

Traffic Impact Study Proposed Miraj Coffee Shop

Orland Park, Illinois



Prepared For:

AAA Property Investment Group, LLC



June 5, 2025

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed Miraj Coffee Shop to be located within the existing Waterfall Plaza located in Orland Park, Illinois. The site is located on the northwest corner of the intersection of 159th Street with Orland Brook Drive. As proposed, the end cap unit within the existing building will be repurposed to contain approximately 2,480-square-foot Miraj Coffee Shop with a two-lane drive-through facility. Access to the site will continue to be provided via the three existing access drives: two off Orland Brook Drive and one off 159th Street (U.S. Route 6).

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed coffee shop will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate the traffic generated by the proposed development.

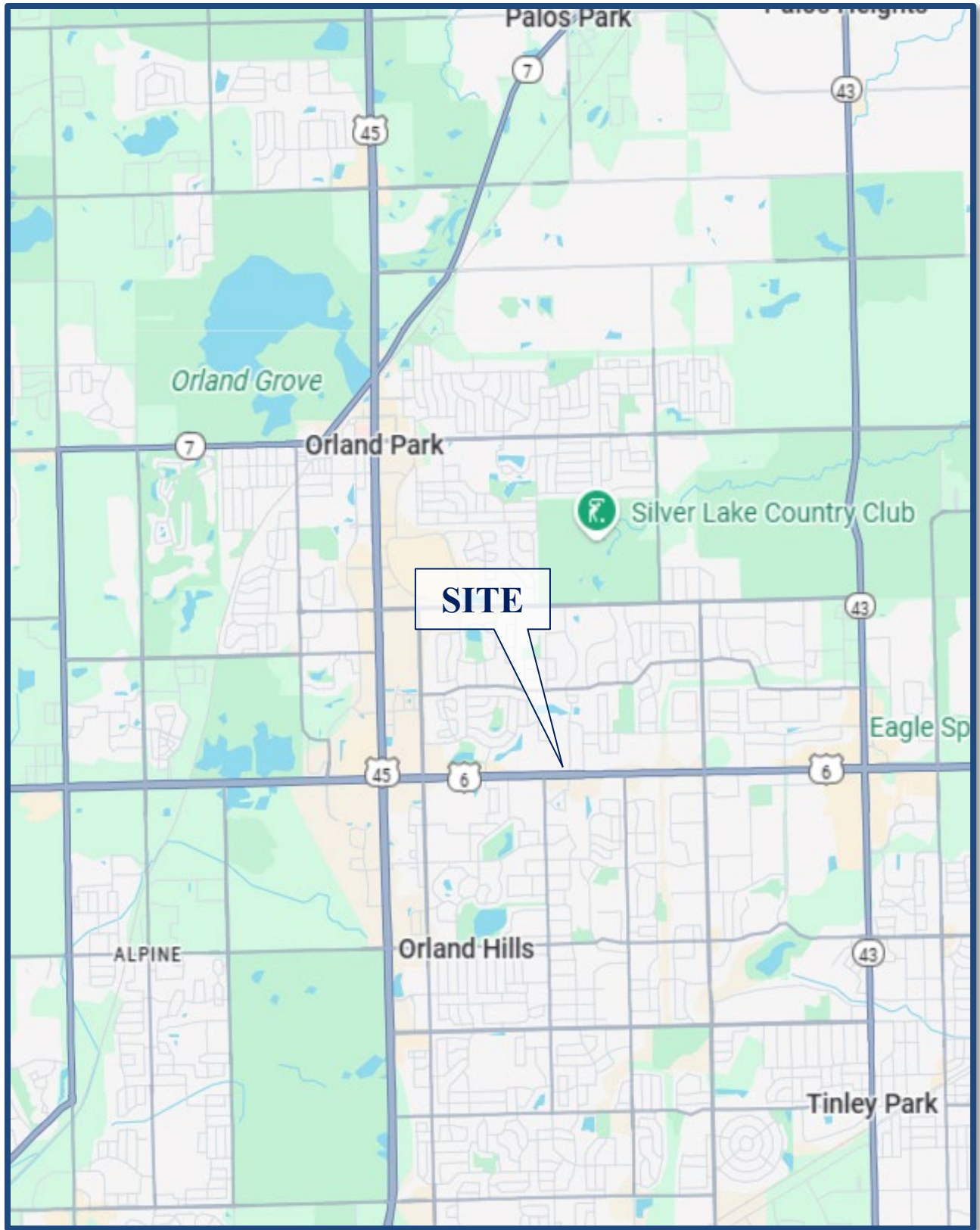
Figure 1 shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the proposed development
- Future traffic conditions including access to the development
- Traffic analyses for the weekday morning and weekday evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

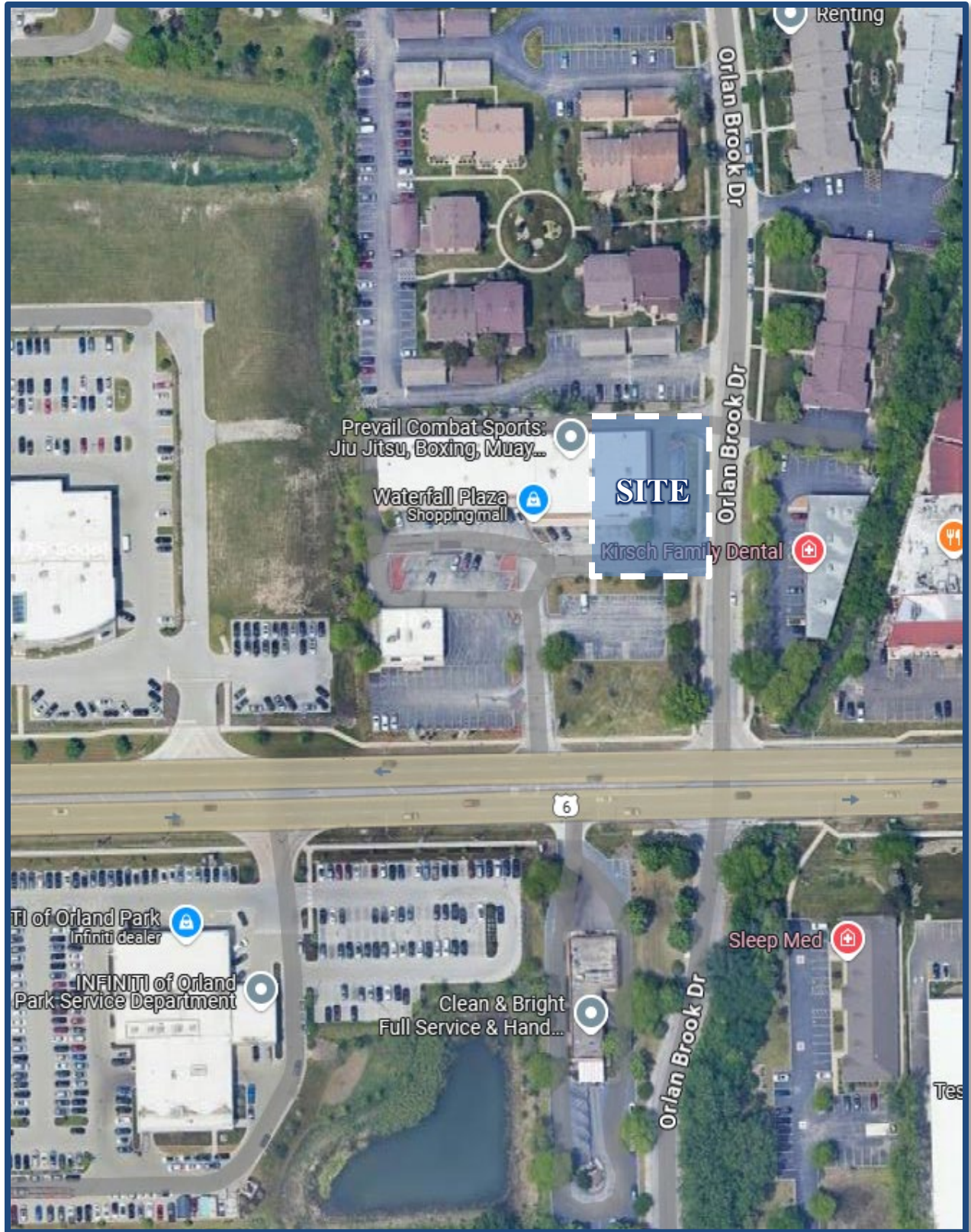
Traffic capacity analyses were conducted for the weekday morning and weekday evening peak hours for the following conditions:

1. Existing Conditions – Analyzes the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.
2. Year 2031 No-Build Conditions – Analyzes the capacity of the existing roadway system using the ambient area growth not attributable to any particular development and any additional developments not associated with the development.
3. Year 2031 Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient traffic growth, and the traffic estimated to be generated by the full buildout of the proposed development.



Site Location

Figure 1



Aerial View of Site

Figure 2

2. Existing Conditions

The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

The site, which is bounded by residential properties to the north, Orlan Brook Drive to the east, 159th Street to the south and the Porche dealer to the west. Land uses along the south side of 159th Street are primarily commercial, while land uses along the north side of 159th Street are primarily residential.

Existing Roadway System Characteristics

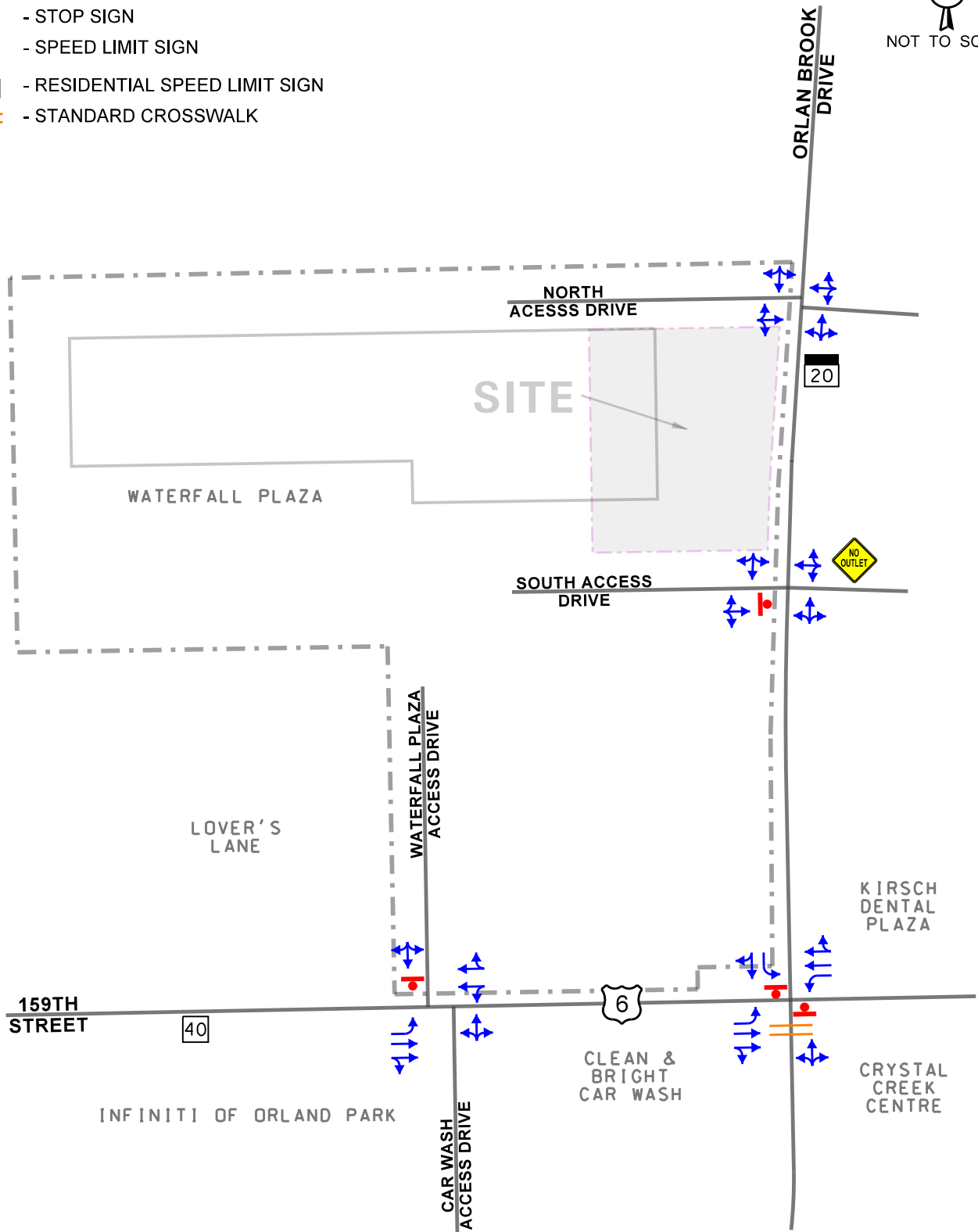
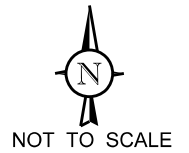
The characteristics of the existing roadways near the site are described below and illustrated in **Figure 3**.

159th Street (US Route 6) is an east-west, other principal arterial roadway that provides two lanes in each direction generally divided by a painted median. At its unsignalized intersection with Orlan Brook Drive, 159th Street provides an exclusive left-turn lane, a through lane and a shared through/right-turn lane on both approaches. At its unsignalized intersection with the Waterfall Plaza full access drive, 159th Street provides a through lane and a shared through/right-turn lane on the westbound approach while the eastbound approach provides a shared left-turn/through lane and a shared through/right-turn lane. Furthermore, given the exclusive left-turn lane on 159th Street at its intersection with Orlan Brook Drive extends beyond the Waterfall Plaza full access drive, the left-turn movements into the Waterfall Plaza occur from this exclusive left-turn lane. 159th Street is under the jurisdiction of the Illinois Department of Transportation (IDOT), has a posted speed limit of 40 mph, is designated as a Strategic Regional Arterial (SRA) route, and carries an Annual Average Daily Traffic (AADT) volume of 35,000 vehicles (IDOT 2023).

Orlan Brook Drive is a north-south local roadway that in the vicinity of the site provides one lane in each direction with sidewalks and curb/gutter on both sides of the roadway. At its unsignalized intersection with 159th Street, Orlan Brook Drive is under stop sign control and provides a shared left/through/right-turn lane on the northbound approach and a left-turn lane and a shared through/right-turn lane on the southbound approach. Orlan Brook Drive is under the jurisdiction of the Village of Orland Park.

LEGEND

- - TRAVEL LANE
- - STOP SIGN
- XX - SPEED LIMIT SIGN
- 30 - RESIDENTIAL SPEED LIMIT SIGN
- - STANDARD CROSSWALK



Miraj Coffee Shop
Orland Park, Illinois

Existing Roadway Characteristics



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Figure: 3

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts on Wednesday, May 21, 2025, during the weekday morning (7:00 to 9:00 A.M.) and weekday evening (4:00 to 6:00 P.M.) peak periods at the following intersections:

- 159th Street with Orlan Brook Drive
- 159th Street with Waterfall Plaza/Washen-Express Car Wash Access Drives
- Orlan Brook Drive with Waterfall Plaza Access Drive (south)
- Orlan Brook Drive with Waterfall Plaza Access Drive (north)

The results of the traffic counts indicate that the weekday morning peak hour of traffic occurs from 7:30 A.M. to 8:30 A.M and the weekday evening peak hour of traffic occurs from 4:30 P.M. to 5:30 P.M. **Figure 4** illustrates the existing peak hour traffic volumes.

Copies of the traffic count summary sheets are included in the Appendix.

Crash Data Summary

KLOA, Inc. obtained crash data¹ for the most recent available past five years (2019 to 2023) for the intersection of 159th Street and Orlan Brook Drive. The crash data for the intersection is summarized in **Table 1**. A review of the crash data indicated that no fatalities were reported at the intersection during the review period.

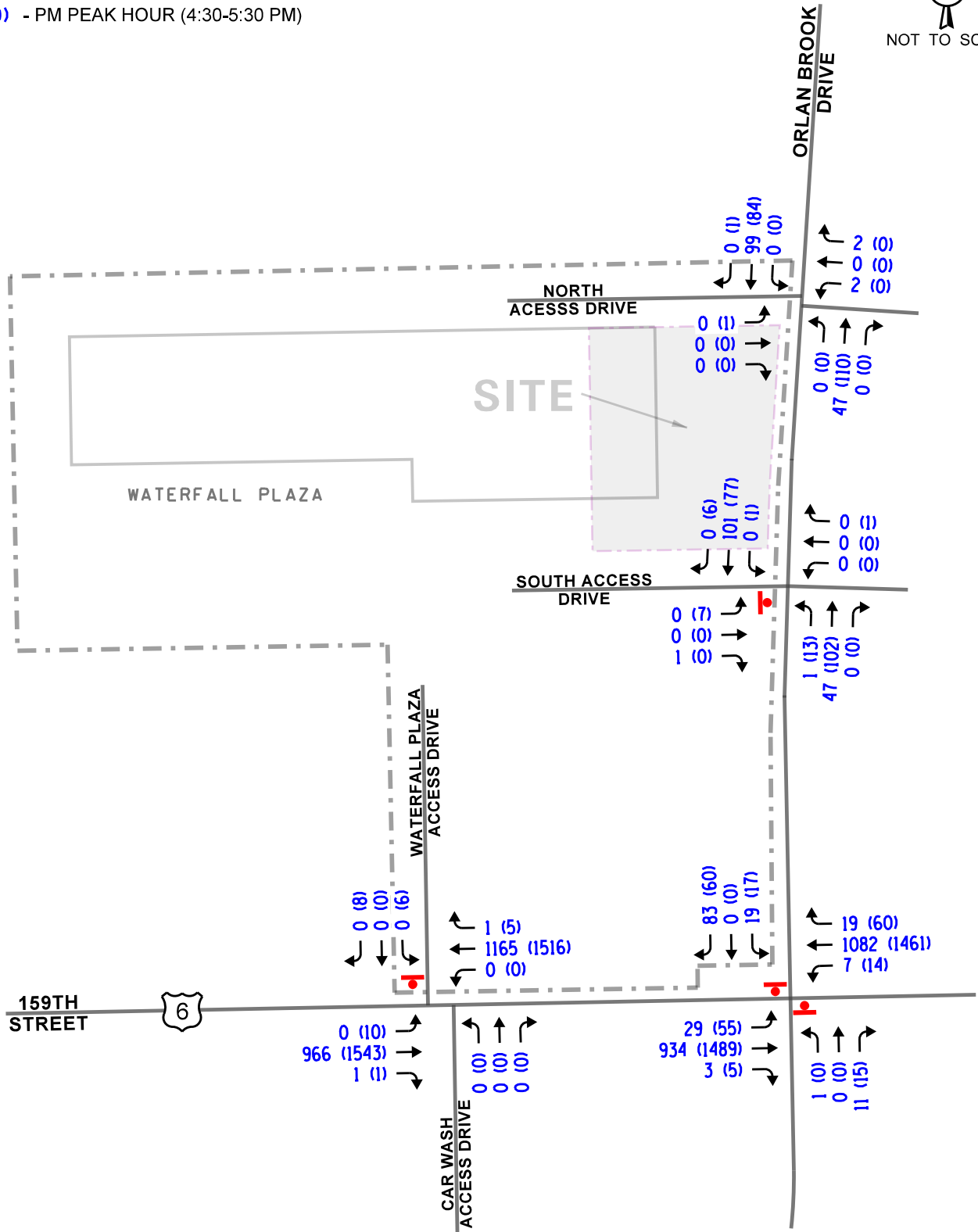
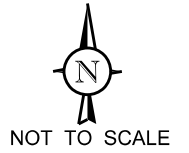
Table 1
159TH STREET WITH ORLAN BROOK DRIVE – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	0	0	0	0	0	0	0	0
2020	1	0	0	0	0	0	0	1
2021	0	0	0	0	0	3	0	3
2022	0	0	0	1	0	0	0	1
2023	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	0	0	1	0	3	0	5
Average	<1.0	0	0	<1.0	0	<1.0	0	1

¹ IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s).

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)



Miraj Coffee Shop
 Orland Park, Illinois

Existing Traffic Volumes



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Figure: 4

3. Traffic Characteristics of the Proposed Development

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Site and Development Plan

As proposed, the end cap unit within the existing building will be repurposed to contain approximately 2,480-square-foot Miraj Coffee Shop with a two-lane drive-through facility. and approximately 16,396 square feet of retail space within the Waterfall Plaza. The site is served by an existing surface parking lot. Access to the proposed coffee shop will continue to be provided via the following existing access drives:

- A full movement access drive located approximately 155 feet west of Orlan Brook Drive. This access drive provides one inbound lane and one outbound lane with outbound movements under stop sign control. As previously mentioned, an exclusive eastbound left-turn lane is provided on 159th Street serving this access drive.
- A full movement access drive located approximately 225 feet north of 159th Street. This access drive provides one inbound lane and one outbound lane with outbound movements under stop sign control.
- An outbound movement only access drive located approximately 355 feet north of 159th Street. This access drive provides one inbound lane and one outbound lane

Under existing condition, the Waterfall Plaza (not including the Lover's Lane outlot) provides approximately 70 off-street parking spaces. Based on the proposed site plan, the parking area will be redesigned to provide 90-degree parking spaces instead of the angle parking spaces currently provided. This reconfiguration will allow the shopping center to increase the number of off-street spaces to approximately 101 parking spaces (inclusive of ten spaces along the service drive on the north side of the building). The parking lot immediately south of the coffee shop will be expanded with a new internal opening off the east-west drive aisle and two openings off the north-south drive aisle thus eliminating the existing dead end pocket parking spaces. In addition, two-way drive aisles will be provided throughout the shopping center parking area facilitating efficient on-site circulation. Lastly, the service drive on the north side of the Waterfall Plaza building will be designated for one-way eastbound movements only with delivery vehicles entering on the west side of the building.

The proposed drive-through facility will be located on the east side of the building and will provide two drive-through lanes. Vehicles will enter the drive-through from the west along the south side of the building and will operate in a counterclockwise direction. Based on a review of the plan, approximately three vehicles can queue from the ordering board of the inside lane and approximately four vehicles from the pick-up window to the ordering board. The outside lane can accommodate one vehicle at the ordering board and four vehicles in front of it. As such, the total queueing area for the drive-through facility will be 12 vehicles. Once customers have picked up their order, they will travel north and turn right to exit towards Orlan Brook Drive. The drive-through exit should be under stop sign control.

A copy of the preliminary site plan is included in the Appendix.

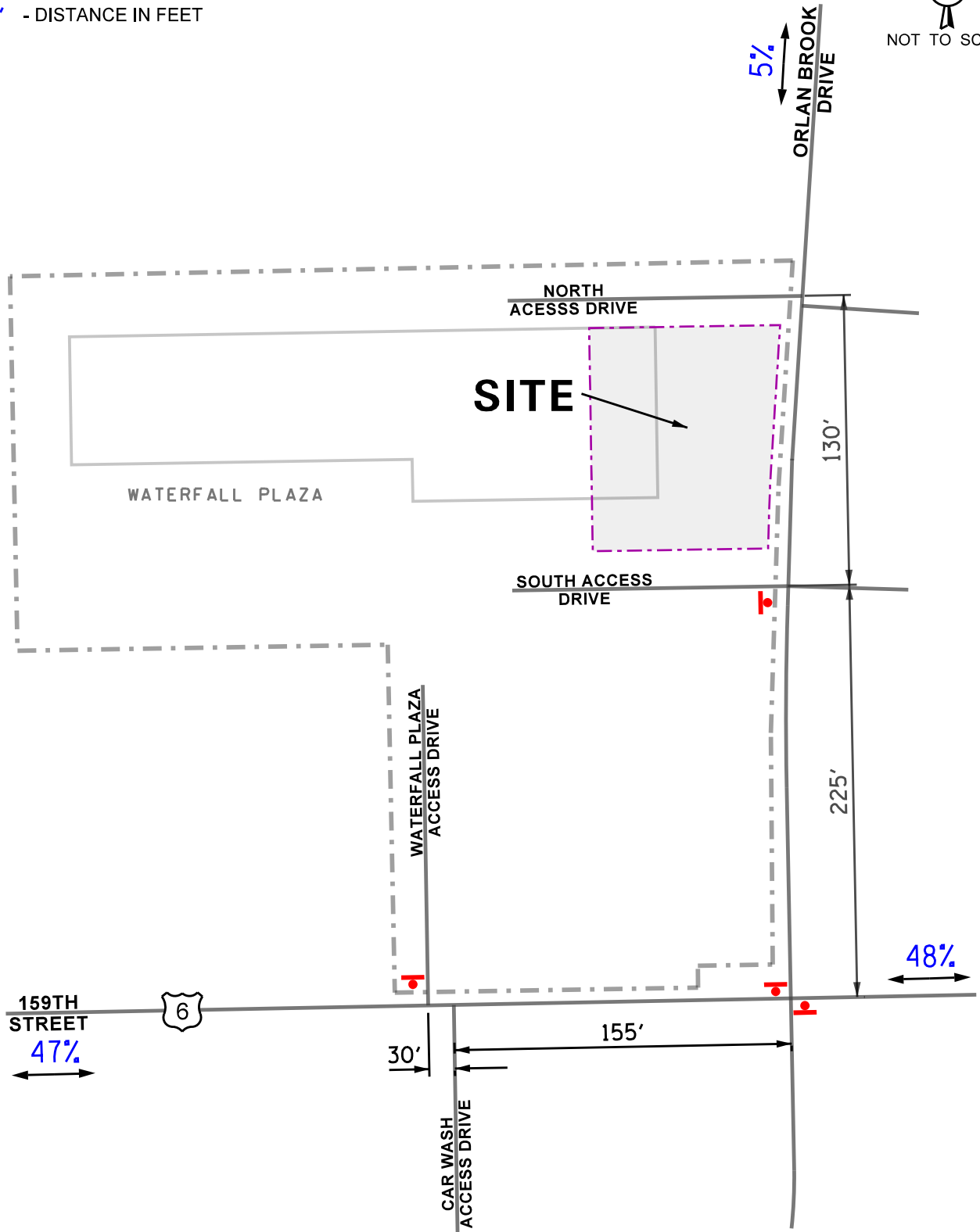
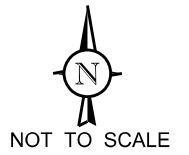
Directional Distribution

The directions from which vehicles will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the site-generated traffic.

LEGEND

00% - PERCENT DISTRIBUTION

00' - DISTANCE IN FEET



Miraj Coffee Shop
Orland Park, Illinois

Directional Distribution



Job No: 25-139

Figure: 5

Trip Generation Estimates

The number of peak hour trips estimated to be generated by the proposed coffee shop was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The “Coffee/Donut Shop with Drive-Through Window” (Land-Use Code 937) trip rates were utilized. Furthermore, the traffic that will be generated by the full occupancy of the remaining vacant space (approximately 16,396 square feet) was estimated utilizing the “Strip Retail Plaza” (Land-Use Code 822) rates were utilized.

It is important to note that surveys conducted by ITE have shown that a significant number of trips made to these types of uses are diverted from the existing traffic on the roadway system. This is particularly true during the weekday morning and evening peak hours when traffic is diverted from the home-to-work and work-to-home trips. Such diverted trips are referred to as pass-by traffic. For this type of use, the surveys indicate that, on average, 70 percent of the peak hour trips generated are diverted from existing traffic on the adjacent roadways during the weekday peak periods.

Table 2 summarizes the trips projected to be generated by the proposed development.

Table 2

PROJECTED SITE-GENERATED TRAFFIC VOLUMES

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		In	Out	Total	In	Out	Total
937	Coffee/Donut Shop with Drive-Through Window – 2,480 S.F.	109	104	213	48	49	97
	<i>70% Pass-By Reduction</i>	-74	-74	-148	-34	-34	-68
822	Strip Retail Plaza (<40K) 16,396 S.F.	<u>23</u>	<u>16</u>	<u>39</u>	<u>55</u>	<u>56</u>	<u>111</u>
	Total New Trips	58	46	104	69	71	140

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed development.

Site Traffic Assignment

The estimated peak hour traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). **Figure 6** illustrates the traffic assignment of the new passenger vehicle trips. As previously indicated, a 70 percent pass-by reduction was applied, and **Figure 7** illustrates the traffic assignment of the pass-by trips.

Background (No-Build) Traffic Conditions

The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on Average Daily Traffic (ADT) projections provided by the Chicago Metropolitan Agency for Planning (CMAP), the existing traffic volumes were increased by an annually compounded growth rate of 0.5 percent per year for six years (buildout year plus five years) for a total of approximately three percent to project Year 2031 background conditions. A copy of the CMAP 2050 projections letter is included in the Appendix.

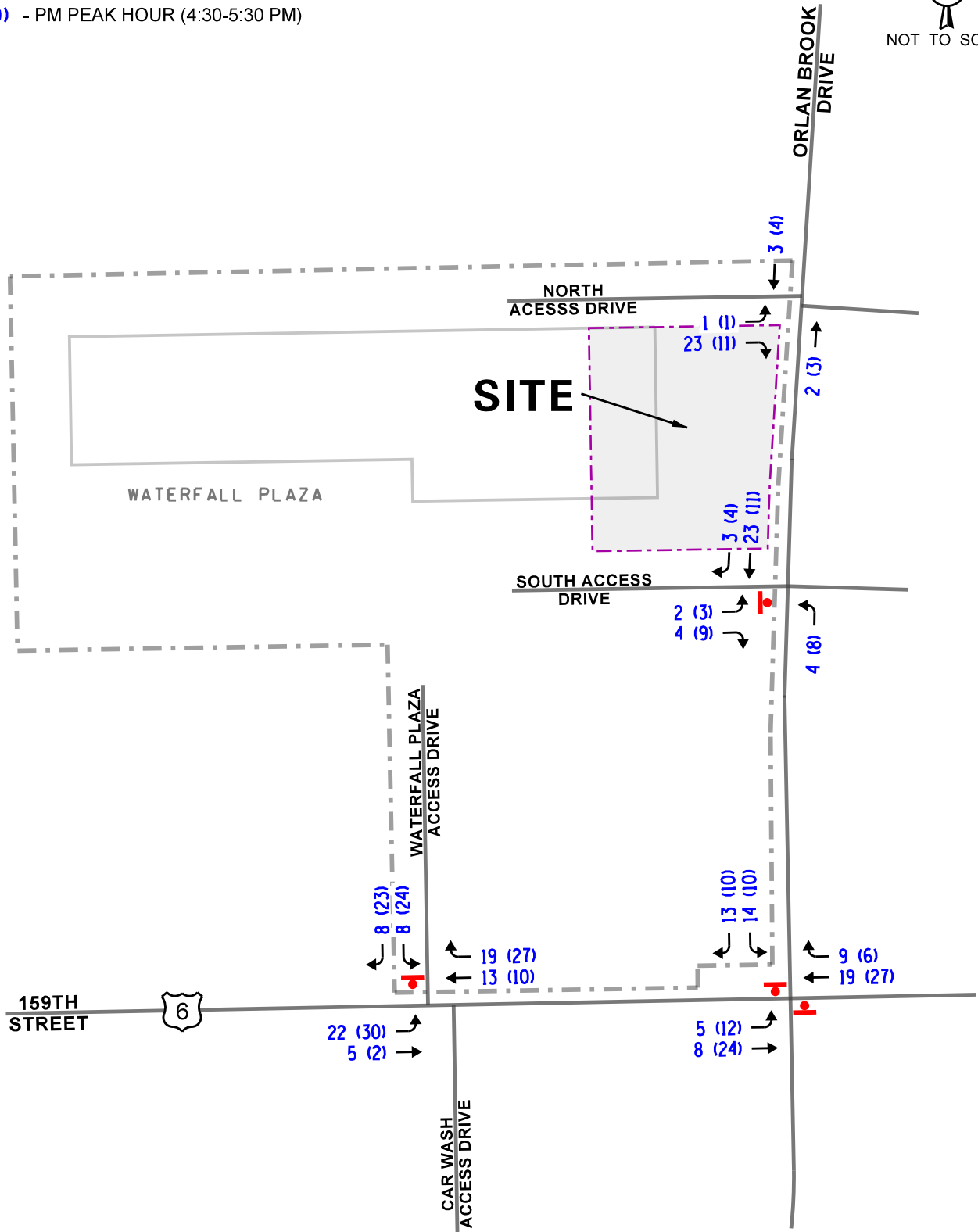
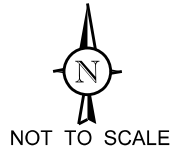
Figure 8 illustrates the Year 2031 no-build conditions.

Total Projected Traffic Volumes

The site-generated traffic (Figures 6 and 7) was added to the existing traffic volumes increased by the regional growth factor (Figure 8) to determine the Year 2031 total projected traffic volumes, shown in **Figure 9**.

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)



Miraj Coffee Shop
 Orland Park, Illinois

Site-Generated Traffic Volumes

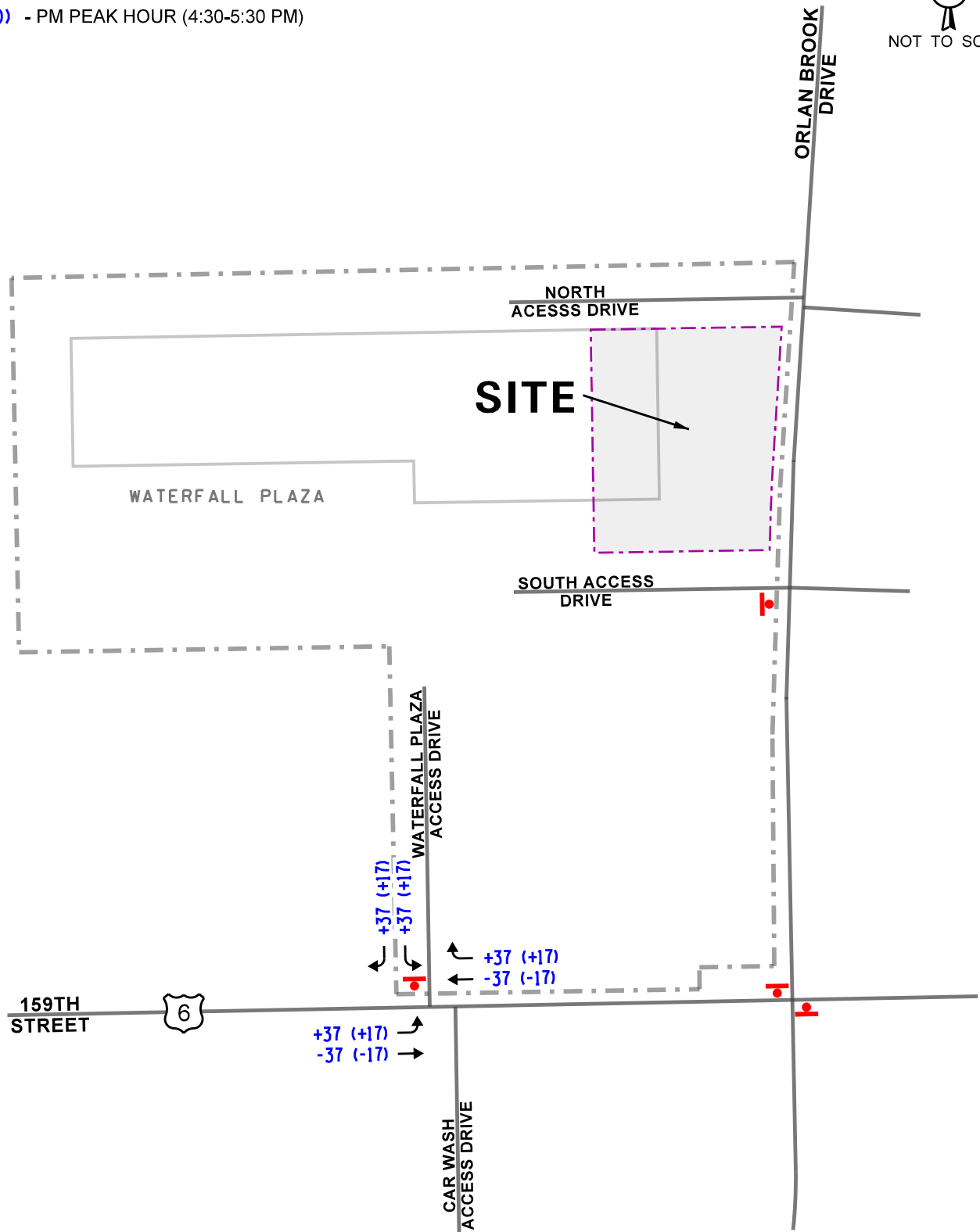
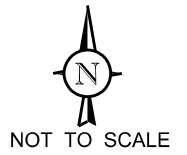


Job No: 25-139

Figure: 6

LEGEND

- 00 - AM PEAK HOUR (7:30-8:30 AM)
 (00) - PM PEAK HOUR (4:30-5:30 PM)



Miraj Coffee Shop
 Orland Park, Illinois

Pass-By Traffic Volumes

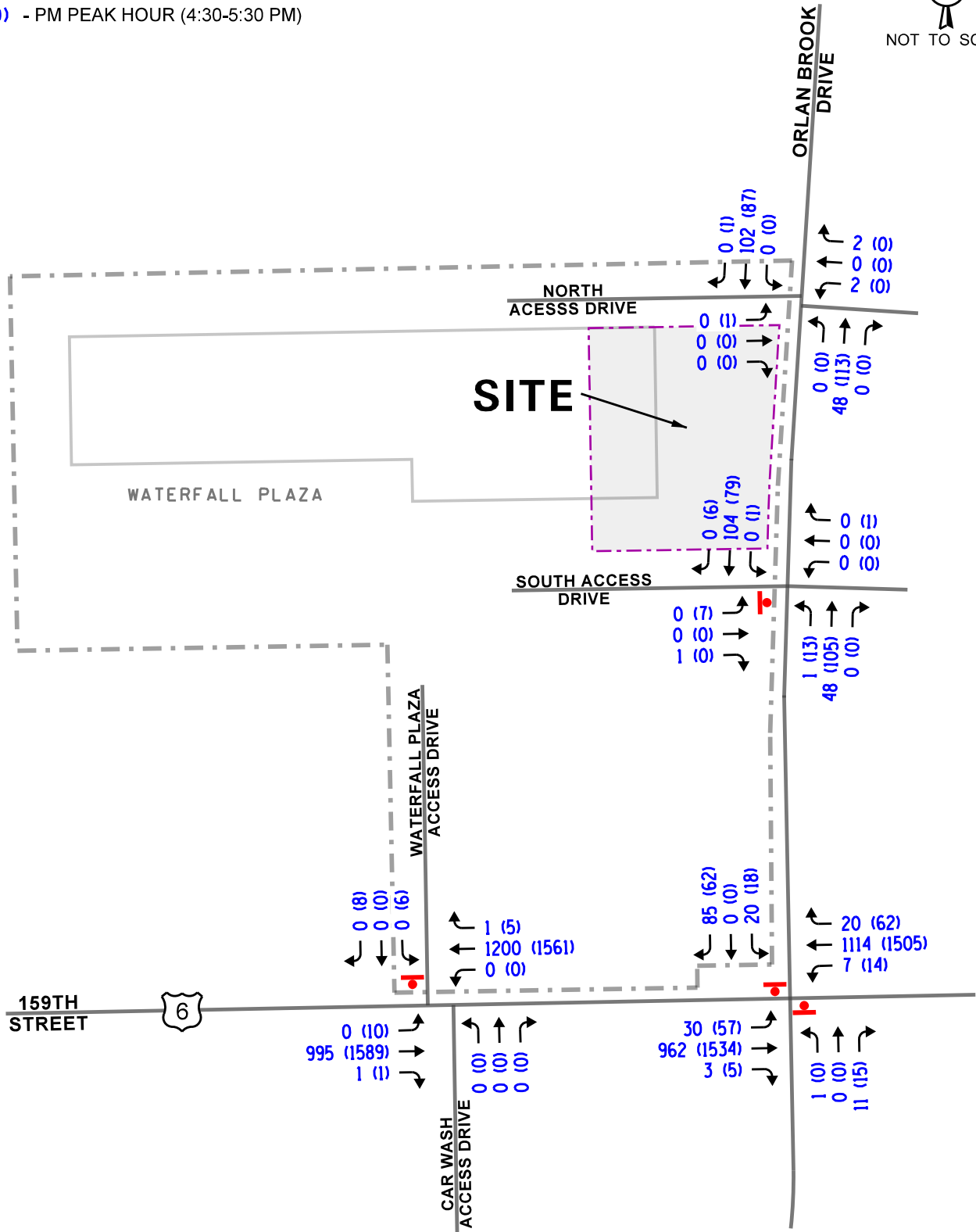
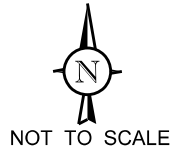


Job No: 25-139

Figure: 7

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)



Miraj Coffee Shop
Orland Park, Illinois

Year 2031 No-Build Traffic Volumes

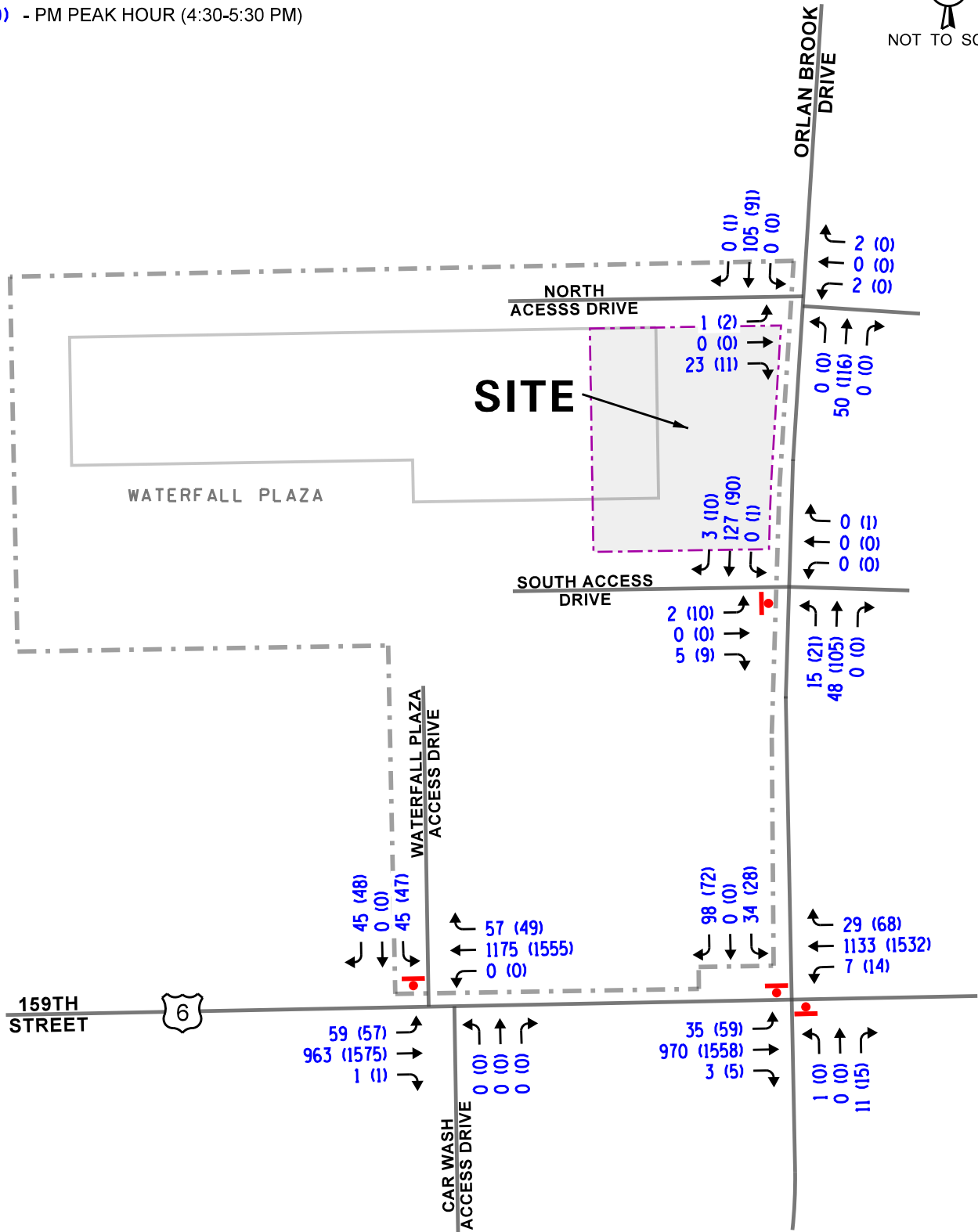
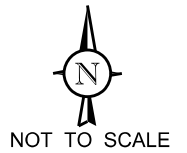


Job No: 25-139

Figure: 8

LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)



Miraj Coffee Shop
 Orland Park, Illinois

Year 2031 Total Traffic Volumes



Job No: 25-139

Figure: 9

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drives are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and weekday evening peak hours for the existing (Year 2025), no-build, and future projected (Year 2031) traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 7th Edition and analyzed using Synchro/SimTraffic 12 software.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing, Year 2031 no-build, and Year 2031 total projected conditions are presented in **Tables 3** through **5**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4

UNSIGNALIZED – EXISTING CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
159th Street with Orlan Brook Drive¹				
• Northbound Approach	A	9.87	B	10.52
• Southbound Approach	B	11.25	C	15.12
• Eastbound Left Turn	A	9.8	B	12.1
• Westbound Left Turn	A	8.8	B	11.2
159th Street with Waterfall Plaza/Washen Express Car Wash Access Drives				
Northbound Approach	--	--	--	--
Southbound Approach	--	--	E	37.8
Eastbound Left Turn	--	--	B	14.1
Westbound Left Turn	--	--	--	--
Orlan Brook Drive with Waterfall Plaza Access Drive (South)				
Eastbound Approach	A	8.83	B	10.14
Westbound Approach	--	--	A	8.83
Northbound Left Turn	A	7.4	A	7.4
Southbound Left Turn	--	--	A	7.4
Orlan Brook Drive with Waterfall Plaza Access Drive (North)				
Eastbound Approach	--	--	A	9.82
Westbound Approach	A	9.08	--	--
Northbound Left Turn	--	--	--	--
Southbound Left Turn	--	--	--	--
LOS = Level of Service Delay is measured in seconds.				
1 – Two-way stop control				

Table 5

UNSIGNALIZED – YEAR 2031 NO-BUILD CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
159th Street with Orlan Brook Drive¹				
• Northbound Approach	A	9.91	B	10.64
• Southbound Approach	B	11.45	C	15.76
• Eastbound Left Turn	A	9.9	B	12.5
• Westbound Left Turn	A	9.0	B	11.5
159th Street with Waterfall Plaza/Washen Express Car Wash Access Drives				
Northbound Approach	--	--	--	--
Southbound Approach	--	--	E	40.21
Eastbound Left Turn	--	--	B	14.5
Westbound Left Turn	--	--	--	--
Orlan Brook Drive with Waterfall Plaza Access Drive (South)				
Eastbound Approach	A	8.85	B	10.19
Westbound Approach	--	--	A	8.85
Northbound Left Turn	A	7.4	A	7.4
Southbound Left Turn	--	--	A	7.4
Orlan Brook Drive with Waterfall Plaza Access Drive (North)				
Eastbound Approach	--	--	A	9.87
Westbound Approach	A	9.1	--	--
Northbound Left Turn	--	--	--	--
Southbound Left Turn	--	--	--	--
LOS = Level of Service Delay is measured in seconds.				
1 – Two-way stop control				

Table 6

UNSIGNALIZED – YEAR 2031 TOTAL CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
159th Street with Orlan Brook Drive¹				
• Northbound Approach	A	9.97	B	10.64
• Southbound Approach	B	12.3	C	18.01
• Eastbound Left Turn	B	10.1	B	12.8
• Westbound Left Turn	A	9.0	B	11.7
159th Street with Waterfall Plaza/Washen Express Car Wash Access Drives				
Northbound Approach	--	--	--	--
Southbound Approach	C	16.36	E	35.54
Eastbound Left Turn	B	10.5	B	13.6
Westbound Left Turn	--	--	--	--
Orlan Brook Drive with Waterfall Plaza Access Drive (South)				
Eastbound Approach	A	9.34	B	10.01
Westbound Approach	--	--	A	8.85
Northbound Left Turn	A	7.5	A	7.5
Southbound Left Turn	--	--	A	7.4
Orlan Brook Drive with Waterfall Plaza Access Drive (North)				
Eastbound Approach	A	9.04	A	8.99
Westbound Approach	A	9.2	--	--
Southbound Left Turn	--	--	--	--
LOS = Level of Service Delay is measured in seconds.				
1 – Two-way stop control				

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the site-generated traffic.

159th Street with Orlan Brook Drive

The results of the capacity analysis indicate that the northbound and southbound approaches currently operate at a LOS C or better during the weekday morning and weekday evening peak hours. The eastbound and westbound left-turn movements currently operate at a LOS B or better during the peak hours. Under Year 2031 no-build conditions all approaches and turning movements at this intersection are projected to continue to operate at the same LOS as existing conditions with an increase in delay of less than one second. Under Year 2031 total projected conditions this intersection is projected to continue to operate at the same LOS as no-build conditions with an increase in delay of less than one seconds, except for the eastbound left turn movement which operates at LOS B during the weekday morning peak hour with an increase in delay of less than one second. The 95th percentile queues are projected to be approximately one to two vehicles during the peak hours. As such, this intersection has adequate capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control modifications will be required.

159th Street with Waterfall Plaza/Washen Express Car Wash Access Drives

The results of the capacity analysis indicate that the southbound approach from the shopping center currently operates at a LOS E during the weekday evening peak hour, while the northbound approach has no assignable LOS due to the absence of observed traffic during the peak hour. The eastbound left turn movement currently operates at a LOS B during the weekday evening peak hour. Under Year 2031 no-build conditions all approaches and turning movements are projected to continue to operate at the same LOS as existing conditions with an increase in delay of less than three seconds. Under Year 2031 total projected conditions the southbound approach from the shopping center is projected to operate at a LOS C during the weekday morning peak hour and LOS E during the weekday evening peak hour. Furthermore, the eastbound left turn movement is projected to operate at LOS B during the weekday morning and weekday evening peak hours. The 95th percentile queues are projected to be approximately one to three vehicles during the peak hours. The eastbound left-turn movement into the shopping center access drive can be accommodated by the existing exclusive left-turn lane, which extends from the intersection of 159th Street and Orlan Brook Drive to the access drive. Additionally, the southbound approach can be accommodated by the existing access drive geometry, and vehicles are not expected to create long internal queues. As such, this intersection has adequate capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control modifications will be required.

Orlan Brook Drive with Waterfall Plaza Access Drive (south)

The results of the capacity analysis indicate that all approaches and turning movement currently operate at LOS B or better during the weekday morning and weekday evening peak hours. Under Year 2031 no-build and total projected conditions this intersection is projected to operate at the same LOS B or better during the peak hours with an increase in delay of less than one second. The 95th percentile queues are projected to be approximately one to two vehicles during the peak hours. As such, this intersection has adequate capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control modifications will be required.

Orlan Brook Drive with Waterfall Plaza Access Drive (south)

The results of the capacity analysis indicate that all approaches and turning movements currently operate at LOS A during the weekday morning and weekday evening peak hours. Under Year 2031 no-build conditions this intersection is projected to continue to operate at the same LOS as existing conditions with an increase in delay of less than one second. Under Year 2031 total projected conditions the eastbound and westbound approaches are projected to operate at LOS B or better during the weekday morning and weekday evening peak hour. The 95th percentile queues are projected to be approximately one to two vehicles during the peak hours. As such, this intersection has adequate capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control modifications will be required.

Miraj Coffee Shop On-Site Circulation and Drive-Through Lane

The existing building that will be occupied by retailers and the Miraj coffee shop on the east side of the building. Currently, there is parking provided on the south side of the building with access provided via the three existing access drives: two off Orlan Brook Drive and another off 159th Street (U.S. Route 6).

As previously indicated, the proposed drive-through facility will be located on the east side of the building and will provide two drive-through lanes. Vehicles will enter the drive-through from the west along the south side of the building and will operate in a counterclockwise direction. Based on a review of the plan, a total queueing area of 12 vehicles will be provided for the drive-through facility. This amount of stacking will be sufficient to meet the projected demand based on KLOA, Inc.'s experience and surveys of similar coffee shops which indicated a maximum queue of 10 to 11 vehicles. As such, the proposed stacking area is the typical drive-through stacking provided at most coffee shops and should be able to accommodate the average and peak demand of the drive-through operation without impacting traffic flow within the site.

In order to provide for a more efficient and orderly internal traffic flow, the following modifications could be considered:

- Convert the east-west drive aisle between the north-south main drive aisle and the new opening to the southern parking lot to one-way eastbound traffic flow.

- Provide a three-foot wide raised median and better delineate the second drive-through lane.
- The inbound traffic from the access drive off Orlan Brook Drive would then be directed to turn left into the parking lot opening and then either proceed to park in the spaces or travel west, north and then east towards the drive-through facility.
- The outbound movements from the drive-through lanes should be under stop sign control with a supplemental sign indicating “Right-Turn Only.”
- “Do Not Enter” signs should be posted on the service drive intersection with Orlan Brook Drive facing east.

This alternate plan would enhance the stacking capability of the drive-through facility and ensure that vehicles approaching from the north can enter the drive-through lanes. **Exhibit A** illustrates the potential geometric modifications.



DRAWN: MD CHECKED: JM
DATE: 05-08-25 REV:
PROJECT #: 25-139
EXHIBIT: A



6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The total trips estimated to be generated by the proposed coffee shop will be reduced due to the pass-by trips.
- Access to the proposed development will continue to be provided via the following existing access drives:
 - A full movement access drive located approximately 155 feet west of Orlan Brook Drive. This access drive provides one inbound lane and one outbound lane with outbound movements under stop sign control. As previously mentioned, an exclusive eastbound left-turn lane is provided on 159th Street serving this access drive.
 - A full movement access drive located approximately 225 feet north of 159th Street. This access drive provides one inbound lane and one outbound lane with outbound movements under stop sign control.
 - An outbound movement only access drive located approximately 355 feet north of 159th Street. This access drive provides one outbound lane with outbound movements under stop sign control.
- The results of the capacity analysis indicate that the existing roadway system and access drives has adequate reserve capacity to accommodate the estimated traffic to be generated by the proposed development and no roadway improvements or traffic control modifications are required.
- The existing access system will be adequate in accommodating the traffic projected to be generated by the proposed development with limited impact on the adjacent roadway network.
- Outbound movements from the drive-through exit lane should be under stop sign control.
- The drive-through lanes will provide adequate stacking to accommodate the demand of the drive-through operations.

Appendix

Traffic Count Summary Sheets
Site Plan
CMAP Projections Letter
Level of Service Table
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: 159th Street with Access Drive
TMC
Site Code:
Start Date: 05/21/2025
Page No: 1

Turning Movement Data

Start Time	159th Street Eastbound						159th Street Westbound						Access Drive Northbound						Access Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	183	0	0	183	0	0	226	0	0	226	0	0	0	0	0	0	0	0	0	0	0	0	409
7:15 AM	0	0	222	0	0	222	0	0	249	0	0	249	0	0	0	0	0	0	0	0	0	0	0	0	471
7:30 AM	0	0	238	0	0	238	0	0	291	0	0	291	0	0	0	0	0	0	0	0	0	0	0	0	529
7:45 AM	0	0	247	0	0	247	0	0	314	0	0	314	0	0	0	0	0	0	0	0	0	0	0	0	561
Hourly Total	0	0	890	0	0	890	0	0	1080	0	0	1080	0	0	0	0	0	0	0	0	0	0	0	0	1970
8:00 AM	0	0	243	1	0	244	0	0	295	1	0	296	0	0	0	0	0	0	0	0	0	0	0	0	540
8:15 AM	0	0	236	0	0	236	0	0	265	0	0	265	0	0	0	0	0	0	0	0	0	0	1	0	501
8:30 AM	0	0	222	0	0	222	0	0	300	0	0	300	0	0	0	0	0	0	0	0	0	0	0	0	522
8:45 AM	0	0	252	0	0	252	0	0	308	2	0	310	0	0	0	0	0	0	0	1	0	0	1	1	563
Hourly Total	0	0	953	1	0	954	0	0	1168	3	0	1171	0	0	0	0	0	0	0	1	0	0	2	1	2126
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	419	0	0	419	0	0	383	0	0	383	0	0	0	0	0	0	0	0	0	1	1	1	803
4:15 PM	0	0	378	0	0	378	0	1	373	0	0	374	0	1	0	0	0	1	0	0	0	3	2	3	756
4:30 PM	0	4	391	0	0	395	0	0	376	2	0	378	0	0	0	0	0	0	0	0	0	1	0	1	774
4:45 PM	0	1	362	0	0	363	0	0	357	1	0	358	0	0	0	0	0	0	0	2	0	2	2	4	725
Hourly Total	0	5	1550	0	0	1555	0	1	1489	3	0	1493	0	1	0	0	0	1	0	2	0	7	5	9	3058
5:00 PM	0	2	393	0	0	395	0	0	422	1	0	423	0	0	0	0	0	0	0	1	0	0	1	1	819
5:15 PM	0	3	397	1	0	401	0	0	361	1	0	362	0	0	0	0	0	0	0	3	0	5	0	8	771
5:30 PM	0	1	413	0	0	414	0	0	352	1	0	353	0	0	0	0	0	0	0	0	0	1	0	1	768
5:45 PM	0	2	345	0	0	347	0	0	364	3	0	367	0	0	0	0	0	0	0	0	0	2	0	2	716
Hourly Total	0	8	1548	1	0	1557	0	0	1499	6	0	1505	0	0	0	0	0	0	0	4	0	8	1	12	3074
Grand Total	0	13	4941	2	0	4956	0	1	5236	12	0	5249	0	1	0	0	0	1	0	7	0	15	8	22	10228
Approach %	0.0	0.3	99.7	0.0	-	-	0.0	0.0	99.8	0.2	-	-	0.0	100.0	0.0	0.0	-	-	0.0	31.8	0.0	68.2	-	-	-
Total %	0.0	0.1	48.3	0.0	-	48.5	0.0	0.0	51.2	0.1	-	51.3	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1	-	0.2	-
Lights	0	13	4828	2	-	4843	0	1	5090	12	-	5103	0	1	0	0	-	1	0	6	0	15	-	21	9968
% Lights	-	100.0	97.7	100.0	-	97.7	-	100.0	97.2	100.0	-	97.2	-	100.0	-	-	-	100.0	-	85.7	-	100.0	-	95.5	97.5
Buses	0	0	36	0	-	36	0	0	38	0	-	38	0	0	0	0	-	0	0	0	0	0	-	0	74
% Buses	-	0.0	0.7	0.0	-	0.7	-	0.0	0.7	0.0	-	0.7	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	0.7
Single-Unit Trucks	0	0	40	0	-	40	0	0	65	0	-	65	0	0	0	0	-	0	0	1	0	0	-	1	106
% Single-Unit Trucks	-	0.0	0.8	0.0	-	0.8	-	0.0	1.2	0.0	-	1.2	-	0.0	-	-	-	0.0	-	14.3	-	0.0	-	4.5	1.0
Articulated Trucks	0	0	37	0	-	37	0	0	43	0	-	43	0	0	0	0	-	0	0	0	0	0	-	0	80
% Articulated Trucks	-	0.0	0.7	0.0	-	0.7	-	0.0	0.8	0.0	-	0.8	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	8	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-



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Count Name: 159th Street with Access Drive
TMC
Site Code:
Start Date: 05/21/2025
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	159th Street Eastbound						159th Street Westbound						Access Drive Northbound						Access Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	0	238	0	0	238	0	0	291	0	0	291	0	0	0	0	0	0	0	0	0	0	0	0	529
7:45 AM	0	0	247	0	0	247	0	0	314	0	0	314	0	0	0	0	0	0	0	0	0	0	0	0	561
8:00 AM	0	0	243	1	0	244	0	0	295	1	0	296	0	0	0	0	0	0	0	0	0	0	0	0	540
8:15 AM	0	0	236	0	0	236	0	0	265	0	0	265	0	0	0	0	0	0	0	0	0	0	1	0	501
Total	0	0	964	1	0	965	0	0	1165	1	0	1166	0	0	0	0	0	0	0	0	0	0	1	0	2131
Approach %	0.0	0.0	99.9	0.1	-	-	0.0	0.0	99.9	0.1	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	45.2	0.0	-	45.3	0.0	0.0	54.7	0.0	-	54.7	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.976	0.250	-	0.977	0.000	0.000	0.928	0.250	-	0.928	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.950
Lights	0	0	925	1	-	926	0	0	1109	1	-	1110	0	0	0	0	-	0	0	0	0	0	-	0	2036
% Lights	-	-	96.0	100.0	-	96.0	-	-	95.2	100.0	-	95.2	-	-	-	-	-	-	-	-	-	-	-	-	95.5
Buses	0	0	20	0	-	20	0	0	10	0	-	10	0	0	0	0	-	0	0	0	0	0	-	0	30
% Buses	-	-	2.1	0.0	-	2.1	-	-	0.9	0.0	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	1.4
Single-Unit Trucks	0	0	11	0	-	11	0	0	28	0	-	28	0	0	0	0	-	0	0	0	0	0	-	0	39
% Single-Unit Trucks	-	-	1.1	0.0	-	1.1	-	-	2.4	0.0	-	2.4	-	-	-	-	-	-	-	-	-	-	-	-	1.8
Articulated Trucks	0	0	8	0	-	8	0	0	18	0	-	18	0	0	0	0	-	0	0	0	0	0	-	0	26
% Articulated Trucks	-	-	0.8	0.0	-	0.8	-	-	1.5	0.0	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	1.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name: 159th Street with Access Drive
TMC
Site Code:
Start Date: 05/21/2025
Page No: 4

Turning Movement Peak Hour Data (4:30 PM)

Start Time	159th Street Eastbound						159th Street Westbound						Access Drive Northbound						Access Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	4	391	0	0	395	0	0	376	2	0	378	0	0	0	0	0	0	0	0	0	1	0	1	774
4:45 PM	0	1	362	0	0	363	0	0	357	1	0	358	0	0	0	0	0	0	0	2	0	2	2	4	725
5:00 PM	0	2	393	0	0	395	0	0	422	1	0	423	0	0	0	0	0	0	0	1	0	0	1	1	819
5:15 PM	0	3	397	1	0	401	0	0	361	1	0	362	0	0	0	0	0	0	0	3	0	5	0	8	771
Total	0	10	1543	1	0	1554	0	0	1516	5	0	1521	0	0	0	0	0	0	0	6	0	8	3	14	3089
Approach %	0.0	0.6	99.3	0.1	-	-	0.0	0.0	99.7	0.3	-	-	0.0	0.0	0.0	0.0	-	-	0.0	42.9	0.0	57.1	-	-	-
Total %	0.0	0.3	50.0	0.0	-	50.3	0.0	0.0	49.1	0.2	-	49.2	0.0	0.0	0.0	0.0	-	0.0	0.0	0.2	0.0	0.3	-	0.5	-
PHF	0.000	0.625	0.972	0.250	-	0.969	0.000	0.000	0.898	0.625	-	0.899	0.000	0.000	0.000	0.000	-	0.000	0.000	0.500	0.000	0.400	-	0.438	0.943
Lights	0	10	1530	1	-	1541	0	0	1499	5	-	1504	0	0	0	0	-	0	0	5	0	8	-	13	3058
% Lights	-	100.0	99.2	100.0	-	99.2	-	-	98.9	100.0	-	98.9	-	-	-	-	-	-	-	83.3	-	100.0	-	92.9	99.0
Buses	0	0	2	0	-	2	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	5
% Buses	-	0.0	0.1	0.0	-	0.1	-	-	0.2	0.0	-	0.2	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	0.2
Single-Unit Trucks	0	0	8	0	-	8	0	0	11	0	-	11	0	0	0	0	-	0	0	1	0	0	-	1	20
% Single-Unit Trucks	-	0.0	0.5	0.0	-	0.5	-	-	0.7	0.0	-	0.7	-	-	-	-	-	-	-	16.7	-	0.0	-	7.1	0.6
Articulated Trucks	0	0	3	0	-	3	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	6
% Articulated Trucks	-	0.0	0.2	0.0	-	0.2	-	-	0.2	0.0	-	0.2	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name: Orlan Brook Drive with 159th
Street TMC
Site Code:
Start Date: 05/21/2025
Page No: 1

Turning Movement Data

Start Time	159th Street Eastbound						159th Street Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	4	182	0	0	186	0	0	213	5	0	218	0	0	0	5	0	5	0	2	0	12	0	14	423
7:15 AM	0	9	205	1	0	215	0	3	233	3	0	239	0	0	0	1	0	1	0	8	0	15	0	23	478
7:30 AM	0	6	238	1	0	245	0	2	253	9	0	264	0	0	0	1	0	1	0	8	0	20	0	28	538
7:45 AM	0	8	225	0	0	233	0	1	295	3	0	299	0	1	0	5	0	6	0	3	0	26	0	29	567
Hourly Total	0	27	850	2	0	879	0	6	994	20	0	1020	0	1	0	12	0	13	0	21	0	73	0	94	2006
8:00 AM	0	9	247	0	0	256	0	2	259	4	0	265	0	0	0	1	0	1	0	6	0	21	0	27	549
8:15 AM	0	5	224	2	0	231	0	2	255	3	0	260	0	0	0	4	0	4	0	2	0	14	1	16	511
8:30 AM	0	10	227	1	0	238	0	4	271	5	0	280	0	0	0	1	0	1	0	4	0	18	0	22	541
8:45 AM	0	6	247	1	0	254	0	4	296	10	0	310	0	1	0	3	0	4	0	6	0	13	1	19	587
Hourly Total	0	30	945	4	0	979	0	12	1081	22	0	1115	0	1	0	9	0	10	0	18	0	66	2	84	2188
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	17	379	5	0	401	0	7	359	10	0	376	0	1	0	3	0	4	0	1	0	21	1	22	803
4:15 PM	0	14	340	2	0	356	0	4	354	12	0	370	0	1	0	0	0	1	0	5	0	15	1	20	747
4:30 PM	0	14	370	2	0	386	0	2	366	15	0	383	0	0	0	7	0	7	0	3	0	13	0	16	792
4:45 PM	1	14	335	0	1	350	0	1	346	15	0	362	0	0	0	2	0	2	0	1	0	11	0	12	726
Hourly Total	1	59	1424	9	1	1493	0	14	1425	52	0	1491	0	2	0	12	0	14	0	10	0	60	2	70	3068
5:00 PM	0	9	378	1	0	388	1	4	380	13	0	398	0	0	0	3	0	3	0	2	0	23	1	25	814
5:15 PM	0	13	402	2	1	417	1	7	345	16	0	369	0	0	0	3	1	3	0	11	0	13	0	24	813
5:30 PM	0	17	401	0	0	418	0	7	322	9	0	338	0	0	0	2	0	2	0	5	0	13	0	18	776
5:45 PM	0	13	347	0	0	360	0	1	332	9	0	342	0	1	0	2	0	3	0	1	0	11	0	12	717
Hourly Total	0	52	1528	3	1	1583	2	19	1379	47	0	1447	0	1	0	10	1	11	0	19	0	60	1	79	3120
Grand Total	1	168	4747	18	2	4934	2	51	4879	141	0	5073	0	5	0	43	1	48	0	68	0	259	5	327	10382
Approach %	0.0	3.4	96.2	0.4	-	-	0.0	1.0	96.2	2.8	-	-	0.0	10.4	0.0	89.6	-	-	0.0	20.8	0.0	79.2	-	-	-
Total %	0.0	1.6	45.7	0.2	-	47.5	0.0	0.5	47.0	1.4	-	48.9	0.0	0.0	0.0	0.4	-	0.5	0.0	0.7	0.0	2.5	-	3.1	-
Lights	1	160	4641	18	-	4820	2	49	4737	140	-	4928	0	5	0	43	-	48	0	68	0	255	-	323	10119
% Lights	100.0	95.2	97.8	100.0	-	97.7	100.0	96.1	97.1	99.3	-	97.1	-	100.0	-	100.0	-	100.0	-	100.0	-	98.5	-	98.8	97.5
Buses	0	1	33	0	-	34	0	2	38	1	-	41	0	0	0	0	-	0	0	0	0	2	-	2	77
% Buses	0.0	0.6	0.7	0.0	-	0.7	0.0	3.9	0.8	0.7	-	0.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.8	-	0.6	0.7
Single-Unit Trucks	0	4	40	0	-	44	0	0	50	0	-	50	0	0	0	0	-	0	0	0	0	1	-	1	95
% Single-Unit Trucks	0.0	2.4	0.8	0.0	-	0.9	0.0	0.0	1.0	0.0	-	1.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.4	-	0.3	0.9
Articulated Trucks	0	3	33	0	-	36	0	0	54	0	-	54	0	0	0	0	-	0	0	0	0	1	-	1	91
% Articulated Trucks	0.0	1.8	0.7	0.0	-	0.7	0.0	0.0	1.1	0.0	-	1.1	-	0.0	-	0.0	-	0.0	-	0.0	-	0.4	-	0.3	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	1	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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Count Name: Orlan Brook Drive with 159th
Street TMC
Site Code:
Start Date: 05/21/2025
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	159th Street Eastbound						159th Street Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	6	238	1	0	245	0	2	253	9	0	264	0	0	0	1	0	1	0	8	0	20	0	28	538
7:45 AM	0	8	225	0	0	233	0	1	295	3	0	299	0	1	0	5	0	6	0	3	0	26	0	29	567
8:00 AM	0	9	247	0	0	256	0	2	259	4	0	265	0	0	0	1	0	1	0	6	0	21	0	27	549
8:15 AM	0	5	224	2	0	231	0	2	255	3	0	260	0	0	0	4	0	4	0	2	0	14	1	16	511
Total	0	28	934	3	0	965	0	7	1062	19	0	1088	0	1	0	11	0	12	0	19	0	81	1	100	2165
Approach %	0.0	2.9	96.8	0.3	-	-	0.0	0.6	97.6	1.7	-	-	0.0	8.3	0.0	91.7	-	-	0.0	19.0	0.0	81.0	-	-	-
Total %	0.0	1.3	43.1	0.1	-	44.6	0.0	0.3	49.1	0.9	-	50.3	0.0	0.0	0.0	0.5	-	0.6	0.0	0.9	0.0	3.7	-	4.6	-
PHF	0.000	0.778	0.945	0.375	-	0.942	0.000	0.875	0.900	0.528	-	0.910	0.000	0.250	0.000	0.550	-	0.500	0.000	0.594	0.000	0.779	-	0.862	0.955
Lights	0	26	895	3	-	924	0	7	1006	18	-	1031	0	1	0	11	-	12	0	19	0	78	-	97	2064
% Lights	-	92.9	95.8	100.0	-	95.8	-	100.0	94.7	94.7	-	94.8	-	100.0	-	100.0	-	100.0	-	100.0	-	96.3	-	97.0	95.3
Buses	0	0	20	0	-	20	0	0	10	1	-	11	0	0	0	0	-	0	0	0	0	2	-	2	33
% Buses	-	0.0	2.1	0.0	-	2.1	-	0.0	0.9	5.3	-	1.0	-	0.0	-	0.0	-	0.0	-	0.0	-	2.5	-	2.0	1.5
Single-Unit Trucks	0	0	12	0	-	12	0	0	20	0	-	20	0	0	0	0	-	0	0	0	0	0	-	0	32
% Single-Unit Trucks	-	0.0	1.3	0.0	-	1.2	-	0.0	1.9	0.0	-	1.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	1.5
Articulated Trucks	0	2	7	0	-	9	0	0	26	0	-	26	0	0	0	0	-	0	0	0	0	1	-	1	36
% Articulated Trucks	-	7.1	0.7	0.0	-	0.9	-	0.0	2.4	0.0	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	1.2	-	1.0	1.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-



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Count Name: Orlan Brook Drive with 159th
Street TMC
Site Code:
Start Date: 05/21/2025
Page No: 4

Turning Movement Peak Hour Data (4:30 PM)

Start Time	159th Street Eastbound						159th Street Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	14	370	2	0	386	0	2	366	15	0	383	0	0	0	7	0	7	0	3	0	13	0	16	792
4:45 PM	1	14	335	0	1	350	0	1	346	15	0	362	0	0	0	2	0	2	0	1	0	11	0	12	726
5:00 PM	0	9	378	1	0	388	1	4	380	13	0	398	0	0	0	3	0	3	0	2	0	23	1	25	814
5:15 PM	0	13	402	2	1	417	1	7	345	16	0	369	0	0	0	3	1	3	0	11	0	13	0	24	813
Total	1	50	1485	5	2	1541	2	14	1437	59	0	1512	0	0	0	15	1	15	0	17	0	60	1	77	3145
Approach %	0.1	3.2	96.4	0.3	-	-	0.1	0.9	95.0	3.9	-	-	0.0	0.0	0.0	100.0	-	-	0.0	22.1	0.0	77.9	-	-	-
Total %	0.0	1.6	47.2	0.2	-	49.0	0.1	0.4	45.7	1.9	-	48.1	0.0	0.0	0.0	0.5	-	0.5	0.0	0.5	0.0	1.9	-	2.4	-
PHF	0.250	0.893	0.924	0.625	-	0.924	0.500	0.500	0.945	0.922	-	0.950	0.000	0.000	0.000	0.536	-	0.536	0.000	0.386	0.000	0.652	-	0.770	0.966
Lights	1	50	1475	5	-	1531	2	14	1419	59	-	1494	0	0	0	15	-	15	0	17	0	60	-	77	3117
% Lights	100.0	100.0	99.3	100.0	-	99.4	100.0	100.0	98.7	100.0	-	98.8	-	-	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	99.1
Buses	0	0	2	0	-	2	0	0	4	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	6
% Buses	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.3	0.0	-	0.3	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2
Single-Unit Trucks	0	0	5	0	-	5	0	0	10	0	-	10	0	0	0	0	-	0	0	0	0	0	-	0	15
% Single-Unit Trucks	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.7	0.0	-	0.7	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.5
Articulated Trucks	0	0	3	0	-	3	0	0	4	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	7
% Articulated Trucks	0.0	0.0	0.2	0.0	-	0.2	0.0	0.0	0.3	0.0	-	0.3	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Count Name: Orlan Brook Drive with Access
Drive (north) TMC
Site Code:
Start Date: 05/21/2025
Page No: 1

Turning Movement Data

Start Time	Access Drive Eastbound						Access Drive Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	0	13	0	0	13	22
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	0	0	23	0	0	23	35
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	15	0	0	15	0	0	30	0	0	30	46
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	11	0	0	11	0	0	27	0	0	27	40
Hourly Total	0	0	0	0	0	0	0	2	0	1	0	3	0	0	47	0	0	47	0	0	93	0	0	93	143
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	13	0	0	13	0	0	27	0	0	27	41
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	0	15	0	0	15	23
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14	0	0	26	0	0	26	40
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	17	0	0	17	0	0	17	34
Hourly Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	52	0	0	52	0	0	85	0	0	85	138
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	27	0	0	27	0	0	22	0	0	22	49
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	0	0	20	0	0	20	46
4:30 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	27	0	0	27	0	0	17	0	0	17	45
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	0	0	16	1	0	17	46
Hourly Total	0	1	0	0	2	1	0	0	0	0	0	0	0	0	109	0	0	109	0	0	75	1	0	76	186
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	26	0	0	26	51
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	29	0	0	29	0	0	25	0	0	25	54
5:30 PM	0	0	0	0	1	0	0	0	0	0	2	0	0	0	24	1	0	25	0	0	15	0	0	15	40
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	22	0	0	22	0	0	13	0	0	13	35
Hourly Total	0	0	0	0	3	0	0	0	0	0	5	0	0	0	100	1	0	101	0	0	79	0	0	79	180
Grand Total	0	1	0	0	5	1	0	2	0	2	5	4	0	0	308	1	0	309	0	0	332	1	0	333	647
Approach %	0.0	100.0	0.0	0.0	-	-	0.0	50.0	0.0	50.0	-	-	0.0	0.0	99.7	0.3	-	-	0.0	0.0	99.7	0.3	-	-	-
Total %	0.0	0.2	0.0	0.0	-	0.2	0.0	0.3	0.0	0.3	-	0.6	0.0	0.0	47.6	0.2	-	47.8	0.0	0.0	51.3	0.2	-	51.5	-
Lights	0	1	0	0	-	1	0	2	0	2	-	4	0	0	297	1	-	298	0	0	327	1	-	328	631
% Lights	-	100.0	-	-	-	100.0	-	100.0	-	100.0	-	100.0	-	-	96.4	100.0	-	96.4	-	-	98.5	100.0	-	98.5	97.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	2	0	-	2	4
% Buses	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.6	0.0	-	0.6	-	-	0.6	0.0	-	0.6	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	5	0	-	5	0	0	2	0	-	2	7
% Single-Unit Trucks	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.6	0.0	-	1.6	-	-	0.6	0.0	-	0.6	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	4	0	-	4	0	0	1	0	-	1	5
% Articulated Trucks	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	1.3	0.0	-	1.3	-	-	0.3	0.0	-	0.3	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	5	-	-	-	-	5	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Start Time	Access Drive Eastbound						Access Drive Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	15	0	0	15	0	0	30	0	0	30	46
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	11	0	0	11	0	0	27	0	0	27	40
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	13	0	0	13	0	0	27	0	0	27	41
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	0	15	0	0	15	23
Total	0	0	0	0	0	0	0	2	0	2	0	4	0	0	47	0	0	47	0	0	99	0	0	99	150
Approach %	0.0	0.0	0.0	0.0	-	-	0.0	50.0	0.0	50.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	1.3	0.0	1.3	-	2.7	0.0	0.0	31.3	0.0	-	31.3	0.0	0.0	66.0	0.0	-	66.0	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.000	0.250	0.000	0.500	-	0.500	0.000	0.000	0.783	0.000	-	0.783	0.000	0.000	0.825	0.000	-	0.825	0.815
Lights	0	0	0	0	-	0	0	2	0	2	-	4	0	0	44	0	-	44	0	0	96	0	-	96	144
% Lights	-	-	-	-	-	-	-	100.0	-	100.0	-	100.0	-	-	93.6	-	-	93.6	-	-	97.0	-	-	97.0	96.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	2	0	-	2	3
% Buses	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	-	2.1	-	-	2.1	-	-	2.0	-	-	2.0	2.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	1	0	-	1	3
% Articulated Trucks	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	-	4.3	-	-	4.3	-	-	1.0	-	-	1.0	2.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Start Time	Access Drive Eastbound						Access Drive Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:30 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	27	0	0	27	0	0	17	0	0	17	45
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	0	0	16	1	0	17	46
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	26	0	0	26	51
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	29	0	0	29	0	0	25	0	0	25	54
Total	0	1	0	0	3	1	0	0	0	0	0	0	0	0	110	0	0	110	0	0	84	1	0	85	196
Approach %	0.0	100.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	98.8	1.2	-	-	-
Total %	0.0	0.5	0.0	0.0	-	0.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	56.1	0.0	-	56.1	0.0	0.0	42.9	0.5	-	43.4	-
PHF	0.000	0.250	0.000	0.000	-	0.250	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.948	0.000	-	0.948	0.000	0.000	0.808	0.250	-	0.817	0.907
Lights	0	1	0	0	-	1	0	0	0	0	-	0	0	0	110	0	-	110	0	0	83	1	-	84	195
% Lights	-	100.0	-	-	-	100.0	-	-	-	-	-	-	-	-	100.0	-	-	100.0	-	-	98.8	100.0	-	98.8	99.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	-	0.0	-	-	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Single-Unit Trucks	-	0.0	-	-	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	1.2	0.0	-	1.2	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	-	-	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	-	-	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Orlan Brook Drive with Access
Drive (south) TMC
Site Code:
Start Date: 05/21/2025
Page No: 1

Turning Movement Data

Start Time	Access Drive Eastbound						Access Drive Westbound						Orlan Brook Drive Northbound						Orlan Brook Drive Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	8	0	0	8	0	0	12	0	0	12	21
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14	0	0	22	0	0	22	36
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	0	28	0	0	28	43
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	0	28	0	0	28	39
Hourly Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	48	0	0	48	0	0	90	0	0	90	139
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	0	0	28	0	0	28	40
8:15 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	1	9	0	0	10	0	0	14	0	0	14	25
8:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	1	14	0	0	15	0	0	25	0	0	25	41
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	15	0	0	15	0	0	15	3	0	18	34
Hourly Total	0	1	0	2	0	3	0	0	0	0	0	0	0	2	50	0	0	52	0	0	82	3	0	85	140
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	1	1	1	0	0	0	0	0	0	0	2	26	0	0	28	0	0	22	1	0	23	52
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	0	0	21	0	0	21	47
4:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	3	26	0	0	29	0	0	15	1	0	16	46
4:45 PM	0	0	0	0	1	0	0	0	0	1	0	1	0	2	27	0	0	29	0	1	13	1	0	15	45
Hourly Total	0	1	0	1	2	2	0	0	0	1	0	1	0	7	105	0	0	112	0	1	71	3	0	75	190
5:00 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	5	22	0	0	27	0	0	27	2	0	29	59
5:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	0	3	26	0	0	29	0	0	21	2	0	23	55
5:30 PM	0	1	0	0	0	1	0	1	0	0	0	1	0	1	24	0	0	25	0	0	18	0	0	18	45
5:45 PM	0	1	0	0	0	1	0	0	0	0	1	0	0	3	20	0	0	23	0	0	14	1	0	15	39
Hourly Total	0	8	0	0	1	8	0	1	0	0	1	1	0	12	92	0	0	104	0	0	80	5	0	85	198
Grand Total	0	10	0	3	3	13	0	2	0	1	1	3	0	21	295	0	0	316	0	1	323	11	0	335	667
Approach %	0.0	76.9	0.0	23.1	-	-	0.0	66.7	0.0	33.3	-	-	0.0	6.6	93.4	0.0	-	-	0.0	0.3	96.4	3.3	-	-	-
Total %	0.0	1.5	0.0	0.4	-	1.9	0.0	0.3	0.0	0.1	-	0.4	0.0	3.1	44.2	0.0	-	47.4	0.0	0.1	48.4	1.6	-	50.2	-
Lights	0	10	0	3	-	13	0	2	0	1	-	3	0	21	284	0	-	305	0	1	319	10	-	330	651
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	96.3	-	-	96.5	-	100.0	98.8	90.9	-	98.5	97.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	0	0	2	0	-	2	4
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.7	-	-	0.6	-	0.0	0.6	0.0	-	0.6	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	6	0	-	6	0	0	1	1	-	2	8
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	2.0	-	-	1.9	-	0.0	0.3	9.1	-	0.6	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	3	0	-	3	0	0	1	0	-	1	4
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	1.0	-	-	0.9	-	0.0	0.3	0.0	-	0.3	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
Pedestrians	-	-	-	-3	-	-	-	-1	-	-	-	-	-0	-	-
% Pedestrians	-	-	-	-100.0	-	-	-	-100.0	-	-	-	-	-	-	-

[illegible]

[illegible]

Site Plan

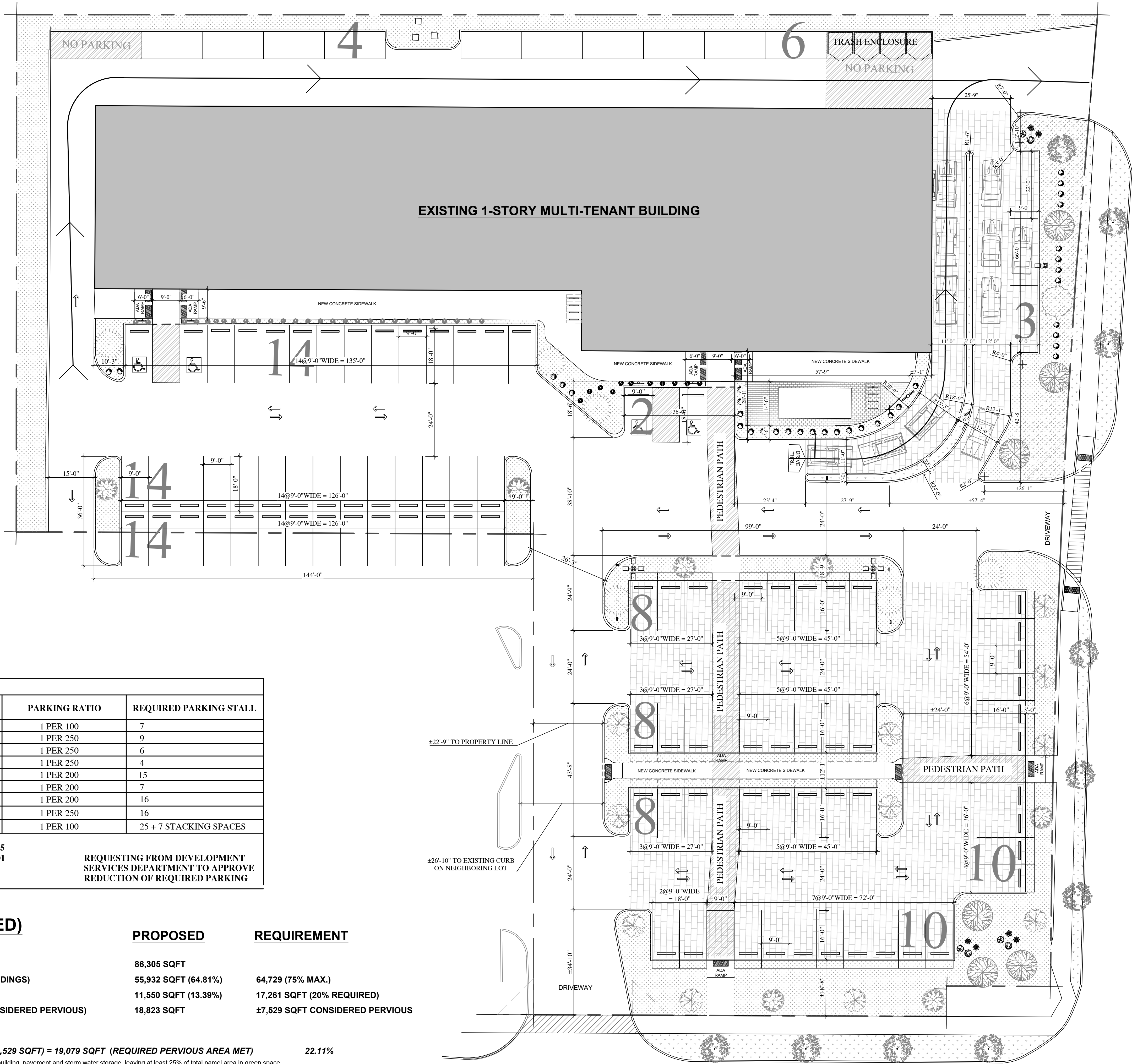
REQUIRED PARKING SCHEDULE				
UNIT #	BUSINESS TYPE	AREA (SQFT)	PARKING RATIO	REQUIRED PARKING STALL
1	CHA CHA POPCORN	675 SQFT	1 PER 100	7
2	VACANT	2,250 SQFT	1 PER 250	9
3-4	DOORS & MILLWORK	1,400 SQFT	1 PER 250	6
5	VACANT	1,000 SQFT	1 PER 250	4
6-8	UNIVERSAL DENTAL	3,000 SQFT	1 PER 200	15
9	GRAVITY SALON	1,340 SQFT	1 PER 200	7
10	PREVAIL JIUJUTSU	3,150 SQFT	1 PER 200	16
11	VACANT	3,973 SQFT	1 PER 250	16
12	MIRAJ COFFEE	2,480 SQFT	1 PER 100	25 + 7 STACKING SPACES
		PARKING REQUIRED = 105		
		PARKING PROPOSED = 101		
		REQUESTING FROM DEVELOPMENT SERVICES DEPARTMENT TO APPROVE REDUCTION OF REQUIRED PARKING		

LOT COVERAGE (PROPOSED)

	PROPOSED	REQUIREMENT
- LOT AREA:	86,305 SQFT	
-- PAVED AREA (IMPERVIOUS, INCLUDING BUILDINGS)	55,932 SQFT (64.81%)	64,729 (75% MAX.)
-- PERVIOUS AREA	11,550 SQFT (13.39%)	17,261 SQFT (20% REQUIRED)
--- PERVIOUS PAVERS (40% OF TOTAL CONSIDERED PERVIOUS)	18,823 SQFT	±7,529 SQFT CONSIDERED PERVIOUS

PERVIOUS AREA (11,550 SQFT) + PERVIOUS PAVERS (7,529 SQFT) = 19,079 SQFT (REQUIRED PERVIOUS AREA MET) 22.11%

Lot Coverage. No more than 75% of the area of the parcel may be covered with building, pavement and storm water storage, leaving at least 25% of total parcel area in green space. (See Section 2-102 Definitions "Green Space"). Impervious coverage will be allowed up to 80% when Best Management Practices (BMP) such as porous pavements and green roofs are used. Up to 40% of the BMPs will be considered pervious, provided that the design standards outlined in the code for BMPs are met. [Ord. 4574, 7-6-2010]



WATERFALL PLAZA EXTERIOR IMPROVEMENT

PROJECT ADDRESS:
8752 W 159TH ST, ORLAND PARK, IL 60462

WMK.20 LLC
ARCHITECTURE DESIGN CONSULTANTS
773-935-0099 WMK.20LLC@GMAIL.COM

05-02-24

DRAWING DATE:

REVISIONS

R1:09-14-2024 R2:10-24-2024

R3:03-05-2025

R4:04-24-2025

WK

DRAWN BY

AT

CHECKED BY

SP1.0

NOT TO SCALE IF PLOTTED ON 11X17

CMAP 2050 Projections Letter



May 14, 2025

Ryan May
Project Coordinator
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: 159th Street at Orlan Brook Drive
IDOT

Dear Ms. May:

In response to a request made on your behalf and dated May 13, 2025, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT (2023)	Year 2050 ADT
159th St, at Orlan Brook Dr	35,000	40,200

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2024 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806 or email me at jrodriguez@cmap.illinois.gov

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
2025_trafficForecasts\OrlandPark\ck-52-25\ck-52-25.docx

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤ 10
B	Good progression, with more vehicles stopping than for Level of Service A.	$> 10 - 20$
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	$> 20 - 35$
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	$> 35 - 55$
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	$> 55 - 80$
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80
Unsignalized Intersections		
Level of Service		Average Total Delay (sec/veh)
A		0 - 10
B		$> 10 - 15$
C		$> 15 - 25$
D		$> 25 - 35$
E		$> 35 - 50$
F		> 50
Source: <i>Highway Capacity Manual</i> , 7 th Edition.		

Capacity Analysis Summary Sheets
Existing Weekday Morning Peak Hour

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	934	3	7	1082	19	1	0	11	19	0	83
Future Vol, veh/h	29	934	3	7	1082	19	1	0	11	19	0	83
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	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	7	4	0	0	5	5	0	0	0	0	0	4
Mvmt Flow	30	973	3	7	1127	20	1	0	11	20	0	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1147	0	0	976	0	0	1613	2196	488	1698	2188	573
Stage 1	-	-	-	-	-	-	1035	1035	-	1152	1152	-
Stage 2	-	-	-	-	-	-	578	1161	-	547	1036	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.34
Pot Cap-1 Maneuver	783	-	-	944	-	-	*416	76	*824	*312	77	*780
Stage 1	-	-	-	-	-	-	*456	457	-	*410	418	-
Stage 2	-	-	-	-	-	-	*744	412	-	*777	456	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	783	-	-	944	-	-	*353	72	*824	*294	74	*780
Mov Cap-2 Maneuver	-	-	-	-	-	-	*382	218	-	*350	227	-
Stage 1	-	-	-	-	-	-	*438	440	-	*407	415	-
Stage 2	-	-	-	-	-	-	*657	409	-	*737	439	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.29	0.06	9.87	11.25
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	752	783	-	-	944	-	-	350	780
HCM Lane V/C Ratio	0.017	0.039	-	-	0.008	-	-	0.057	0.111
HCM Ctrl Dly (s/v)	9.9	9.8	-	-	8.8	-	-	15.9	10.2
HCM Lane LOS	A	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2	0.4

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th TWSC

2: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑↑			↑↑			↑↑			↑↑	
Traffic Vol, veh/h	0	966	1	0	1165	1	0	0	0	0	0	0
Future Vol, veh/h	0	966	1	0	1165	1	0	0	0	0	0	0
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	0	1017	1	0	1226	1	0	0	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1227	0	0	1018	0	0	1631	2245	509	1735	2245	614
Stage 1	-	-	-	-	-	-	1017	1017	-	1227	1227	-
Stage 2	-	-	-	-	-	-	613	1227	-	508	1018	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	575	-	-	689	-	-	69	43	515	57	43	440
Stage 1	-	-	-	-	-	-	258	318	-	192	253	-
Stage 2	-	-	-	-	-	-	451	253	-	521	317	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	575	-	-	689	-	-	69	43	515	57	43	440
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	148	-	148	148	-
Stage 1	-	-	-	-	-	-	258	318	-	192	253	-
Stage 2	-	-	-	-	-	-	451	253	-	521	317	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0			0			0			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	575	-	-	689	-	-	-				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-				
HCM Ctrl Dly (s/v)	0	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	0	0	0	1	47	0	0	101	0
Future Vol, veh/h	0	0	1	0	0	0	1	47	0	0	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	0	0	1	0	0	0	1	55	0	0	117	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	174	174	117	174	174	55	117	0	0	55	0	0
Stage 1	117	117	-	57	57	-	-	-	-	-	-	-
Stage 2	57	57	-	117	117	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	793	723	940	793	723	1018	1483	-	-	1563	-	-
Stage 1	892	802	-	960	851	-	-	-	-	-	-	-
Stage 2	960	851	-	892	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	792	722	940	791	722	1018	1483	-	-	1563	-	-
Mov Cap-2 Maneuver	792	722	-	791	722	-	-	-	-	-	-	-
Stage 1	892	802	-	959	851	-	-	-	-	-	-	-
Stage 2	959	851	-	891	802	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	8.83		0		0.15		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	38	-	-	940	-	1563	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	-	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	8.8	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	2	0	47	0	0	99	0
Future Vol, veh/h	0	0	0	2	0	2	0	47	0	0	99	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	3	0
Mvmt Flow	0	0	0	2	0	2	0	57	0	0	121	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	178	178	121	178	178	57	121	0	0	57	0	0
Stage 1	121	121	-	57	57	-	-	-	-	-	-	-
Stage 2	57	57	-	121	121	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	788	719	936	788	719	1015	1479	-	-	1560	-	-
Stage 1	888	800	-	960	851	-	-	-	-	-	-	-
Stage 2	960	851	-	888	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	787	719	936	788	719	1015	1479	-	-	1560	-	-
Mov Cap-2 Maneuver	787	719	-	788	719	-	-	-	-	-	-	-
Stage 1	888	800	-	960	851	-	-	-	-	-	-	-
Stage 2	957	851	-	888	800	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	9.08	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1479	-	-	-	887	1560	-
HCM Lane V/C Ratio	-	-	-	-	0.005	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	9.1	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-

Capacity Analysis Summary Sheets
Existing Weekday Evening Peak Hour

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱			↰↱		↰	↰	
Traffic Vol, veh/h	55	1489	5	14	1461	60	0	0	15	17	0	60
Future Vol, veh/h	55	1489	5	14	1461	60	0	0	15	17	0	60
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	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	57	1535	5	14	1506	62	0	0	15	18	0	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1568	0	0	1540	0	0	2433	3248	770	2447	3220	784
Stage 1	-	-	-	-	-	-	1651	1651	-	1566	1566	-
Stage 2	-	-	-	-	-	-	782	1597	-	881	1654	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	562	-	-	597	-	-	*22	4	*668	*21	4	*682
Stage 1	-	-	-	-	-	-	*215	246	-	*249	276	-
Stage 2	-	-	-	-	-	-	*643	262	-	*629	245	-
Platoon blocked, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Cap-1 Maneuver	562	-	-	597	-	-	*17	3	*668	*18	3	*682
Mov Cap-2 Maneuver	-	-	-	-	-	-	*134	97	-	*160	108	-
Stage 1	-	-	-	-	-	-	*193	221	-	*243	270	-
Stage 2	-	-	-	-	-	-	*570	256	-	*553	220	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.43	0.1	10.52	15.12
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	668	562	-	-	597	-	-	160	682
HCM Lane V/C Ratio	0.023	0.101	-	-	0.024	-	-	0.11	0.091
HCM Ctrl Dly (s/v)	10.5	12.1	-	-	11.2	-	-	30.3	10.8
HCM Lane LOS	B	B	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0.1	-	-	0.4	0.3

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th TWSC

2: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1543	1	0	1516	5	0	0	0	6	0	8
Future Vol, veh/h	10	1543	1	0	1516	5	0	0	0	6	0	8
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	17	0	0
Mvmt Flow	11	1641	1	0	1613	5	0	0	0	6	0	9
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1618	0	0	1643	0	0	2470	3281	821	2457	3279	809
Stage 1	-	-	-	-	-	-	1663	1663	-	1615	1615	-
Stage 2	-	-	-	-	-	-	806	1618	-	842	1664	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.84	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.67	4	3.3
Pot Cap-1 Maneuver	408	-	-	399	-	-	16	9	322	13	9	328
Stage 1	-	-	-	-	-	-	103	156	-	93	164	-
Stage 2	-	-	-	-	-	-	346	164	-	295	155	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	408	-	-	399	-	-	15	9	322	12	9	328
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	73	-	68	76	-
Stage 1	-	-	-	-	-	-	100	151	-	93	164	-
Stage 2	-	-	-	-	-	-	337	164	-	287	151	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.09			0			0			37.8		
HCM LOS							A			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	408	-	-	399	-	-	125				
HCM Lane V/C Ratio	-	0.026	-	-	-	-	-	0.12				
HCM Ctrl Dly (s/v)	0	14.1	-	-	0	-	-	37.8				
HCM Lane LOS	A	B	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.4				

HCM 7th TWSC

3: Waterfall Plaza Access Drive/Kirsh Family Dental Access Drive & Orlan Brook Drive 06/04/2025

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	0	0	0	1	13	102	0	1	77	6
Future Vol, veh/h	7	0	0	0	0	1	13	102	0	1	77	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	17
Mvmt Flow	8	0	0	0	0	1	15	117	0	1	89	7
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	241	241	92	238	245	117	95	0	0	117	0	0
Stage 1	94	94	-	147	147	-	-	-	-	-	-	-
Stage 2	147	147	-	91	98	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	717	664	971	721	661	940	1511	-	-	1484	-	-
Stage 1	918	821	-	860	779	-	-	-	-	-	-	-
Stage 2	860	779	-	921	818	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	708	656	971	712	653	940	1511	-	-	1484	-	-
Mov Cap-2 Maneuver	708	656	-	712	653	-	-	-	-	-	-	-
Stage 1	917	820	-	851	771	-	-	-	-	-	-	-
Stage 2	850	771	-	921	817	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	10.14		8.83		0.84		0.09					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	203	-	-	708	940	21	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.011	0.001	0.001	-	-				
HCM Ctrl Dly (s/v)	7.4	0	-	10.1	8.8	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	110	0	0	84	1
Future Vol, veh/h	1	0	0	0	0	0	0	110	0	0	84	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	1	0	0	0	0	0	0	121	0	0	92	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	214	214	93	213	214	121	93	0	0	121	0	0
Stage 1	93	93	-	121	121	-	-	-	-	-	-	-
Stage 2	121	121	-	92	93	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	747	687	970	748	687	936	1514	-	-	1479	-	-
Stage 1	919	822	-	888	800	-	-	-	-	-	-	-
Stage 2	888	800	-	920	822	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	747	687	970	748	687	936	1514	-	-	1479	-	-
Mov Cap-2 Maneuver	747	687	-	748	687	-	-	-	-	-	-	-
Stage 1	919	822	-	888	800	-	-	-	-	-	-	-
Stage 2	888	800	-	920	822	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.82	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1514	-	-	747	1479	-	-
HCM Lane V/C Ratio	-	-	-	0.001	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	9.8	0	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Capacity Analysis Summary Sheets
Year 2031 No-Build Weekday Morning Peak Hour

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	962	3	7	1114	20	1	0	11	20	0	85
Future Vol, veh/h	30	962	3	7	1114	20	1	0	11	20	0	85
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	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	7	4	0	0	5	5	0	0	0	0	0	4
Mvmt Flow	31	1002	3	7	1160	21	1	0	11	21	0	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1181	0	0	1005	0	0	1661	2262	503	1749	2253	591
Stage 1	-	-	-	-	-	-	1066	1066	-	1185	1185	-
Stage 2	-	-	-	-	-	-	595	1196	-	564	1068	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.34
Pot Cap-1 Maneuver	772	-	-	914	-	-	*400	65	*824	*294	67	*763
Stage 1	-	-	-	-	-	-	*431	439	-	*407	413	-
Stage 2	-	-	-	-	-	-	*728	407	-	*777	438	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	772	-	-	914	-	-	*337	62	*824	*276	64	*763
Mov Cap-2 Maneuver	-	-	-	-	-	-	*362	208	-	*343	217	-
Stage 1	-	-	-	-	-	-	*414	421	-	*403	410	-
Stage 2	-	-	-	-	-	-	*638	404	-	*735	420	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	0.06	9.91	11.45
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	745	772	-	-	914	-	-	343	763
HCM Lane V/C Ratio	0.017	0.04	-	-	0.008	-	-	0.061	0.116
HCM Ctrl Dly (s/v)	9.9	9.9	-	-	9	-	-	16.2	10.3
HCM Lane LOS	A	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2	0.4

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th TWSC

2: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	995	1	0	1200	1	0	0	0	0	0	0
Future Vol, veh/h	0	995	1	0	1200	1	0	0	0	0	0	0
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	0	1047	1	0	1263	1	0	0	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1264	0	0	1048	0	0	1679	2312	524	1787	2312	632
Stage 1	-	-	-	-	-	-	1048	1048	-	1264	1264	-
Stage 2	-	-	-	-	-	-	632	1264	-	524	1048	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	557	-	-	671	-	-	63	39	503	52	39	428
Stage 1	-	-	-	-	-	-	247	307	-	182	243	-
Stage 2	-	-	-	-	-	-	440	243	-	510	307	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	557	-	-	671	-	-	63	39	503	52	39	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	141	-	140	141	-
Stage 1	-	-	-	-	-	-	247	307	-	182	243	-
Stage 2	-	-	-	-	-	-	440	243	-	510	307	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0			0			0			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	557	-	-	671	-	-	-				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-				
HCM Ctrl Dly (s/v)	0	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	0	0	0	1	48	0	0	104	0
Future Vol, veh/h	0	0	1	0	0	0	1	48	0	0	104	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	0	0	1	0	0	0	1	56	0	0	121	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	179	179	121	179	179	56	121	0	0	56	0	0
Stage 1	121	121	-	58	58	-	-	-	-	-	-	-
Stage 2	58	58	-	121	121	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	787	718	936	787	718	1016	1479	-	-	1562	-	-
Stage 1	888	800	-	959	850	-	-	-	-	-	-	-
Stage 2	959	850	-	888	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	787	718	936	786	718	1016	1479	-	-	1562	-	-
Mov Cap-2 Maneuver	787	718	-	786	718	-	-	-	-	-	-	-
Stage 1	888	800	-	958	850	-	-	-	-	-	-	-
Stage 2	958	850	-	887	800	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	8.85		0		0.15		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	37	-	-	936	-	1562	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	-	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	8.9	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	2	0	48	0	0	102	0
Future Vol, veh/h	0	0	0	2	0	2	0	48	0	0	102	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	3	0
Mvmt Flow	0	0	0	2	0	2	0	59	0	0	124	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	183	183	124	183	183	59	124	0	0	59	0	0
Stage 1	124	124	-	59	59	-	-	-	-	-	-	-
Stage 2	59	59	-	124	124	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	783	715	932	783	715	1013	1475	-	-	1558	-	-
Stage 1	884	797	-	958	850	-	-	-	-	-	-	-
Stage 2	958	850	-	884	797	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	781	715	932	783	715	1013	1475	-	-	1558	-	-
Mov Cap-2 Maneuver	781	715	-	783	715	-	-	-	-	-	-	-
Stage 1	884	797	-	958	850	-	-	-	-	-	-	-
Stage 2	956	850	-	884	797	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	9.1	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	- 883	1558	-	-
HCM Lane V/C Ratio	-	-	-	- 0.006	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0 9.1	0	-	-
HCM Lane LOS	A	-	-	A A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	- 0	0	-	-

Capacity Analysis Summary Sheets
Year 2031 No-Build Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	1534	5	14	1505	62	0	0	15	18	0	62
Future Vol, veh/h	57	1534	5	14	1505	62	0	0	15	18	0	62
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	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	59	1581	5	14	1552	64	0	0	15	19	0	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1615	0	0	1587	0	0	2506	3346	793	2521	3316	808
Stage 1	-	-	-	-	-	-	1702	1702	-	1612	1612	-
Stage 2	-	-	-	-	-	-	805	1644	-	908	1704	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	537	-	-	571	-	-	*17	3	*654	*~ 17	3	*668
Stage 1	-	-	-	-	-	-	*200	232	-	*234	263	-
Stage 2	-	-	-	-	-	-	*629	249	-	*616	231	-
Platoon blocked, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Cap-1 Maneuver	537	-	-	571	-	-	*14	2	*654	*~ 14	2	*668
Mov Cap-2 Maneuver	-	-	-	-	-	-	*124	90	-	*150	101	-
Stage 1	-	-	-	-	-	-	*178	206	-	*229	256	-
Stage 2	-	-	-	-	-	-	*555	243	-	*536	205	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.45	0.1	10.64	15.76
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	654	537	-	-	571	-	-	150	668
HCM Lane V/C Ratio	0.024	0.109	-	-	0.025	-	-	0.123	0.096
HCM Ctrl Dly (s/v)	10.6	12.5	-	-	11.5	-	-	32.3	11
HCM Lane LOS	B	B	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.1	-	-	0.4	0.3

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

HCM 7th TWSC

3: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1589	1	0	1561	5	0	0	0	6	0	8
Future Vol, veh/h	10	1589	1	0	1561	5	0	0	0	6	0	8
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	17	0	0
Mvmt Flow	11	1690	1	0	1661	5	0	0	0	6	0	9
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1666	0	0	1691	0	0	2543	3378	846	2530	3376	833
Stage 1	-	-	-	-	-	-	1712	1712	-	1663	1663	-
Stage 2	-	-	-	-	-	-	830	1666	-	866	1713	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.84	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.67	4	3.3
Pot Cap-1 Maneuver	391	-	-	382	-	-	14	8	310	11	8	316
Stage 1	-	-	-	-	-	-	96	147	-	86	156	-
Stage 2	-	-	-	-	-	-	335	155	-	285	147	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	391	-	-	382	-	-	13	8	310	11	8	316
Mov Cap-2 Maneuver	-	-	-	-	-	-	70	69	-	64	71	-
Stage 1	-	-	-	-	-	-	93	143	-	86	156	-
Stage 2	-	-	-	-	-	-	326	155	-	277	143	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.09			0			0			40.21		
HCM LOS							A			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	391	-	-	382	-	-	117				
HCM Lane V/C Ratio	-	0.027	-	-	-	-	-	0.127				
HCM Ctrl Dly (s/v)	0	14.5	-	-	0	-	-	40.2				
HCM Lane LOS	A	B	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.4				

HCM 7th TWSC

4: Waterfall Plaza Access Drive/Kirsh Family Dental Access Drive & Orlan Brook Drive

06/04/2025

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	0	0	0	1	13	105	0	1	79	6
Future Vol, veh/h	7	0	0	0	0	1	13	105	0	1	79	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	17
Mvmt Flow	8	0	0	0	0	1	15	121	0	1	91	7

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	247	247	94	244	251	121	98	0	0	121	0	0
Stage 1	97	97	-	151	151	-	-	-	-	-	-	-
Stage 2	151	151	-	93	100	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	711	659	968	714	656	936	1508	-	-	1479	-	-
Stage 1	915	819	-	857	777	-	-	-	-	-	-	-
Stage 2	857	777	-	919	816	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	702	651	968	706	648	936	1508	-	-	1479	-	-
Mov Cap-2 Maneuver	702	651	-	706	648	-	-	-	-	-	-	-
Stage 1	914	818	-	848	768	-	-	-	-	-	-	-
Stage 2	847	768	-	918	816	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB				
HCM Ctrl Dly, s/v	10.19		8.85		0.82			0.09				
HCM LOS	B		A									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	198	-	-	702	936	21	-	-
HCM Lane V/C Ratio	0.01	-	-	0.011	0.001	0.001	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	10.2	8.9	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	113	0	0	87	1
Future Vol, veh/h	1	0	0	0	0	0	0	113	0	0	87	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	1	0	0	0	0	0	0	124	0	0	96	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	220	220	96	220	221	124	97	0	0	124	0	0
Stage 1	96	96	-	124	124	-	-	-	-	-	-	-
Stage 2	124	124	-	96	97	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	740	682	966	741	681	932	1509	-	-	1475	-	-
Stage 1	915	819	-	885	797	-	-	-	-	-	-	-
Stage 2	885	797	-	916	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	740	682	966	741	681	932	1509	-	-	1475	-	-
Mov Cap-2 Maneuver	740	682	-	741	681	-	-	-	-	-	-	-
Stage 1	915	819	-	885	797	-	-	-	-	-	-	-
Stage 2	885	797	-	916	819	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.87	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1509	-	-	740	1475	-	-
HCM Lane V/C Ratio	-	-	-	0.001	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	9.9	0	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Capacity Analysis Summary Sheets
Year 2031 Total Projected Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	970	3	7	1133	29	1	0	11	34	0	98
Future Vol, veh/h	35	970	3	7	1133	29	1	0	11	34	0	98
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	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	7	4	0	0	5	5	0	0	0	0	0	4
Mvmt Flow	36	1010	3	7	1180	30	1	0	11	35	0	102

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1210	0	0	1014	0	0	1690	2310	507	1788	2296	605
Stage 1	-	-	-	-	-	-	1085	1085	-	1210	1210	-
Stage 2	-	-	-	-	-	-	605	1225	-	578	1086	-
Critical Hdwy	4.24	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.34
Pot Cap-1 Maneuver	745	-	-	906	-	-	*362	56	*824	*257	59	*763
Stage 1	-	-	-	-	-	-	*417	428	-	*388	399	-
Stage 2	-	-	-	-	-	-	*728	390	-	*777	427	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	745	-	-	906	-	-	*296	53	*824	*239	55	*763
Mov Cap-2 Maneuver	-	-	-	-	-	-	*338	196	-	*320	206	-
Stage 1	-	-	-	-	-	-	*396	407	-	*385	395	-
Stage 2	-	-	-	-	-	-	*625	387	-	*729	406	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.35	0.05	9.97	12.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	736	745	-	-	906	-	-	320	763
HCM Lane V/C Ratio	0.017	0.049	-	-	0.008	-	-	0.111	0.134
HCM Ctrl Dly (s/v)	10	10.1	-	-	9	-	-	17.6	10.4
HCM Lane LOS	A	B	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.4	0.5

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

HCM 7th TWSC

2: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	963	1	0	1175	57	0	0	0	45	0	45
Future Vol, veh/h	59	963	1	0	1175	57	0	0	0	45	0	45
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	62	1014	1	0	1237	60	0	0	0	47	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1297	0	0	1015	0	0	1757	2435	507	1898	2406	648
Stage 1	-	-	-	-	-	-	1138	1138	-	1267	1267	-
Stage 2	-	-	-	-	-	-	618	1297	-	631	1139	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	720	-	-	904	-	-	*282	38	*824	*172	42	*754
Stage 1	-	-	-	-	-	-	*379	398	-	*367	380	-
Stage 2	-	-	-	-	-	-	*711	364	-	*777	397	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	720	-	-	904	-	-	*242	35	*824	*157	38	*754
Mov Cap-2 Maneuver	-	-	-	-	-	-	*295	166	-	*282	187	-
Stage 1	-	-	-	-	-	-	*346	363	-	*367	380	-
Stage 2	-	-	-	-	-	-	*667	364	-	*710	363	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.6	0	0	16.36
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	720	-	-	904	-	-	411
HCM Lane V/C Ratio	-	0.086	-	-	-	-	-	0.23
HCM Ctrl Dly (s/v)	0	10.5	-	-	0	-	-	16.4
HCM Lane LOS	A	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.3	-	-	0	-	-	0.9

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th TWSC

3: Waterfall Plaza Access Drive/Kirsh Family Dental Access Drive & Orlan Brook Drive 06/04/2025

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	5	0	0	0	15	48	0	0	127	3
Future Vol, veh/h	2	0	5	0	0	0	15	48	0	0	127	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	0
Mvmt Flow	2	0	6	0	0	0	17	56	0	0	148	3
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	240	240	149	238	242	56	151	0	0	56	0	0
Stage 1	149	149	-	91	91	-	-	-	-	-	-	-
Stage 2	91	91	-	148	151	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	718	665	902	720	663	1016	1442	-	-	1562	-	-
Stage 1	858	777	-	922	824	-	-	-	-	-	-	-
Stage 2	922	824	-	860	776	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	709	656	902	707	655	1016	1442	-	-	1562	-	-
Mov Cap-2 Maneuver	709	656	-	707	655	-	-	-	-	-	-	-
Stage 1	858	777	-	910	813	-	-	-	-	-	-	-
Stage 2	910	813	-	854	776	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.34		0		1.79		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	429	-	-	837	-	1562	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.01	-	-	-	-				
HCM Ctrl Dly (s/v)	7.5	0	-	9.3	0	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-				

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	23	2	0	2	0	50	0	0	105	0
Future Vol, veh/h	1	0	23	2	0	2	0	50	0	0	105	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	3	0
Mvmt Flow	1	0	28	2	0	2	0	61	0	0	128	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	189	189	128	189	189	61	128	0	0	61	0	0
Stage 1	128	128	-	61	61	-	-	-	-	-	-	-
Stage 2	61	61	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	776	709	927	776	709	1010	1470	-	-	1555	-	-
Stage 1	881	794	-	955	848	-	-	-	-	-	-	-
Stage 2	955	848	-	881	794	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	774	709	927	752	709	1010	1470	-	-	1555	-	-
Mov Cap-2 Maneuver	774	709	-	752	709	-	-	-	-	-	-	-
Stage 1	881	794	-	955	848	-	-	-	-	-	-	-
Stage 2	953	848	-	854	794	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.04		9.2		0		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1470	-	-	920 862	1555	-	-
HCM Lane V/C Ratio	-	-	-	0.032 0.006	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	9 9.2	0	-	-
HCM Lane LOS	A	-	-	A A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0	0	-	-

Capacity Analysis Summary Sheets
Year 2031 Total Projected Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	1558	5	14	1532	68	0	0	15	28	0	72
Future Vol, veh/h	59	1558	5	14	1532	68	0	0	15	28	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	140	-	-	-	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	61	1606	5	14	1579	70	0	0	15	29	0	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1649	0	0	1611	0	0	2549	3409	806	2568	3376	825
Stage 1	-	-	-	-	-	-	1730	1730	-	1643	1643	-
Stage 2	-	-	-	-	-	-	819	1678	-	925	1733	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	522	-	-	551	-	-	*15	2	*654	*~ 14	2	*654
Stage 1	-	-	-	-	-	-	*187	220	-	*229	257	-
Stage 2	-	-	-	-	-	-	*616	241	-	*616	219	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	522	-	-	551	-	-	*12	2	*654	*~ 12	2	*654
Mov Cap-2 Maneuver	-	-	-	-	-	-	*116	85	-	*147	96	-
Stage 1	-	-	-	-	-	-	*165	194	-	*223	250	-
Stage 2	-	-	-	-	-	-	*532	235	-	*532	194	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0.1	10.64	18.01
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	654	522	-	-	551	-	-	147	654
HCM Lane V/C Ratio	0.024	0.117	-	-	0.026	-	-	0.197	0.114
HCM Ctrl Dly (s/v)	10.6	12.8	-	-	11.7	-	-	35.5	11.2
HCM Lane LOS	B	B	-	-	B	-	-	E	B
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.1	-	-	0.7	0.4

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s
 +: Computation Not Defined *: All major volume in platoon

HCM 7th TWSC

2: Whasen - Express And Hand Car Wash Access Drive/Waterfall Plaza Access Drive/66th Street

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	57	1575	1	0	1555	49	0	0	0	47	0	48
Future Vol, veh/h	57	1575	1	0	1555	49	0	0	0	47	0	48
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	25	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	17	0	0
Mvmt Flow	61	1676	1	0	1654	52	0	0	0	50	0	51

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1706	0	0	1677	0	0	2624	3504	838	2639	3478	853
Stage 1	-	-	-	-	-	-	1797	1797	-	1680	1680	-
Stage 2	-	-	-	-	-	-	827	1706	-	959	1798	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.84	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.84	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.67	4	3.3
Pot Cap-1 Maneuver	481	-	-	512	-	-	*12	1	*640	*~ 9	1	*654
Stage 1	-	-	-	-	-	-	*167	200	-	*189	240	-
Stage 2	-	-	-	-	-	-	*616	230	-	*575	200	-
Platoon blocked, %	0	-	-	0	-	-	1	1	0	1	1	0
Mov Cap-1 Maneuver	481	-	-	512	-	-	*10	1	*640	*~ 8	1	*654
Mov Cap-2 Maneuver	-	-	-	-	-	-	*106	79	-	*128	93	-
Stage 1	-	-	-	-	-	-	*146	175	-	*189	240	-
Stage 2	-	-	-	-	-	-	*568	230	-	*503	175	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0	0	35.54
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	481	-	-	512	-	-	216
HCM Lane V/C Ratio	-	0.126	-	-	-	-	-	0.468
HCM Ctrl Dly (s/v)	0	13.6	-	-	0	-	-	35.5
HCM Lane LOS	A	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	-	0.4	-	-	0	-	-	2.3

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	9	0	0	1	21	105	0	1	90	10
Future Vol, veh/h	10	0	9	0	0	1	21	105	0	1	90	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	3	17
Mvmt Flow	12	0	11	0	0	1	24	121	0	1	103	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	280	280	109	275	286	121	115	0	0	121	0	0
Stage 1	111	111	-	169	169	-	-	-	-	-	-	-
Stage 2	169	169	-	106	117	-	-	-	-	-	-	-
Critical Hdwy	7.8	7.1	7	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.7	6	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	640	602	927	682	627	936	1487	-	-	1479	-	-
Stage 1	882	795	-	838	763	-	-	-	-	-	-	-
Stage 2	838	763	-	905	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	628	591	927	662	615	936	1487	-	-	1479	-	-
Mov Cap-2 Maneuver	628	591	-	662	615	-	-	-	-	-	-	-
Stage 1	881	794	-	823	749	-	-	-	-	-	-	-
Stage 2	822	749	-	894	802	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB				
HCM Ctrl Dly, s/v	10.01		8.85		1.24			0.07				
HCM LOS	B		A									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	300	-	-	741	936	17	-	-
HCM Lane V/C Ratio	0.016	-	-	0.03	0.001	0.001	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	10	8.9	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	11	0	0	0	0	116	0	0	91	1
Future Vol, veh/h	2	0	11	0	0	0	0	116	0	0	91	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	2	0	12	0	0	0	0	127	0	0	100	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	228	228	101	227	229	127	101	0	0	127	0	0
Stage 1	101	101	-	127	127	-	-	-	-	-	-	-
Stage 2	127	127	-	100	101	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	731	675	960	732	675	928	1504	-	-	1471	-	-
Stage 1	911	816	-	881	794	-	-	-	-	-	-	-
Stage 2	881	794	-	911	815	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	731	675	960	723	675	928	1504	-	-	1471	-	-
Mov Cap-2 Maneuver	731	675	-	723	675	-	-	-	-	-	-	-
Stage 1	911	816	-	881	794	-	-	-	-	-	-	-
Stage 2	881	794	-	900	815	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.99	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	916	1471	-	-
HCM Lane V/C Ratio	-	-	-	0.016	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	9	0	0	-
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-