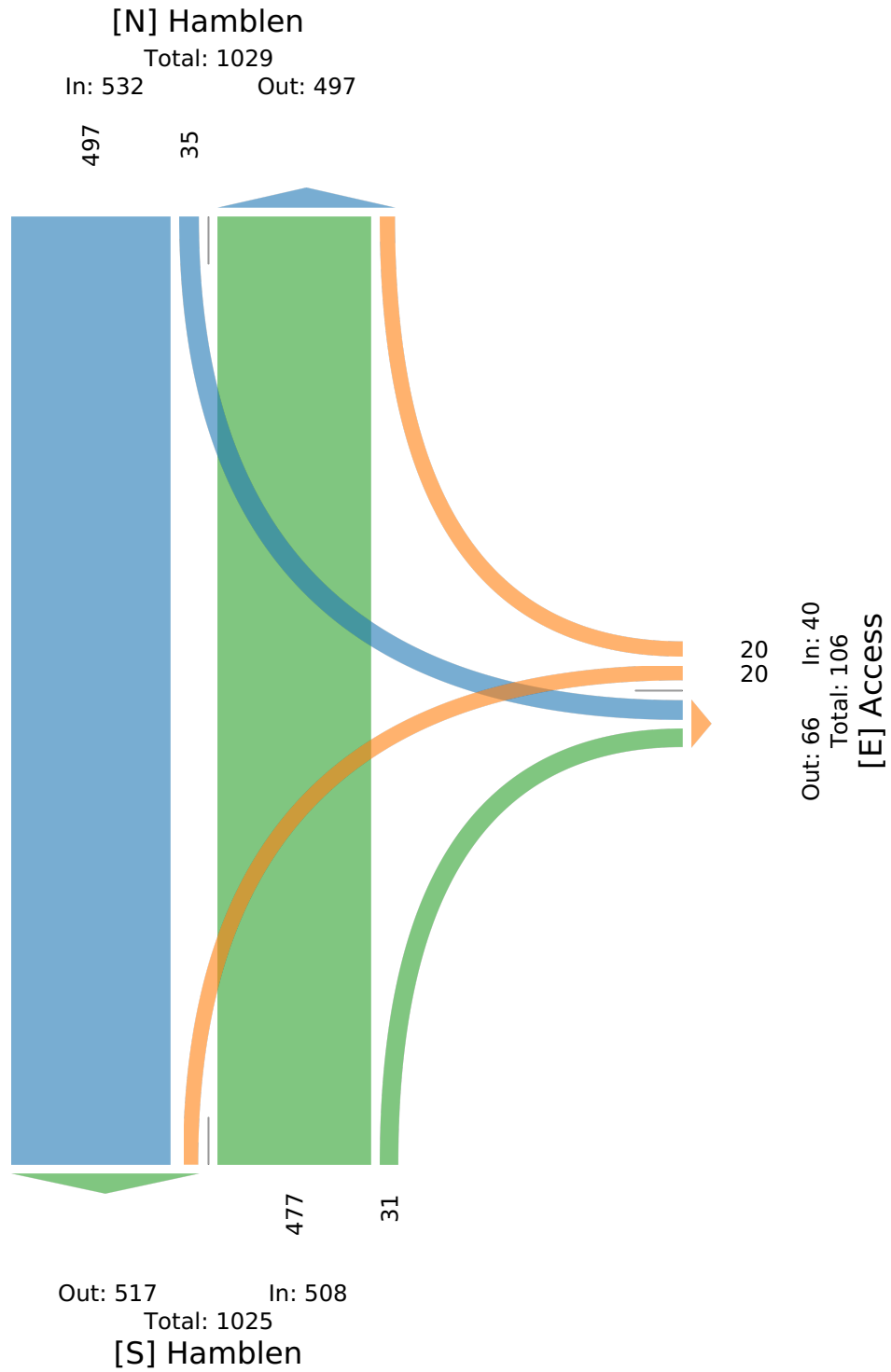
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Access				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 4:15PM	10	2	0	**12**	104	7	0	**111**	5	95	0	**100**	**223**
4:30PM	6	6	0	**12**	119	6	0	**125**	13	138	0	**151**	**288**
4:45PM	2	7	0	**9**	106	7	0	**113**	6	140	0	**146**	**268**
5:00PM	2	5	0	**7**	148	11	0	**159**	11	124	0	**135**	**301**
Total	20	20	0	**40**	477	31	0	**508**	35	497	0	**532**	**1080**
% Approach	50.0%	50.0%	0%	**-**	93.9%	6.1%	0%	**-**	6.6%	93.4%	0%	**-**	-
% Total	1.9%	1.9%	0%	**3.7%**	44.2%	2.9%	0%	**47.0%**	3.2%	46.0%	0%	**49.3%**	-
PHF	0.500	0.714	-	**0.833**	0.806	0.705	-	**0.799**	0.673	0.888	-	**0.881**	0.897
Lights	20	20	0	**40**	468	30	0	**498**	34	448	0	**482**	1020
% Lights	100%	100%	0%	**100%**	98.1%	96.8%	0%	**98.0%**	97.1%	90.1%	0%	**90.6%**	94.4%
Articulated Trucks	0	0	0	**0**	2	0	0	**2**	0	3	0	**3**	5
% Articulated Trucks	0%	0%	0%	**0%**	0.4%	0%	0%	**0.4%**	0%	0.6%	0%	**0.6%**	0.5%
Buses and Single-Unit Trucks	0	0	0	**0**	7	1	0	**8**	1	46	0	**47**	55
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	1.5%	3.2%	0%	**1.6%**	2.9%	9.3%	0%	**8.8%**	5.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Home Depot driveway - TMC
Thu Mar 31, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935393, Location: 38.899682, -94.363233

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Hamblen Road & Oldham Pkwy - TMC

Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

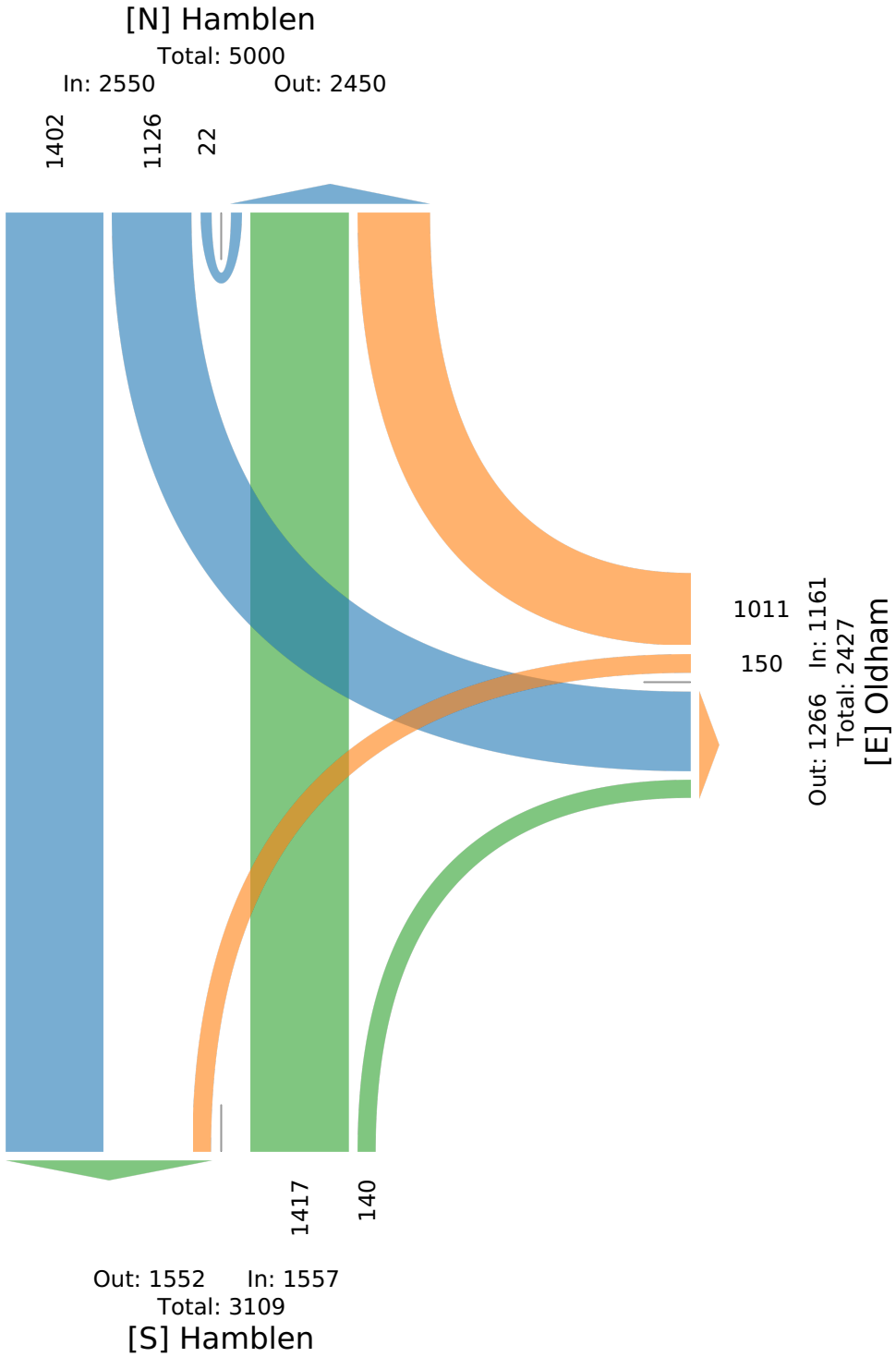
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 7:00AM	1	54	0	**55**	100	2	0	**102**	24	70	0	**94**	**251**
7:15AM	1	42	0	**43**	91	5	0	**96**	48	83	0	**131**	**270**
7:30AM	7	49	0	**56**	100	9	0	**109**	49	71	0	**120**	**285**
7:45AM	4	52	0	**56**	83	6	0	**89**	56	84	0	**140**	**285**
Hourly Total	13	197	0	**210**	374	22	0	**396**	177	308	0	**485**	**1091**
8:00AM	4	52	0	**56**	64	11	0	**75**	63	69	1	**133**	**264**
8:15AM	11	39	0	**50**	80	6	0	**86**	52	52	0	**104**	**240**
8:30AM	9	57	0	**66**	65	4	0	**69**	54	61	0	**115**	**250**
8:45AM	12	54	0	**66**	77	8	0	**85**	85	52	0	**137**	**288**
Hourly Total	36	202	0	**238**	286	29	0	**315**	254	234	1	**489**	**1042**
4:00PM	12	76	0	**88**	80	6	0	**86**	94	106	2	**202**	**376**
4:15PM	8	60	0	**68**	93	11	0	**104**	84	95	1	**180**	**352**
4:30PM	19	87	0	**106**	108	16	0	**124**	100	134	5	**239**	**469**
4:45PM	20	83	0	**103**	106	16	0	**122**	86	124	3	**213**	**438**
Hourly Total	59	306	0	**365**	387	49	0	**436**	364	459	11	**834**	**1635**
5:00PM	8	84	0	**92**	130	12	0	**142**	103	125	7	**235**	**469**
5:15PM	11	80	0	**91**	98	11	0	**109**	89	91	1	**181**	**381**
5:30PM	18	76	0	**94**	60	9	0	**69**	67	97	2	**166**	**329**
5:45PM	5	66	0	**71**	82	8	0	**90**	72	88	0	**160**	**321**
Hourly Total	42	306	0	**348**	370	40	0	**410**	331	401	10	**742**	**1500**
Total	150	1011	0	**1161**	1417	140	0	**1557**	1126	1402	22	**2550**	**5268**
% Approach	12.9%	87.1%	0%	**-**	91.0%	9.0%	0%	**-**	44.2%	55.0%	0.9%	**-**	-
% Total	2.8%	19.2%	0%	**22.0%**	26.9%	2.7%	0%	**29.6%**	21.4%	26.6%	0.4%	**48.4%**	-
Lights	148	991	0	**1139**	1340	137	0	**1477**	1103	1317	22	**2442**	5058
% Lights	98.7%	98.0%	0%	**98.1%**	94.6%	97.9%	0%	**94.9%**	98.0%	93.9%	100%	**95.8%**	96.0%
Articulated Trucks	1	3	0	**4**	21	0	0	**21**	7	15	0	**22**	47
% Articulated Trucks	0.7%	0.3%	0%	**0.3%**	1.5%	0%	0%	**1.3%**	0.6%	1.1%	0%	**0.9%**	0.9%
Buses and Single-Unit Trucks	1	17	0	**18**	56	3	0	**59**	16	70	0	**86**	163
% Buses and Single-Unit Trucks	0.7%	1.7%	0%	**1.6%**	4.0%	2.1%	0%	**3.8%**	1.4%	5.0%	0%	**3.4%**	3.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Oldham Pkwy - TMC
Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Hamblen Road & Oldham Pkwy - TMC

Thu Mar 31, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

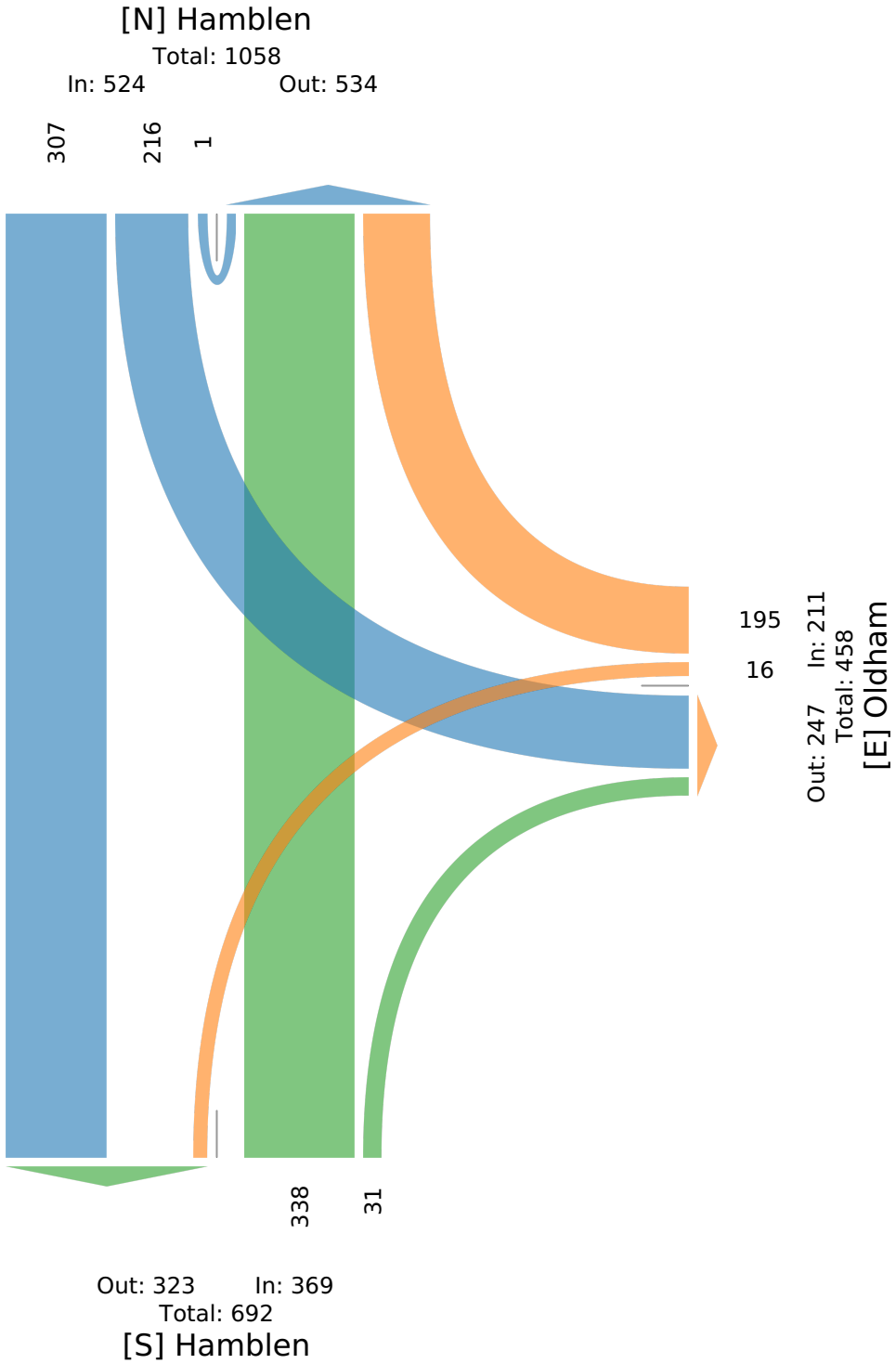
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 7:15AM	1	42	0	**43**	91	5	0	**96**	48	83	0	**131**	**270**
7:30AM	7	49	0	**56**	100	9	0	**109**	49	71	0	**120**	**285**
7:45AM	4	52	0	**56**	83	6	0	**89**	56	84	0	**140**	**285**
8:00AM	4	52	0	**56**	64	11	0	**75**	63	69	1	**133**	**264**
Total	16	195	0	**211**	338	31	0	**369**	216	307	1	**524**	**1104**
% Approach	7.6%	92.4%	0%	**-**	91.6%	8.4%	0%	**-**	41.2%	58.6%	0.2%	**-**	-
% Total	1.4%	17.7%	0%	**19.1%**	30.6%	2.8%	0%	**33.4%**	19.6%	27.8%	0.1%	**47.5%**	-
PHF	0.571	0.938	-	**0.942**	0.845	0.705	-	**0.846**	0.857	0.914	0.250	**0.936**	0.968
Lights	16	190	0	**206**	308	30	0	**338**	210	296	1	**507**	1051
% Lights	100%	97.4%	0%	**97.6%**	91.1%	96.8%	0%	**91.6%**	97.2%	96.4%	100%	**96.8%**	95.2%
Articulated Trucks	0	1	0	**1**	9	0	0	**9**	1	2	0	**3**	13
% Articulated Trucks	0%	0.5%	0%	**0.5%**	2.7%	0%	0%	**2.4%**	0.5%	0.7%	0%	**0.6%**	1.2%
Buses and Single-Unit Trucks	0	4	0	**4**	21	1	0	**22**	5	9	0	**14**	40
% Buses and Single-Unit Trucks	0%	2.1%	0%	**1.9%**	6.2%	3.2%	0%	**6.0%**	2.3%	2.9%	0%	**2.7%**	3.6%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Oldham Pkwy - TMC
Thu Mar 31, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Hamblen Road & Oldham Pkwy - TMC

Thu Mar 31, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

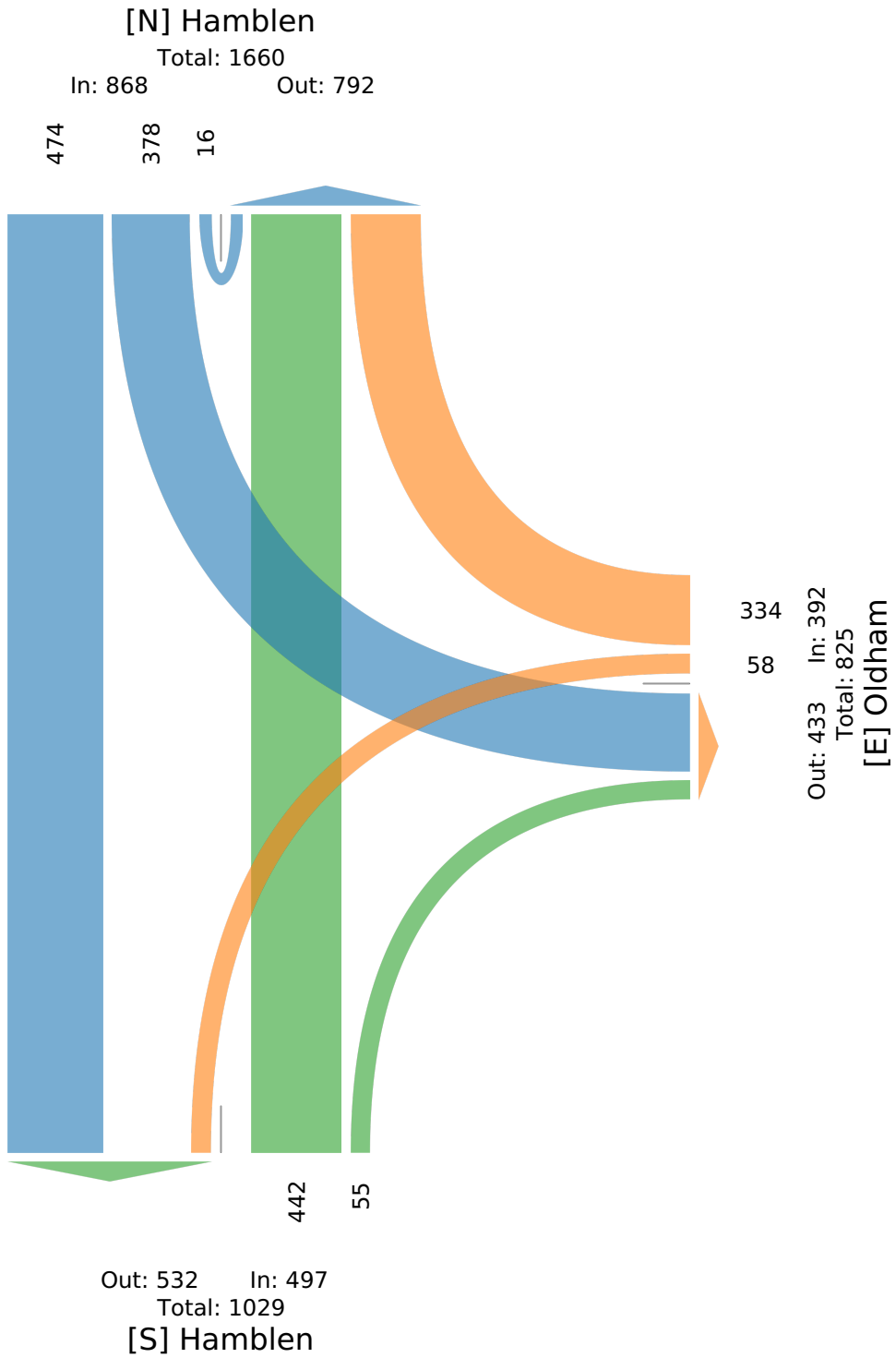
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham				Hamblen				Hamblen				
Direction	Westbound				Northbound				Southbound				
Time	L	R	U	**App**	T	R	U	**App**	L	T	U	**App**	**Int**
2022-03-31 4:30PM	19	87	0	**106**	108	16	0	**124**	100	134	5	**239**	**469**
4:45PM	20	83	0	**103**	106	16	0	**122**	86	124	3	**213**	**438**
5:00PM	8	84	0	**92**	130	12	0	**142**	103	125	7	**235**	**469**
5:15PM	11	80	0	**91**	98	11	0	**109**	89	91	1	**181**	**381**
Total	58	334	0	**392**	442	55	0	**497**	378	474	16	**868**	**1757**
% Approach	14.8%	85.2%	0%	**-**	88.9%	11.1%	0%	**-**	43.5%	54.6%	1.8%	**-**	-
% Total	3.3%	19.0%	0%	**22.3%**	25.2%	3.1%	0%	**28.3%**	21.5%	27.0%	0.9%	**49.4%**	-
PHF	0.725	0.960	-	**0.925**	0.850	0.859	-	**0.875**	0.917	0.884	0.571	**0.908**	0.937
Lights	58	331	0	**389**	431	55	0	**486**	373	430	16	**819**	1694
% Lights	100%	99.1%	0%	**99.2%**	97.5%	100%	0%	**97.8%**	98.7%	90.7%	100%	**94.4%**	96.4%
Articulated Trucks	0	1	0	**1**	3	0	0	**3**	2	5	0	**7**	11
% Articulated Trucks	0%	0.3%	0%	**0.3%**	0.7%	0%	0%	**0.6%**	0.5%	1.1%	0%	**0.8%**	0.6%
Buses and Single-Unit Trucks	0	2	0	**2**	8	0	0	**8**	3	39	0	**42**	52
% Buses and Single-Unit Trucks	0%	0.6%	0%	**0.5%**	1.8%	0%	0%	**1.6%**	0.8%	8.2%	0%	**4.8%**	3.0%

*L: Left, R: Right, T: Thru, U: U-Turn

Hamblen Road & Oldham Pkwy - TMC
Thu Mar 31, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935394, Location: 38.900821, -94.363147

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Oldham Pkwy & Home Depot driveway - TMC

Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

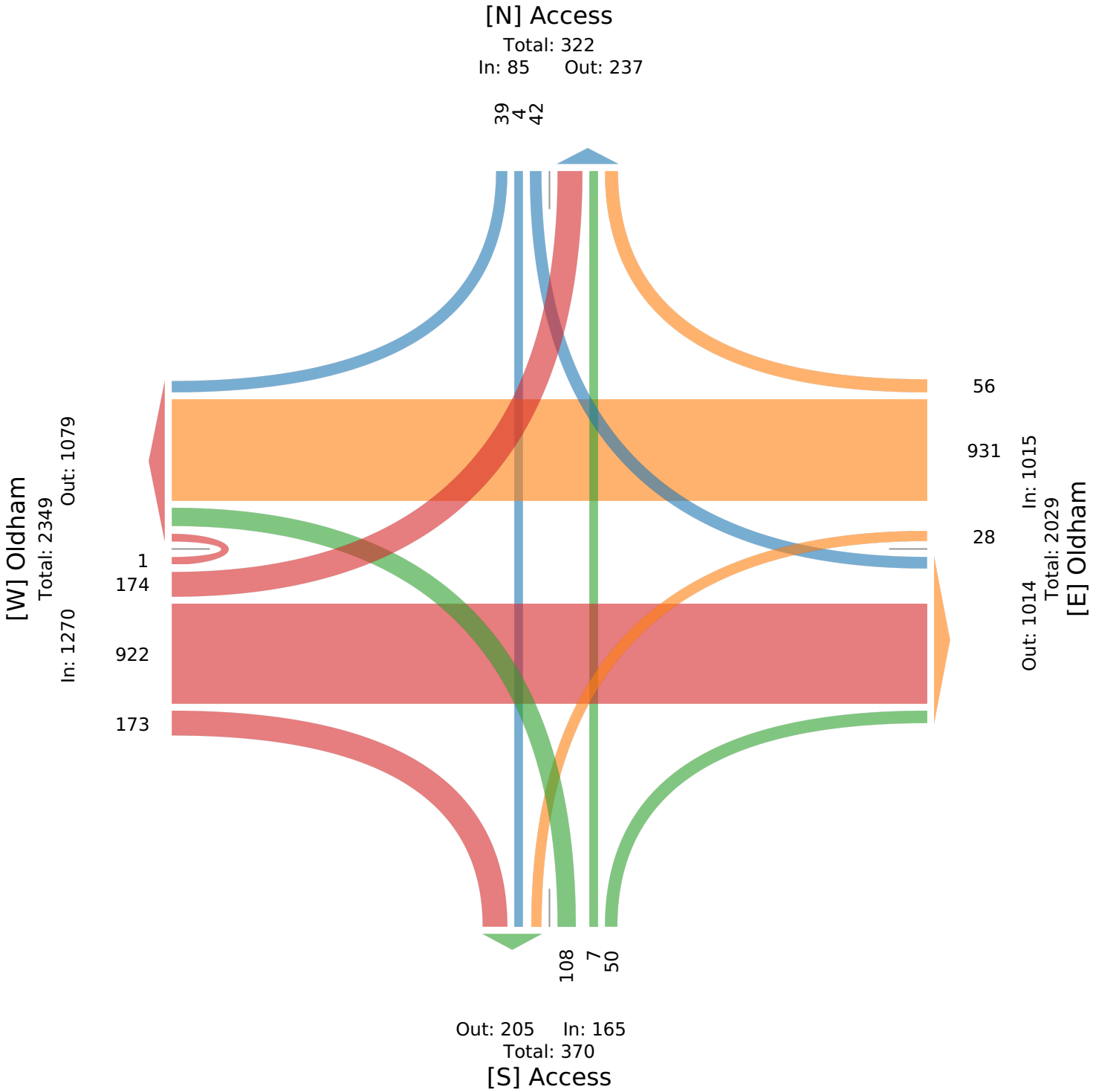
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham					Oldham					Access					Access					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-31 7:00AM	3	17	5	0	**25**	3	51	0	0	**54**	2	0	1	0	**3**	0	0	1	0	**1**	**83**
7:15AM	0	50	4	0	**54**	3	40	0	0	**43**	6	0	1	0	**7**	0	0	0	0	**0**	**104**
7:30AM	1	49	6	0	**56**	2	54	0	0	**56**	4	0	1	0	**5**	1	0	0	0	**1**	**118**
7:45AM	4	47	12	0	**63**	2	47	1	0	**50**	4	0	4	0	**8**	2	0	0	0	**2**	**123**
Hourly Total	8	163	27	0	**198**	10	192	1	0	**203**	16	0	7	0	**23**	3	0	1	0	**4**	**428**
8:00AM	3	61	10	0	**74**	3	47	4	0	**54**	9	0	4	0	**13**	0	0	2	0	**2**	**143**
8:15AM	5	41	12	0	**58**	2	41	0	0	**43**	4	0	1	0	**5**	0	0	1	0	**1**	**107**
8:30AM	6	45	6	0	**57**	2	52	2	0	**56**	12	0	6	0	**18**	1	0	2	0	**3**	**134**
8:45AM	12	69	12	0	**93**	4	56	3	0	**63**	6	2	3	0	**11**	0	0	1	0	**1**	**168**
Hourly Total	26	216	40	0	**282**	11	196	9	0	**216**	31	2	14	0	**47**	1	0	6	0	**7**	**552**
4:00PM	17	73	12	0	**102**	2	68	8	0	**78**	5	1	3	0	**9**	4	1	2	0	**7**	**196**
4:15PM	19	61	16	0	**96**	1	58	5	0	**64**	3	0	4	0	**7**	4	1	3	0	**8**	**175**
4:30PM	19	79	18	0	**116**	2	77	5	0	**84**	14	1	3	0	**18**	7	0	5	0	**12**	**230**
4:45PM	16	70	14	0	**100**	0	74	4	0	**78**	4	1	6	0	**11**	4	1	6	0	**11**	**200**
Hourly Total	71	283	60	0	**414**	5	277	22	0	**304**	26	3	16	0	**45**	19	3	16	0	**38**	**801**
5:00PM	19	82	16	0	**117**	0	70	7	0	**77**	14	0	4	0	**18**	4	0	7	0	**11**	**223**
5:15PM	14	76	10	0	**100**	1	65	8	0	**74**	9	1	6	0	**16**	5	1	4	0	**10**	**200**
5:30PM	20	48	8	0	**76**	0	75	3	0	**78**	6	1	3	0	**10**	5	0	2	0	**7**	**171**
5:45PM	16	54	12	1	**83**	1	56	6	0	**63**	6	0	0	0	**6**	5	0	3	0	**8**	**160**
Hourly Total	69	260	46	1	**376**	2	266	24	0	**292**	35	2	13	0	**50**	19	1	16	0	**36**	**754**
Total	174	922	173	1	**1270**	28	931	56	0	**1015**	108	7	50	0	**165**	42	4	39	0	**85**	**2535**
% Approach	13.7%	72.6%	13.6%	0.1%	-	2.8%	91.7%	5.5%	0%	-	65.5%	4.2%	30.3%	0%	-	49.4%	4.7%	45.9%	0%	-	-
% Total	6.9%	36.4%	6.8%	0%	**50.1%**	1.1%	36.7%	2.2%	0%	**40.0%**	4.3%	0.3%	2.0%	0%	**6.5%**	1.7%	0.2%	1.5%	0%	**3.4%**	-
Lights	174	901	171	1	**1247**	28	911	56	0	**995**	105	7	50	0	**162**	41	4	39	0	**84**	2488
% Lights	100%	97.7%	98.8%	100%	**98.2%**	100%	97.9%	100%	0%	**98.0%**	97.2%	100%	100%	0%	**98.2%**	97.6%	100%	100%	0%	**98.8%**	98.1%
Articulated Trucks	0	4	0	0	**4**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	9
% Articulated Trucks	0%	0.4%	0%	0%	**0.3%**	0%	0.5%	0%	0%	**0.5%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.4%
Buses and Single-Unit Trucks	0	17	2	0	**19**	0	15	0	0	**15**	3	0	0	0	**3**	1	0	0	0	**1**	38
% Buses and Single-Unit Trucks	0%	1.8%	1.2%	0%	**1.5%**	0%	1.6%	0%	0%	**1.5%**	2.8%	0%	0%	0%	**1.8%**	2.4%	0%	0%	0%	**1.2%**	1.5%

*L: Left, R: Right, T: Thru, U: U-Turn

Oldham Pkwy & Home Depot driveway - TMC
Thu Mar 31, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Oldham Pkwy & Home Depot driveway - TMC

Thu Mar 31, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

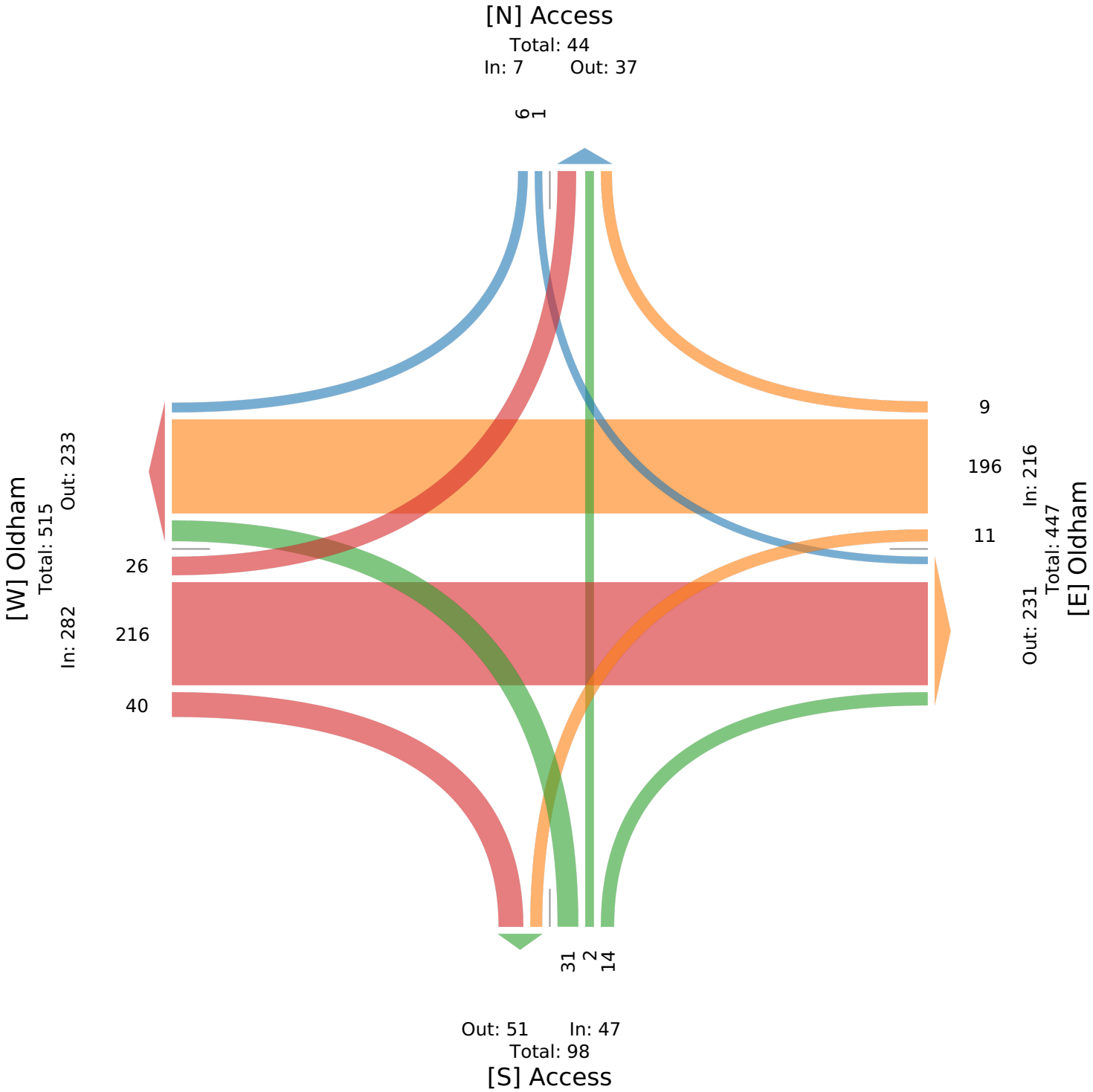
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham					Oldham					Access					Access					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2022-03-31 8:00AM	3	61	10	0	**74**	3	47	4	0	**54**	9	0	4	0	**13**	0	0	2	0	**2**	**143**
8:15AM	5	41	12	0	**58**	2	41	0	0	**43**	4	0	1	0	**5**	0	0	1	0	**1**	**107**
8:30AM	6	45	6	0	**57**	2	52	2	0	**56**	12	0	6	0	**18**	1	0	2	0	**3**	**134**
8:45AM	12	69	12	0	**93**	4	56	3	0	**63**	6	2	3	0	**11**	0	0	1	0	**1**	**168**
Total	26	216	40	0	**282**	11	196	9	0	**216**	31	2	14	0	**47**	1	0	6	0	**7**	**552**
% Approach	9.2%	76.6%	14.2%	0%	**-**	5.1%	90.7%	4.2%	0%	**-**	66.0%	4.3%	29.8%	0%	**-**	14.3%	0%	85.7%	0%	**-**	-
% Total	4.7%	39.1%	7.2%	0%	**51.1%**	2.0%	35.5%	1.6%	0%	**39.1%**	5.6%	0.4%	2.5%	0%	**8.5%**	0.2%	0%	1.1%	0%	**1.3%**	-
PHF	0.542	0.783	0.833	-	**0.758**	0.688	0.875	0.563	-	**0.857**	0.646	0.250	0.583	-	**0.653**	0.250	-	0.750	-	**0.583**	0.821
Lights	26	207	39	0	**272**	11	186	9	0	**206**	29	2	14	0	**45**	1	0	6	0	**7**	530
% Lights	100%	95.8%	97.5%	0%	**96.5%**	100%	94.9%	100%	0%	**95.4%**	93.5%	100%	100%	0%	**95.7%**	100%	0%	100%	0%	**100%**	96.0%
Articulated Trucks	0	2	0	0	**2**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	6
% Articulated Trucks	0%	0.9%	0%	0%	**0.7%**	0%	2.0%	0%	0%	**1.9%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	1.1%
Buses and Single-Unit Trucks	0	7	1	0	**8**	0	6	0	0	**6**	2	0	0	0	**2**	0	0	0	0	**0**	16
% Buses and Single-Unit Trucks	0%	3.2%	2.5%	0%	**2.8%**	0%	3.1%	0%	0%	**2.8%**	6.5%	0%	0%	0%	**4.3%**	0%	0%	0%	0%	**0%**	2.9%

*L: Left, R: Right, T: Thru, U: U-Turn

Oldham Pkwy & Home Depot driveway - TMC
Thu Mar 31, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Oldham Pkwy & Home Depot driveway - TMC

Thu Mar 31, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

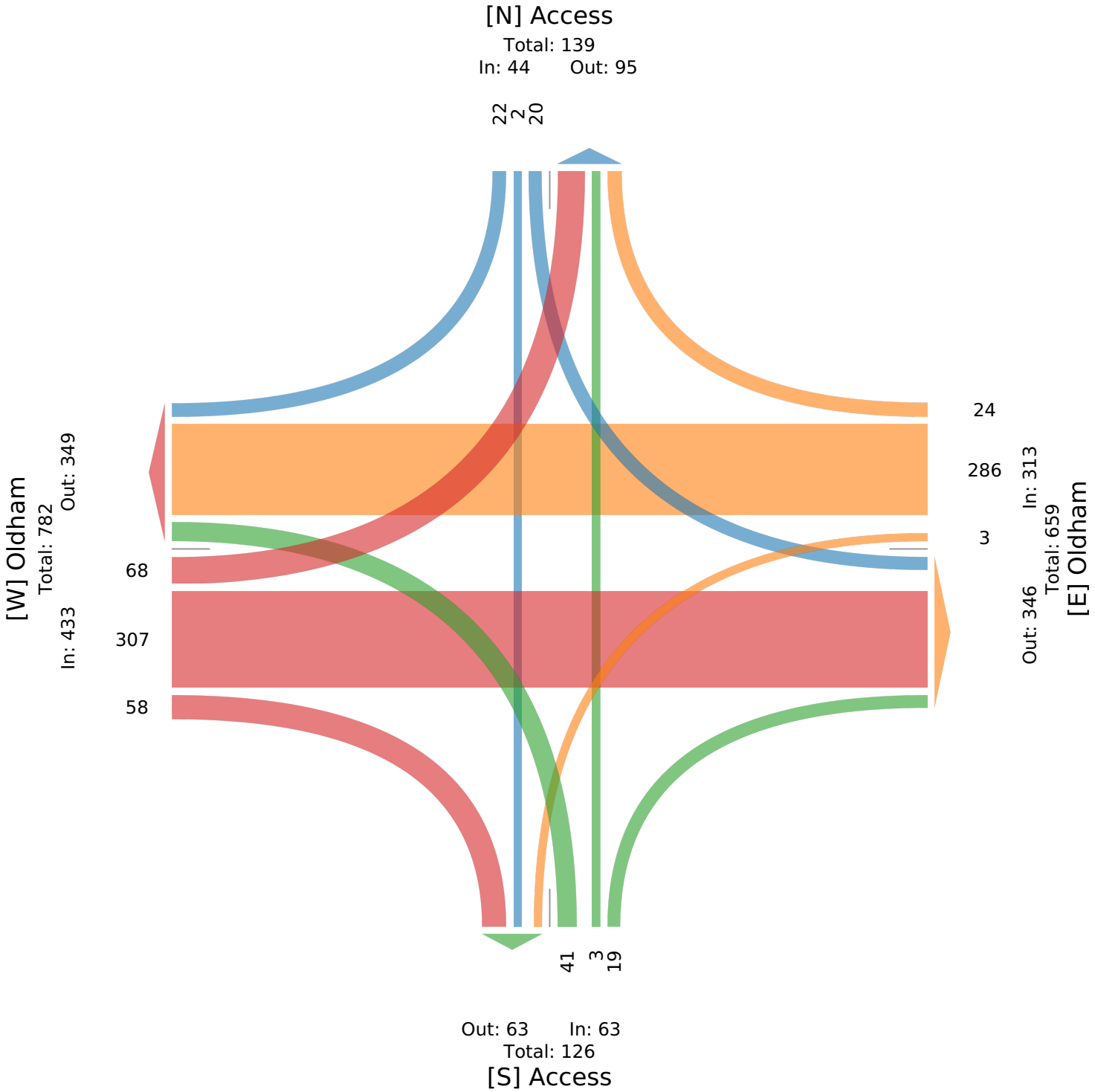
GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Oldham					Oldham					Access					Access					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2022-03-31 4:30PM	19	79	18	0	**116**	2	77	5	0	**84**	14	1	3	0	**18**	7	0	5	0	**12**	**230**
4:45PM	16	70	14	0	**100**	0	74	4	0	**78**	4	1	6	0	**11**	4	1	6	0	**11**	**200**
5:00PM	19	82	16	0	**117**	0	70	7	0	**77**	14	0	4	0	**18**	4	0	7	0	**11**	**223**
5:15PM	14	76	10	0	**100**	1	65	8	0	**74**	9	1	6	0	**16**	5	1	4	0	**10**	**200**
Total	68	307	58	0	**433**	3	286	24	0	**313**	41	3	19	0	**63**	20	2	22	0	**44**	**853**
% Approach	15.7%	70.9%	13.4%	0%	**-**	1.0%	91.4%	7.7%	0%	**-**	65.1%	4.8%	30.2%	0%	**-**	45.5%	4.5%	50.0%	0%	**-**	-
% Total	8.0%	36.0%	6.8%	0%	**50.8%**	0.4%	33.5%	2.8%	0%	**36.7%**	4.8%	0.4%	2.2%	0%	**7.4%**	2.3%	0.2%	2.6%	0%	**5.2%**	-
PHF	0.895	0.936	0.806	-	**0.925**	0.375	0.929	0.750	-	**0.932**	0.732	0.750	0.792	-	**0.875**	0.714	0.500	0.786	-	**0.917**	0.927
Lights	68	303	57	0	**428**	3	284	24	0	**311**	41	3	19	0	**63**	20	2	22	0	**44**	846
% Lights	100%	98.7%	98.3%	0%	**98.8%**	100%	99.3%	100%	0%	**99.4%**	100%	100%	100%	0%	**100%**	100%	100%	100%	0%	**100%**	99.2%
Articulated Trucks	0	1	0	0	**1**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	2
% Articulated Trucks	0%	0.3%	0%	0%	**0.2%**	0%	0.3%	0%	0%	**0.3%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.2%
Buses and Single-Unit Trucks	0	3	1	0	**4**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	5
% Buses and Single-Unit Trucks	0%	1.0%	1.7%	0%	**0.9%**	0%	0.3%	0%	0%	**0.3%**	0%	0%	0%	0%	**0%**	0%	0%	0%	0%	**0%**	0.6%

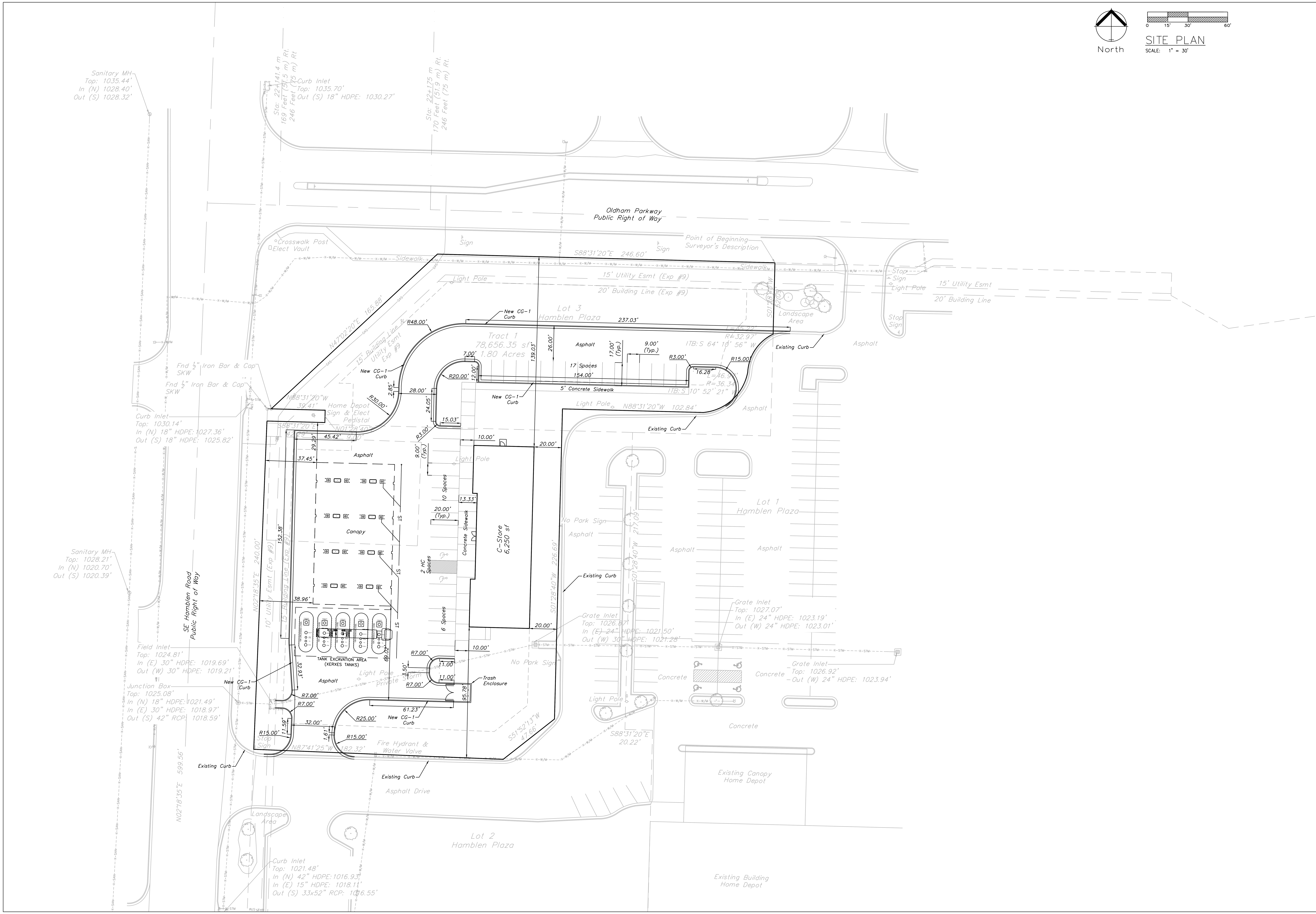
*L: Left, R: Right, T: Thru, U: U-Turn

Oldham Pkwy & Home Depot driveway - TMC
Thu Mar 31, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Movements
ID: 935395, Location: 38.90084, -94.361516

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Appendix C: Site Plan


North
SITE PLAN
SCALE: 1" = 30'
0 15' 30' 60'
Oldham Parkway
Public Right of Way
SE Hamblen Road
Public Right of Way
Lot 3
Hamblen Plaza
Lot 1
Hamblen Plaza
Lot 2
Hamblen Plaza
Tract 1
78,656.35 sf
1.80 Acres
C-Store
6,250 sf
Canopy
TANK EXCAVATION AREA
(XERXES TANKS)
Trash
Enclosure
5' Concrete Sidewalk
Concrete Sidewalk
17 Spaces
10 Spaces
6 Spaces
2 HC
Spaces
Point of Beginning
Surveyor's Description
S88°31'20"E 246.60'
237.03'
15' Utility Esmt (Exp #9)
20' Building Line (Exp #9)
15' Utility Esmt
20' Building Line
N47°02'20"E 165.88'
N88°31'20"W 102.84'
N02°18'35"E 240.00'
S01°28'40"W 226.69'
S01°28'40"W 217.09'
S51°52'13"W 47.66'
N87°41'25"W 182.32'
S88°31'20"E 20.22'
N02°18'35"E 599.56'
Sanitary MH
Top: 1035.44'
In (N) 1028.40'
Out (S) 1028.32'
Sanitary MH
Top: 1028.21'
In (N) 1020.70'
Out (S) 1020.39'
Curb Inlet
Top: 1035.70'
Out (S) 18" HDPE: 1030.27'
Curb Inlet
Top: 1030.14'
In (N) 18" HDPE: 1027.36'
Out (S) 18" HDPE: 1025.82'
Field Inlet
Top: 1024.81'
In (E) 30" HDPE: 1019.69'
Out (W) 30" HDPE: 1019.21'
Junction Box
Top: 1025.08'
In (N) 18" HDPE: 1021.49'
In (E) 30" HDPE: 1018.97'
Out (S) 42" RCP: 1018.59'
Grate Inlet
Top: 1027.07'
In (E) 24" HDPE: 1023.19'
Out (W) 24" HDPE: 1023.01'
Grate Inlet
Top: 1026.92'
Out (W) 24" HDPE: 1023.94'
Curb Inlet
Top: 1021.48'
In (N) 42" HDPE: 1016.93'
In (E) 15" HDPE: 1018.11'
Out (S) 33x52" RCP: 1016.55'
Existing Canopy
Home Depot
Existing Building
Home Depot
Asphalt Drive
Fire Hydrant &
Water Valve
Landscape
Area
Existing Curb
New CG-1
Curb
Light Pole
No Park Sign
Stop
Sign
Crosswalk Post
Elect Vault
Home Depot
Sign & Elect
Pedistal
Fnd ½" Iron Bar & Cap
SKW
Asphalt
Concrete

SITE PLAN

Preliminary Plans for:

HOME DEPOT C-STORE

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

ENGINEERING SOLUTIONS
ENGINEERING & SURVEYING
50 SE 30TH STREET
LEE'S SUMMIT, MO 64082
P:(816) 623-9888 F:(816)623-9849

Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1695
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

Part Lots 2 and 3, Hamblen Plaza, Lots 1 thru 3
and
Part of the Northeast ¼ of the Southeast ¼ of
Section 8, Township 47 North, Range 31 West
Jackson County, Missouri

Project: HOME DEPOT C-STORE LSMO

Issue Date: February 18, 2022

STATE OF MISSOURI
MATTHEW J. SCHLICHT
NUMBER
PE-2006019708
PROFESSIONAL ENGINEER

Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226

REVISIONS

C.100

Appendix D: ITE Trip Generation

Convenience Store/Gas Station - GFA (5.5-10k)
(945)

Vehicle Trip Ends vs: **Vehicle Fueling Positions**
On a: **Weekday**

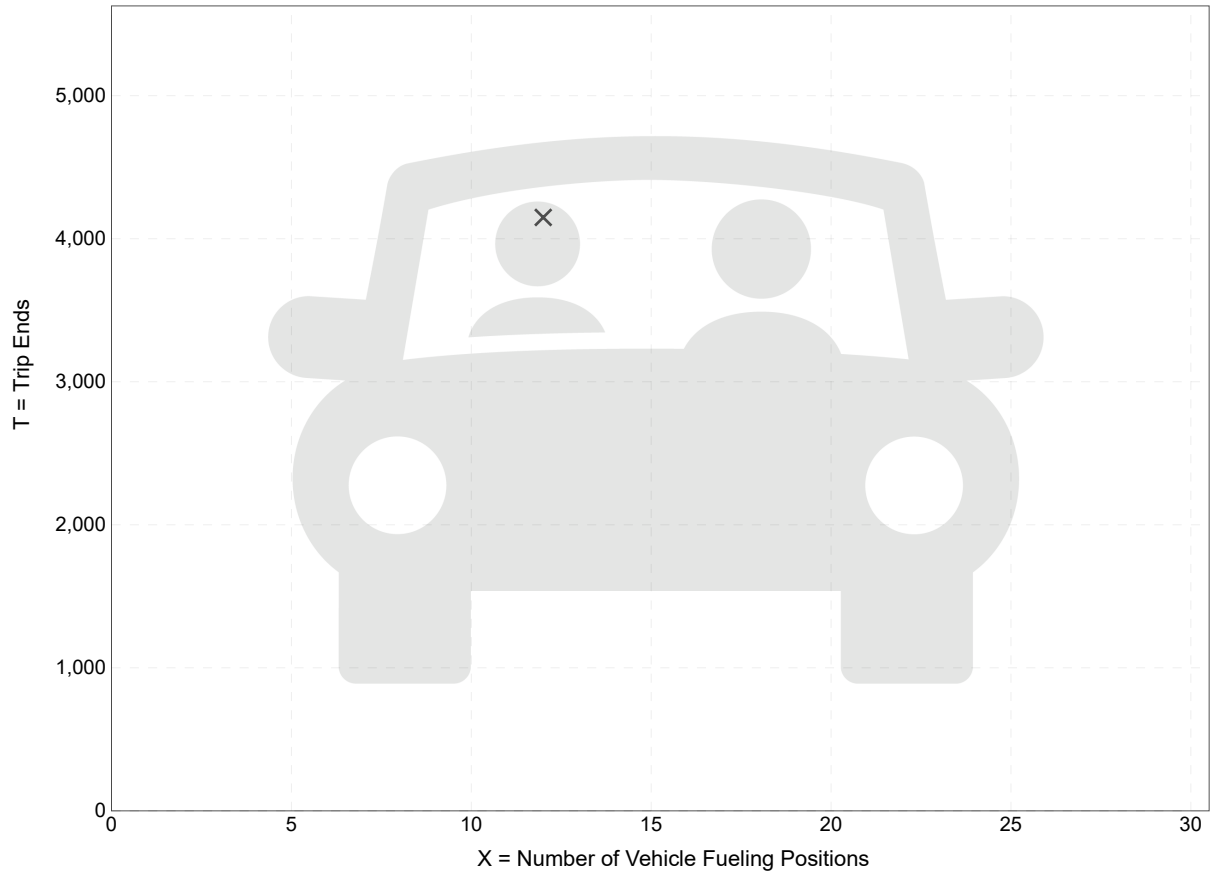
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Vehicle Fueling Positions: 12
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
345.75	345.75 - 345.75	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

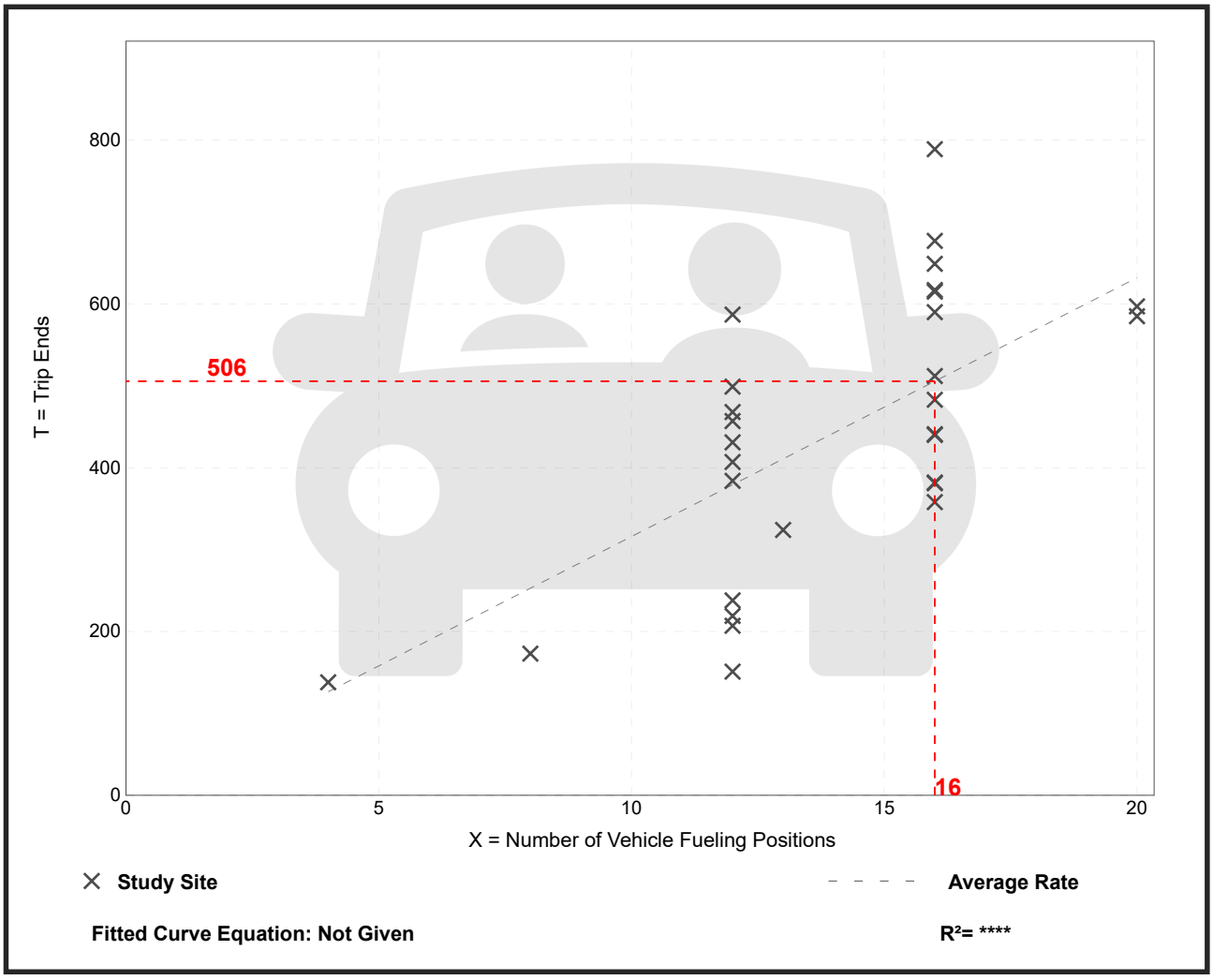
Convenience Store/Gas Station - GFA (5.5-10k)
(945)

Vehicle Trip Ends vs: **Vehicle Fueling Positions**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Vehicle Fueling Positions: 14
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
31.60	12.58 - 49.31	9.10

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Convenience Store/Gas Station - GFA (5.5-10k)
(945)

Vehicle Trip Ends vs: **Vehicle Fueling Positions**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Vehicle Fueling Positions: 14
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
26.90	15.50 - 45.25	6.87

Data Plot and Equation

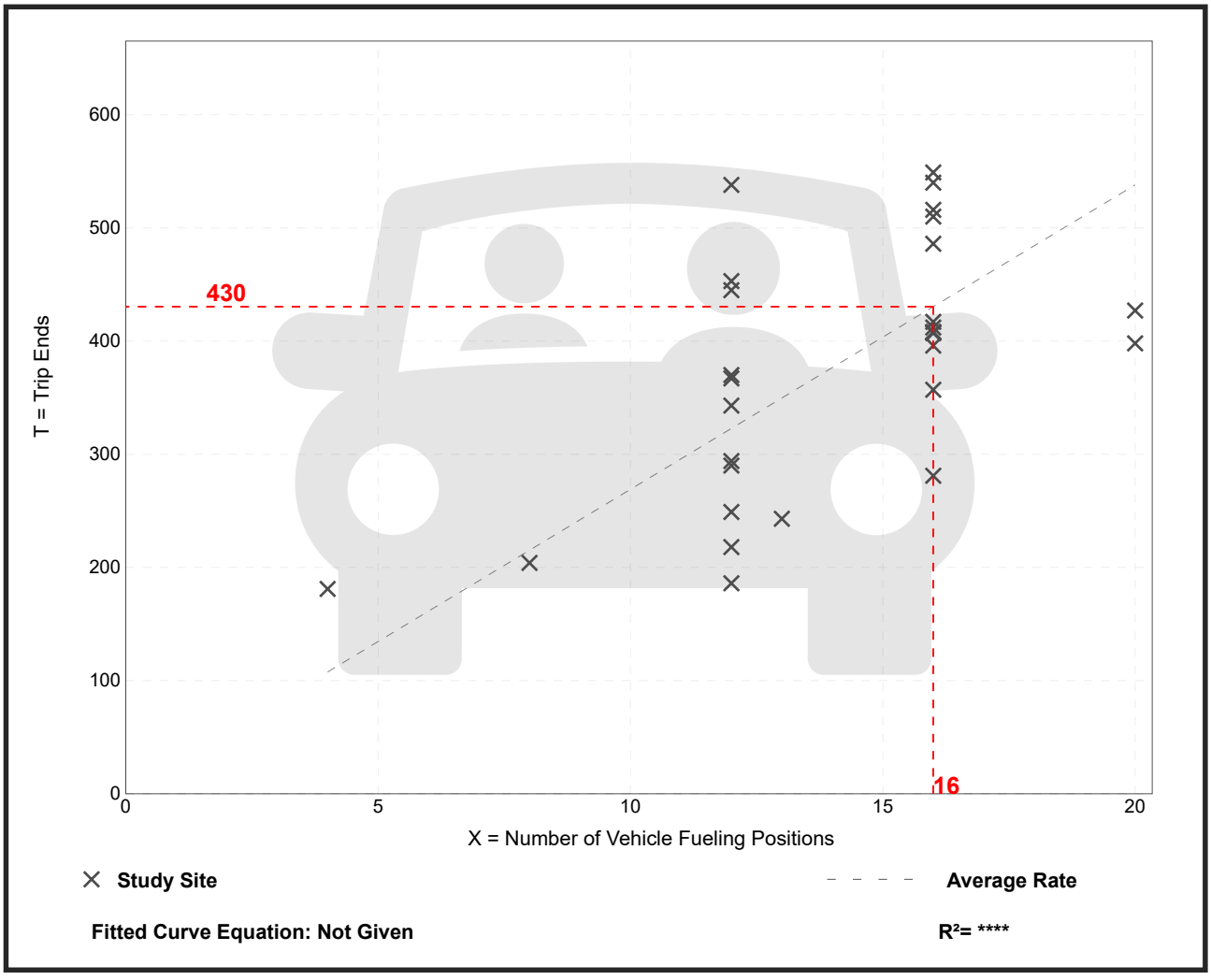


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Table E.15
Pass-By and Non-Pass-By Trips
Weekday, AM Peak Period

Land Use 853 — Convenience Market with Gasoline Pumps

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
2.3	6	Gaithersburg, MD	1992	37	7:00–9:00 a.m.	32	41	27	68	2,080	RBA
2.1	6	Bethesda, MD	1992	26	7:00–9:00 a.m.	58	23	19	42	2,080	RBA
2.0	8	Gaithersburg, MD	1992	46	7:00–9:00 a.m.	87	13	0	13	2,235	RBA
2.2	8	Silver Spring, MD	1992	35	7:00-9:00 a.m.	78	9	13	22	7,080	RBA
2.8	—	Louisville area, KY	1993	—	7:00-9:00 a.m.	54	11	35	46	1,240	BAA
2.4	—	Louisville area, KY	1993	—	7:00–9:00 a.m.	48	17	35	52	1,210	BAA
4.2	—	Louisville area, KY	1993	47	7:00–9:00 a.m.	62	19	19	38	1,705	BAA
2.6	—	Crestwood, KY	1993	—	7:00–9:00 a.m.	72	15	13	28	940	BAA
3.7	—	Louisville area, KY	1993	49	7:00–9:00 a.m.	66	16	18	34	990	BAA
3.0	—	New Albany, IN	1993	62	7:00–9:00 a.m.	74	10	16	26	790	BAA
2.3	—	Louisville, KY	1993	58	7:00–9:00 a.m.	64	5	31	36	1,255	BAA
2.2	—	New Albany, IN	1993	79	7:00–9:00 a.m.	56	6	38	44	635	BAA
3.6	—	Louisville area, KY	1993	49	7:00–9:00 a.m.	67	4	29	33	1,985	BAA

Average Pass-By Trip Percentage: 63

"—" means no data were provided

Table E.16
Pass-By and Non-Pass-By Trips
Weekday, PM Peak Period

Land Use 853 — Convenience Market with Gasoline Pumps

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
2.1	8	Kensington, MD	1992	35	4:00–6:00 p.m.	54	3	43	46	7,080	RBA
2.3	6	Gaithersburg, MD	1992	55	4:00–6:00 p.m.	40	11	49	60	2,760	RBA
2.1	6	Bethesda, MD	1992	30	4:00–6:00 p.m.	53	20	27	47	1,060	RBA
2.0	8	Gaithersburg, MD	1992	47	4:00–6:00 p.m.	62	23	15	38	2,635	RBA
2.8	—	Louisville area, KY	1993	—	4:00-6:00 p.m.	62	11	27	38	2,875	Barton-Aschman Assoc.
2.4	—	Louisville area, KY	1993	—	4:00–6:00 p.m.	58	13	29	42	2,655	Barton-Aschman Assoc.
4.2	—	Louisville area, KY	1993	61	4:00–6:00 p.m.	58	26	16	42	2,300	Barton-Aschman Assoc.
2.6	—	Crestwood, KY	1993	68	4:00–6:00 p.m.	67	15	18	33	950	Barton-Aschman Assoc.
3.7	—	Louisville area, KY	1993	70	4:00–6:00 p.m.	61	16	23	39	2,175	Barton-Aschman Assoc.
3.0	—	New Albany, IN	1993	80	4:00–6:00 p.m.	65	15	20	35	1,165	Barton-Aschman Assoc.
2.3	—	Louisville, KY	1993	67	4:00–6:00 p.m.	57	16	27	43	1,954	Barton-Aschman Assoc.
2.2	—	New Albany, IN	1993	115	4:00–6:00 p.m.	48	16	36	52	820	Barton-Aschman Assoc.
3.6	—	Louisville area, KY	1993	60	4:00–6:00 p.m.	56	17	27	44	2,505	Barton-Aschman Assoc.
2.6	—	Seminole Co., FL	July 1989	82	4:00–6:00 p.m.	73	20	7	27	—	Tipton Associates Inc.
2.6	—	Seminole Co., FL	July 1989	98	4:00–6:00 p.m.	81	15	4	19	—	Tipton Associates Inc.
2.6	—	Seminole Co., FL	July 1989	115	4:00–6:00 p.m.	69	16	15	31	—	Tipton Associates Inc.
2.6	—	Volusia Co., FL	July 1989	98	4:00–6:00 p.m.	74	15	11	26	—	Tipton Associates Inc.
2.4	—	Volusia Co., FL	July 1989	38	4:00–6:00 p.m.	74	24	2	26	—	Tipton Associates Inc.
2.7	—	Volusia Co., FL	July 1989	82	4:00-6:00 p.m.	87	8	5	13	---	Tipton Associates Inc.

Average Pass-By Trip Percentage: 63

"—" means no data were provided

Appendix E: Synchro Reports

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	16	351	24	14	298
Future Vol, veh/h	17	16	351	24	14	298
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	8	2	2	3
Mvmt Flow	18	17	382	26	15	324

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	749	395	0	0	408	0
Stage 1	395	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	379	654	-	-	1151	-
Stage 1	681	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	374	654	-	-	1151	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	701	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	374	654	1151	-
HCM Lane V/C Ratio	-	-	0.049	0.027	0.013	-
HCM Control Delay (s)	-	-	15.1	10.7	8.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	212	401	236	334
v/c Ratio	0.05	0.37	0.35	0.33	0.20
Control Delay	15.2	3.7	10.1	3.3	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	3.7	10.1	3.3	1.9
Queue Length 50th (ft)	2	0	18	0	0
Queue Length 95th (ft)	18	26	79	47	67
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	1186	1568	3192	1668	1827
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.14	0.13	0.14	0.18

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	16	195	338	31	217	307	
Future Volume (veh/h)	16	195	338	31	217	307	
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	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1767	1856	1856	1841	
Adj Flow Rate, veh/h	17	212	367	34	236	334	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	3	9	3	3	4	
Cap, veh/h	285	475	775	71	575	996	
Arrive On Green	0.16	0.16	0.25	0.25	0.14	0.54	
Sat Flow, veh/h	1781	1572	3195	286	1767	1841	
Grp Volume(v), veh/h	17	212	197	204	236	334	
Grp Sat Flow(s),veh/h/ln	1781	1572	1678	1715	1767	1841	
Q Serve(g_s), s	0.3	4.4	4.0	4.1	3.5	4.1	
Cycle Q Clear(g_c), s	0.3	4.4	4.0	4.1	3.5	4.1	
Prop In Lane	1.00	1.00		0.17	1.00		
Lane Grp Cap(c), veh/h	285	475	418	428	575	996	
V/C Ratio(X)	0.06	0.45	0.47	0.48	0.41	0.34	
Avail Cap(c_a), veh/h	933	1047	1799	1839	1998	3992	
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	14.3	11.3	12.8	12.8	7.8	5.2	
Incr Delay (d2), s/veh	0.1	0.7	0.8	0.8	0.5	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.3	1.3	0.9	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.4	12.0	13.6	13.7	8.3	5.4	
LnGrp LOS	B	B	B	B	A	A	
Approach Vol, veh/h	229		401			570	
Approach Delay, s/veh	12.1		13.6			6.6	
Approach LOS	B		B			A	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.7	16.0				27.7	12.4
Change Period (Y+Rc), s	6.0	6.0				6.0	6.0
Max Green Setting (Gmax), s	38.0	43.0				87.0	21.0
Max Q Clear Time (g_c+I1), s	5.5	6.1				6.1	6.4
Green Ext Time (p_c), s	0.7	2.5				2.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	207	32	10	188	5	23	0	10	3	0	2
Future Vol, veh/h	8	207	32	10	188	5	23	0	10	3	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	3	2	4	2	2	33	2	2
Mvmt Flow	9	225	35	11	204	5	25	0	11	3	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	209	0	0	260	0	0	491	492	130	360	507	207
Stage 1	-	-	-	-	-	-	261	261	-	229	229	-
Stage 2	-	-	-	-	-	-	230	231	-	131	278	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.36	6.53	6.93	7.795	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.53	-	6.595	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.53	-	6.995	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.538	4.019	3.319	3.8135	4.019	3.319
Pot Cap-1 Maneuver	1360	-	-	1303	-	-	470	477	896	521	468	833
Stage 1	-	-	-	-	-	-	717	692	-	699	714	-
Stage 2	-	-	-	-	-	-	767	713	-	784	680	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1360	-	-	1303	-	-	463	470	896	509	461	833
Mov Cap-2 Maneuver	-	-	-	-	-	-	463	470	-	509	461	-
Stage 1	-	-	-	-	-	-	712	687	-	694	708	-
Stage 2	-	-	-	-	-	-	759	707	-	769	675	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	12.1	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1360	-	-	1303	-	-	603
HCM Lane V/C Ratio	0.066	0.006	-	-	0.008	-	-	0.009
HCM Control Delay (s)	12.1	7.7	-	-	7.8	-	-	11
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	24	469	35	36	503
Future Vol, veh/h	13	24	469	35	36	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	4	2	3	3	9
Mvmt Flow	14	26	510	38	39	547

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1154	529	0	0	548	0
Stage 1	529	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Critical Hdwy	6.42	6.24	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.336	-	-	2.227	-
Pot Cap-1 Maneuver	218	546	-	-	1016	-
Stage 1	591	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	210	546	-	-	1016	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	210	546	1016	-
HCM Lane V/C Ratio	-	-	0.067	0.048	0.039	-
HCM Control Delay (s)	-	-	23.4	11.9	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	363	540	428	515
v/c Ratio	0.22	0.49	0.49	0.58	0.37
Control Delay	25.1	7.8	17.3	7.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	7.8	17.3	7.7	5.0
Queue Length 50th (ft)	18	36	74	53	69
Queue Length 95th (ft)	57	101	142	112	137
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	839	1534	2713	1475	1743
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24	0.20	0.29	0.30

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	58	334	442	55	394	474	
Future Volume (veh/h)	58	334	442	55	394	474	
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	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1767	
Adj Flow Rate, veh/h	63	363	480	60	428	515	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	9	
Cap, veh/h	393	701	741	92	608	994	
Arrive On Green	0.22	0.22	0.23	0.23	0.22	0.56	
Sat Flow, veh/h	1781	1585	3274	396	1781	1767	
Grp Volume(v), veh/h	63	363	267	273	428	515	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1799	1781	1767	
Q Serve(g_s), s	1.6	9.2	7.5	7.6	8.9	10.0	
Cycle Q Clear(g_c), s	1.6	9.2	7.5	7.6	8.9	10.0	
Prop In Lane	1.00	1.00		0.22	1.00		
Lane Grp Cap(c), veh/h	393	701	414	419	608	994	
V/C Ratio(X)	0.16	0.52	0.65	0.65	0.70	0.52	
Avail Cap(c_a), veh/h	675	952	1219	1234	1596	2774	
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	17.4	11.2	19.2	19.2	11.0	7.5	
Incr Delay (d2), s/veh	0.2	0.6	1.7	1.7	1.5	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.6	2.6	2.9	3.0	2.9	2.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.6	11.8	20.9	20.9	12.5	7.9	
LnGrp LOS	B	B	C	C	B	A	
Approach Vol, veh/h	426		540			943	
Approach Delay, s/veh	12.6		20.9			10.0	
Approach LOS	B		C			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.3	18.9			37.2	18.2
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	43.0	38.0			87.0	21.0
Max Q Clear Time (g_c+I1), s	10.9	9.6			12.0	11.2
Green Ext Time (p_c), s	1.4	3.3			3.7	1.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	307	58	3	286	24	41	3	19	20	2	22
Future Vol, veh/h	68	307	58	3	286	24	41	3	19	20	2	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	334	63	3	311	26	45	3	21	22	2	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	397	0	0	857	857	199	647	875	324
Stage 1	-	-	-	-	-	-	514	514	-	330	330	-
Stage 2	-	-	-	-	-	-	343	343	-	317	545	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1221	-	-	1160	-	-	264	294	809	370	287	716
Stage 1	-	-	-	-	-	-	512	534	-	682	645	-
Stage 2	-	-	-	-	-	-	671	637	-	669	518	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1221	-	-	1160	-	-	241	275	809	340	269	716
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	275	-	340	269	-
Stage 1	-	-	-	-	-	-	481	501	-	640	643	-
Stage 2	-	-	-	-	-	-	645	635	-	608	486	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	20	13.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	1221	-	-	1160	-	-	454
HCM Lane V/C Ratio	0.222	0.061	-	-	0.003	-	-	0.105
HCM Control Delay (s)	20	8.1	-	-	8.1	-	-	13.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	97	303	100	102	243
Future Vol, veh/h	100	97	303	100	102	243
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	8	2	2	3
Mvmt Flow	109	105	329	109	111	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	815	329	0	0	438	0
Stage 1	329	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	347	712	-	-	1122	-
Stage 1	729	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	313	712	-	-	1122	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	313	712	1122	-
HCM Lane V/C Ratio	-	-	0.347	0.148	0.099	-
HCM Control Delay (s)	-	-	22.5	10.9	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.5	0.3	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	222	437	246	370
v/c Ratio	0.05	0.38	0.38	0.35	0.22
Control Delay	15.6	3.8	10.3	3.4	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	3.8	10.3	3.4	1.9
Queue Length 50th (ft)	2	0	21	0	0
Queue Length 95th (ft)	18	27	86	50	75
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	1176	1567	3182	1662	1827
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.14	0.14	0.15	0.20

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	16	204	371	31	226	340	
Future Volume (veh/h)	16	204	371	31	226	340	
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	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1767	1856	1856	1841	
Adj Flow Rate, veh/h	17	222	403	34	246	370	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	3	9	3	3	4	
Cap, veh/h	295	492	769	65	563	994	
Arrive On Green	0.17	0.17	0.25	0.25	0.15	0.54	
Sat Flow, veh/h	1781	1572	3223	263	1767	1841	
Grp Volume(v), veh/h	17	222	215	222	246	370	
Grp Sat Flow(s),veh/h/ln	1781	1572	1678	1719	1767	1841	
Q Serve(g_s), s	0.3	4.6	4.5	4.6	3.7	4.7	
Cycle Q Clear(g_c), s	0.3	4.6	4.5	4.6	3.7	4.7	
Prop In Lane	1.00	1.00		0.15	1.00		
Lane Grp Cap(c), veh/h	295	492	412	422	563	994	
V/C Ratio(X)	0.06	0.45	0.52	0.53	0.44	0.37	
Avail Cap(c_a), veh/h	918	1042	1771	1814	1951	3931	
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	14.3	11.2	13.3	13.3	8.1	5.4	
Incr Delay (d2), s/veh	0.1	0.6	1.0	1.0	0.5	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.5	1.5	1.0	1.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.4	11.9	14.3	14.3	8.6	5.6	
LnGrp LOS	B	B	B	B	A	A	
Approach Vol, veh/h	239		437			616	
Approach Delay, s/veh	12.0		14.3			6.8	
Approach LOS	B		B			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.0	16.0			28.0	12.7
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	38.0	43.0			87.0	21.0
Max Q Clear Time (g_c+I1), s	5.7	6.6			6.7	6.6
Green Ext Time (p_c), s	0.7	2.7			2.4	0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	191	57	74	148	5	72	0	50	3	0	2
Future Vol, veh/h	8	191	57	74	148	5	72	0	50	3	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	3	2	4	2	2	33	2	2
Mvmt Flow	9	208	62	80	161	5	78	0	54	3	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	166	0	0	270	0	0	582	583	135	446	612	164
Stage 1	-	-	-	-	-	-	257	257	-	324	324	-
Stage 2	-	-	-	-	-	-	325	326	-	122	288	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.36	6.53	6.93	7.795	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.53	-	6.595	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.53	-	6.995	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.538	4.019	3.319	3.8135	4.019	3.319
Pot Cap-1 Maneuver	1411	-	-	1292	-	-	407	423	890	451	407	880
Stage 1	-	-	-	-	-	-	721	694	-	616	649	-
Stage 2	-	-	-	-	-	-	682	648	-	794	673	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1411	-	-	1292	-	-	385	394	890	401	379	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	394	-	401	379	-
Stage 1	-	-	-	-	-	-	717	690	-	612	609	-
Stage 2	-	-	-	-	-	-	638	608	-	741	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.6	14.7	12.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	502	1411	-	-	1292	-	-	513
HCM Lane V/C Ratio	0.264	0.006	-	-	0.062	-	-	0.011
HCM Control Delay (s)	14.7	7.6	-	-	8	-	-	12.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	93	428	100	111	456
Future Vol, veh/h	84	93	428	100	111	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	4	2	3	3	9
Mvmt Flow	91	101	465	109	121	496

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1203	465	0	0	574	0
Stage 1	465	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Critical Hdwy	6.42	6.24	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.336	-	-	2.227	-
Pot Cap-1 Maneuver	204	593	-	-	994	-
Stage 1	632	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	179	593	-	-	994	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.5	0	1.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	179	593	994	-
HCM Lane V/C Ratio	-	-	0.51	0.17	0.121	-
HCM Control Delay (s)	-	-	44.4	12.3	9.1	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.6	0.4	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	372	571	437	546
v/c Ratio	0.22	0.50	0.52	0.60	0.39
Control Delay	26.1	8.8	17.8	8.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	8.8	17.8	8.3	5.1
Queue Length 50th (ft)	19	43	80	55	76
Queue Length 95th (ft)	60	116	157	126	149
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	819	1517	2679	1458	1743
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.25	0.21	0.30	0.31

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	58	342	470	55	402	502	
Future Volume (veh/h)	58	342	470	55	402	502	
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	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1767	
Adj Flow Rate, veh/h	63	372	511	60	437	546	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	9	
Cap, veh/h	397	706	772	90	602	1003	
Arrive On Green	0.22	0.22	0.24	0.24	0.22	0.57	
Sat Flow, veh/h	1781	1585	3298	375	1781	1767	
Grp Volume(v), veh/h	63	372	283	288	437	546	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1803	1781	1767	
Q Serve(g_s), s	1.6	9.8	8.2	8.3	9.4	11.1	
Cycle Q Clear(g_c), s	1.6	9.8	8.2	8.3	9.4	11.1	
Prop In Lane	1.00	1.00		0.21	1.00		
Lane Grp Cap(c), veh/h	397	706	428	435	602	1003	
V/C Ratio(X)	0.16	0.53	0.66	0.66	0.73	0.54	
Avail Cap(c_a), veh/h	652	932	1177	1194	1542	2679	
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	17.9	11.5	19.6	19.7	11.2	7.8	
Incr Delay (d2), s/veh	0.2	0.6	1.7	1.7	1.7	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.6	0.1	3.2	3.3	3.1	3.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.1	12.1	21.4	21.4	12.9	8.2	
LnGrp LOS	B	B	C	C	B	A	
Approach Vol, veh/h	435		571			983	
Approach Delay, s/veh	13.0		21.4			10.3	
Approach LOS	B		C			B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.7	19.8			38.6	18.8
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	43.0	38.0			87.0	21.0
Max Q Clear Time (g_c+I1), s	11.4	10.3			13.1	11.8
Green Ext Time (p_c), s	1.4	3.5			4.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	294	79	57	252	24	83	3	52	20	2	22
Future Vol, veh/h	68	294	79	57	252	24	83	3	52	20	2	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	320	86	62	274	26	90	3	57	22	2	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	406	0	0	935	935	203	721	965	287
Stage 1	-	-	-	-	-	-	511	511	-	411	411	-
Stage 2	-	-	-	-	-	-	424	424	-	310	554	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1260	-	-	1151	-	-	233	265	805	328	254	751
Stage 1	-	-	-	-	-	-	514	536	-	617	594	-
Stage 2	-	-	-	-	-	-	607	586	-	676	513	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1260	-	-	1151	-	-	205	236	805	277	226	751
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	236	-	277	226	-
Stage 1	-	-	-	-	-	-	484	504	-	581	562	-
Stage 2	-	-	-	-	-	-	554	554	-	588	483	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	1.4	30.7	15.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	286	1260	-	-	1151	-	-	399
HCM Lane V/C Ratio	0.524	0.059	-	-	0.054	-	-	0.12
HCM Control Delay (s)	30.7	8	-	-	8.3	-	-	15.2
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.8	0.2	-	-	0.2	-	-	0.4

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	103	101	382	101	103	310
Future Vol, veh/h	103	101	382	101	103	310
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	8	2	2	3
Mvmt Flow	112	110	415	110	112	337

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	976	415	0	0	525	0
Stage 1	415	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	279	637	-	-	1042	-
Stage 1	666	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	249	637	-	-	1042	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.4	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	249	637	1042	-
HCM Lane V/C Ratio	-	-	0.45	0.172	0.107	-
HCM Control Delay (s)	-	-	30.8	11.8	8.9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.2	0.6	0.4	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	271	530	298	443
v/c Ratio	0.07	0.47	0.44	0.41	0.26
Control Delay	18.1	6.9	11.1	3.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	6.9	11.1	3.6	1.9
Queue Length 50th (ft)	3	11	31	0	0
Queue Length 95th (ft)	24	54	113	60	94
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	1092	1536	3116	1631	1827
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.18	0.17	0.18	0.24

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	20	249	448	40	274	408		
Future Volume (veh/h)	20	249	448	40	274	408		
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		
Work Zone On Approach	No		No			No		
Adj Sat Flow, veh/h/ln	1870	1856	1767	1856	1856	1841		
Adj Flow Rate, veh/h	22	271	487	43	298	443		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	3	9	3	3	4		
Cap, veh/h	337	561	794	70	552	1015		
Arrive On Green	0.19	0.19	0.25	0.25	0.17	0.55		
Sat Flow, veh/h	1781	1572	3209	275	1767	1841		
Grp Volume(v), veh/h	22	271	261	269	298	443		
Grp Sat Flow(s),veh/h/ln	1781	1572	1678	1717	1767	1841		
Q Serve(g_s), s	0.5	6.2	6.4	6.4	5.0	6.6		
Cycle Q Clear(g_c), s	0.5	6.2	6.4	6.4	5.0	6.6		
Prop In Lane	1.00	1.00		0.16	1.00			
Lane Grp Cap(c), veh/h	337	561	427	437	552	1015		
V/C Ratio(X)	0.07	0.48	0.61	0.62	0.54	0.44		
Avail Cap(c_a), veh/h	809	977	1560	1596	1708	3462		
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	15.4	11.6	15.2	15.2	9.1	6.1		
Incr Delay (d2), s/veh	0.1	0.6	1.4	1.4	0.8	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.2	1.7	2.2	2.2	1.5	1.6		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	15.5	12.2	16.7	16.7	10.0	6.4		
LnGrp LOS	B	B	B	B	A	A		
Approach Vol, veh/h	293		530			741		
Approach Delay, s/veh	12.5		16.7			7.8		
Approach LOS	B		B			A		
Timer - Assigned Phs	1	2				6	8	
Phs Duration (G+Y+Rc), s	13.7	17.8				31.5	14.8	
Change Period (Y+Rc), s	6.0	6.0				6.0	6.0	
Max Green Setting (Gmax), s	38.0	43.0				87.0	21.0	
Max Q Clear Time (g_c+I1), s	7.0	8.4				8.6	8.2	
Green Ext Time (p_c), s	0.9	3.4				3.0	0.8	
Intersection Summary								
HCM 6th Ctrl Delay			11.7					
HCM 6th LOS			B					

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	239	60	74	190	5	74	0	50	5	0	5
Future Vol, veh/h	10	239	60	74	190	5	74	0	50	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	3	2	4	2	2	33	2	2
Mvmt Flow	11	260	65	80	207	5	80	0	54	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	212	0	0	325	0	0	687	687	163	522	717	210
Stage 1	-	-	-	-	-	-	315	315	-	370	370	-
Stage 2	-	-	-	-	-	-	372	372	-	152	347	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.36	6.53	6.93	7.795	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.53	-	6.595	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.53	-	6.995	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.538	4.019	3.319	3.8135	4.019	3.319
Pot Cap-1 Maneuver	1357	-	-	1233	-	-	344	369	854	397	355	830
Stage 1	-	-	-	-	-	-	666	655	-	579	619	-
Stage 2	-	-	-	-	-	-	643	618	-	761	634	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1357	-	-	1233	-	-	323	342	854	351	329	830
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	342	-	351	329	-
Stage 1	-	-	-	-	-	-	661	650	-	574	579	-
Stage 2	-	-	-	-	-	-	597	578	-	707	629	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.2	17.1	12.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	431	1357	-	-	1233	-	-	493
HCM Lane V/C Ratio	0.313	0.008	-	-	0.065	-	-	0.022
HCM Control Delay (s)	17.1	7.7	-	-	8.1	-	-	12.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.3	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	6.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	94	534	100	115	568
Future Vol, veh/h	86	94	534	100	115	568
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	4	2	3	3	9
Mvmt Flow	93	102	580	109	125	617

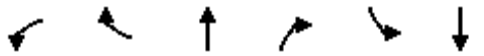
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1447	580	0	0	689	0
Stage 1	580	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Critical Hdwy	6.42	6.24	-	-	4.13	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.336	-	-	2.227	-
Pot Cap-1 Maneuver	145	510	-	-	901	-
Stage 1	560	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	125	510	-	-	901	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	354	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	50.5	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	125	510	901	-
HCM Lane V/C Ratio	-	-	0.748	0.2	0.139	-
HCM Control Delay (s)	-	-	90.7	13.8	9.6	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	4.3	0.7	0.5	-

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	82	454	693	536	661
v/c Ratio	0.33	0.55	0.63	0.72	0.49
Control Delay	38.2	12.6	25.3	16.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	12.6	25.3	16.2	6.3
Queue Length 50th (ft)	32	95	130	113	112
Queue Length 95th (ft)	99	224	266	278	218
Internal Link Dist (ft)	395		360		438
Turn Bay Length (ft)	130				
Base Capacity (vph)	606	1320	2103	1212	1680
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.34	0.33	0.44	0.39

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	75	418	568	70	493	608
Future Volume (veh/h)	75	418	568	70	493	608
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
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1767
Adj Flow Rate, veh/h	82	454	617	76	536	661
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	9
Cap, veh/h	431	779	838	103	607	1050
Arrive On Green	0.24	0.24	0.26	0.26	0.25	0.59
Sat Flow, veh/h	1781	1585	3279	392	1781	1767
Grp Volume(v), veh/h	82	454	344	349	536	661
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1800	1781	1767
Q Serve(g_s), s	2.7	15.0	13.0	13.0	14.5	17.8
Cycle Q Clear(g_c), s	2.7	15.0	13.0	13.0	14.5	17.8
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	431	779	467	473	607	1050
V/C Ratio(X)	0.19	0.58	0.74	0.74	0.88	0.63
Avail Cap(c_a), veh/h	510	849	920	932	1206	2095
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	22.1	13.3	24.7	24.7	13.8	9.6
Incr Delay (d2), s/veh	0.2	0.9	2.3	2.3	4.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.7	5.4	5.5	5.5	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.3	14.2	27.0	27.0	18.3	10.3
LnGrp LOS	C	B	C	C	B	B
Approach Vol, veh/h	536		693			1197
Approach Delay, s/veh	15.4		27.0			13.9
Approach LOS	B		C			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.3	25.3			49.6	23.8
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	43.0	38.0			87.0	21.0
Max Q Clear Time (g_c+I1), s	16.5	15.0			19.8	17.0
Green Ext Time (p_c), s	1.8	4.3			5.3	0.8

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	362	81	59	316	25	87	5	53	20	5	25
Future Vol, veh/h	70	362	81	59	316	25	87	5	53	20	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	393	88	64	343	27	95	5	58	22	5	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	481	0	0	1090	1087	241	836	1118	357
Stage 1	-	-	-	-	-	-	589	589	-	485	485	-
Stage 2	-	-	-	-	-	-	501	498	-	351	633	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1187	-	-	1080	-	-	181	215	761	273	206	686
Stage 1	-	-	-	-	-	-	462	495	-	562	551	-
Stage 2	-	-	-	-	-	-	551	543	-	639	472	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1187	-	-	1080	-	-	154	189	761	224	181	686
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	189	-	224	181	-
Stage 1	-	-	-	-	-	-	432	463	-	526	518	-
Stage 2	-	-	-	-	-	-	493	511	-	546	442	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.3	54.8	18.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	219	1187	-	-	1080	-	-	326
HCM Lane V/C Ratio	0.72	0.064	-	-	0.059	-	-	0.167
HCM Control Delay (s)	54.8	8.2	-	-	8.5	-	-	18.2
HCM Lane LOS	F	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	4.8	0.2	-	-	0.2	-	-	0.6