TRAFFIC IMPACT STUDY

REPORT FOR:

Costco Wholesale, Orland Park

159th STREET AND RAVINIA AVENUE
ORLAND PARK, ILLINOIS

PREPARED BY:

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V3 Project No. 04016.08PE

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I. INTRODUCTION

V3 Companies has been retained by Costco Wholesale Corporation to conduct a traffic impact study for a proposed Costco gas station relocation. The gas station will be relocated east of Ravinia Avenue adjacent to the existing Costco Warehouse at the southeast corner of 159th Street and Ravinia Avenue. The site is bounded by 159th Street to the north and undeveloped land to the south, east, and west. The undeveloped land to the south of Ravinia Avenue will be developed into a residential area and the area to the west will be developed into a mixed-use retail space. A location map is included as Figure 1.

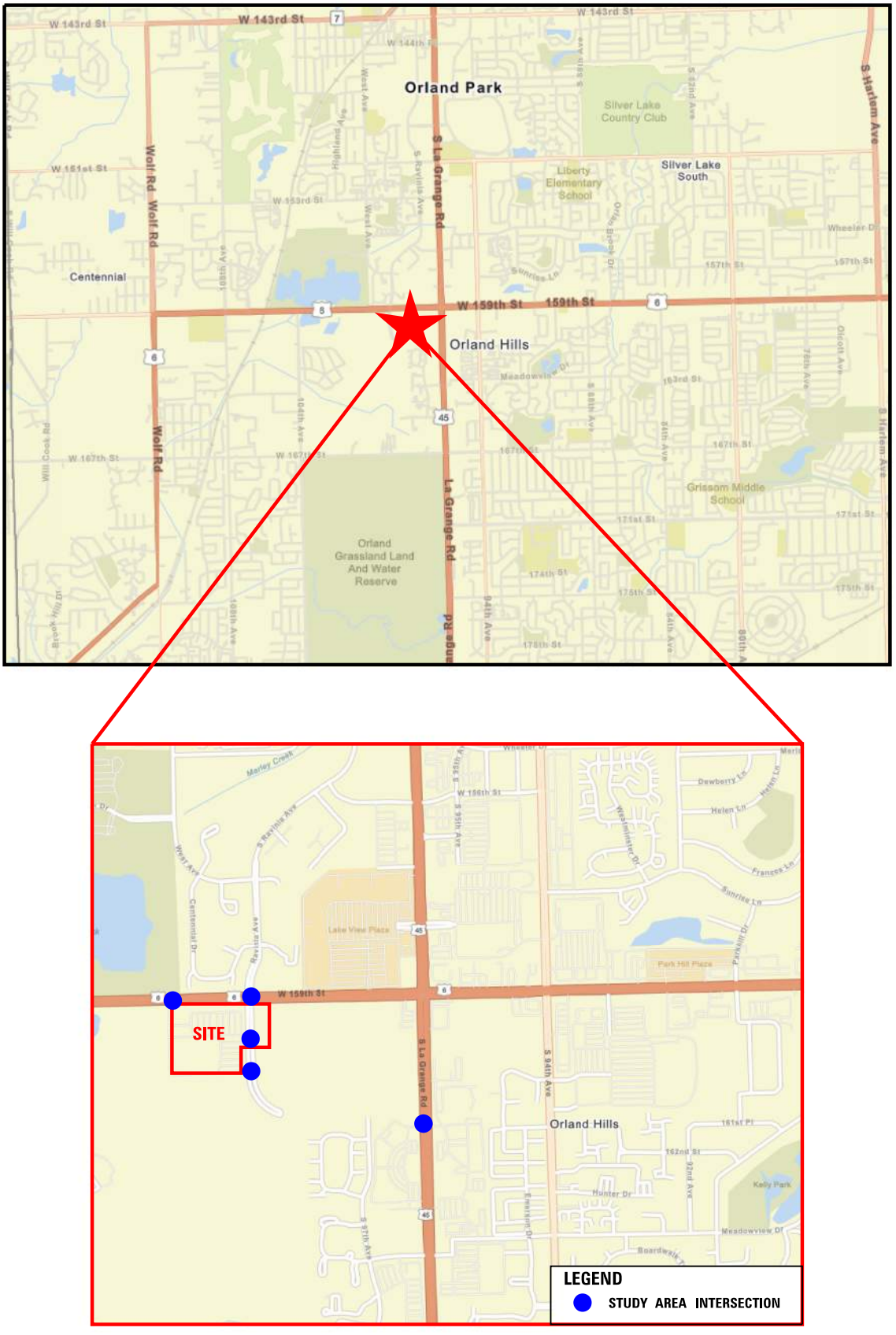
The proposed development consists of a members-only gas station with 40 fueling positions. The existing gas station, located at the northwest corner of the Costco property, will be replaced with additional parking spaces. The proposed access plan includes modifying the existing northern Costco driveway on Ravinia Avenue into a single-lane roundabout with the east leg providing access to the proposed gas station. A right-turn only entrance is proposed on Ravinia Avenue north of the proposed roundabout that will directly access the Costco warehouse. Additionally, the south Costco driveway will be modified from the existing full access driveway to a limited access right in/right out/left in only driveway. As part of the adjacent development plans, Ravinia Avenue is proposed to be extended from its current terminus south of the Costco development to LaGrange Road at 161st Street. Figure 2 illustrates the proposed site plan.

The purpose of this study is to evaluate the potential traffic impacts of the proposed members-only gas station relocation. Traffic estimates are projected to 2025 and 2050. 2025 is the anticipated buildout year and 2050 accounts for traffic generated by the adjacent developments and the extension of Ravinia Avenue to LaGrange Road. Ambient growth rates are based on traffic projections from CMAP.

The study area includes the following intersections as well as the proposed driveways to the site.

- 159th Street and Costco Right in/Right out driveway (unsignalized)
- 159th Street and Ravinia Avenue (signalized)
- Ravinia Avenue and North Costco Driveway (unsignalized)
- Ravinia Avenue and South Costco Driveway (unsignalized)
- LaGrange Road and 161st Street (unsignalized)
- Ravinia Avenue and Warehouse Right-In Driveway (unsignalized)

This report includes a description of existing conditions, data collection and capacity analysis, evaluation of data, and conclusions.



COSTCO WHOLESALE
ORLAND PARK, IL #647

FIGURE 1
SITE LOCATION MAP

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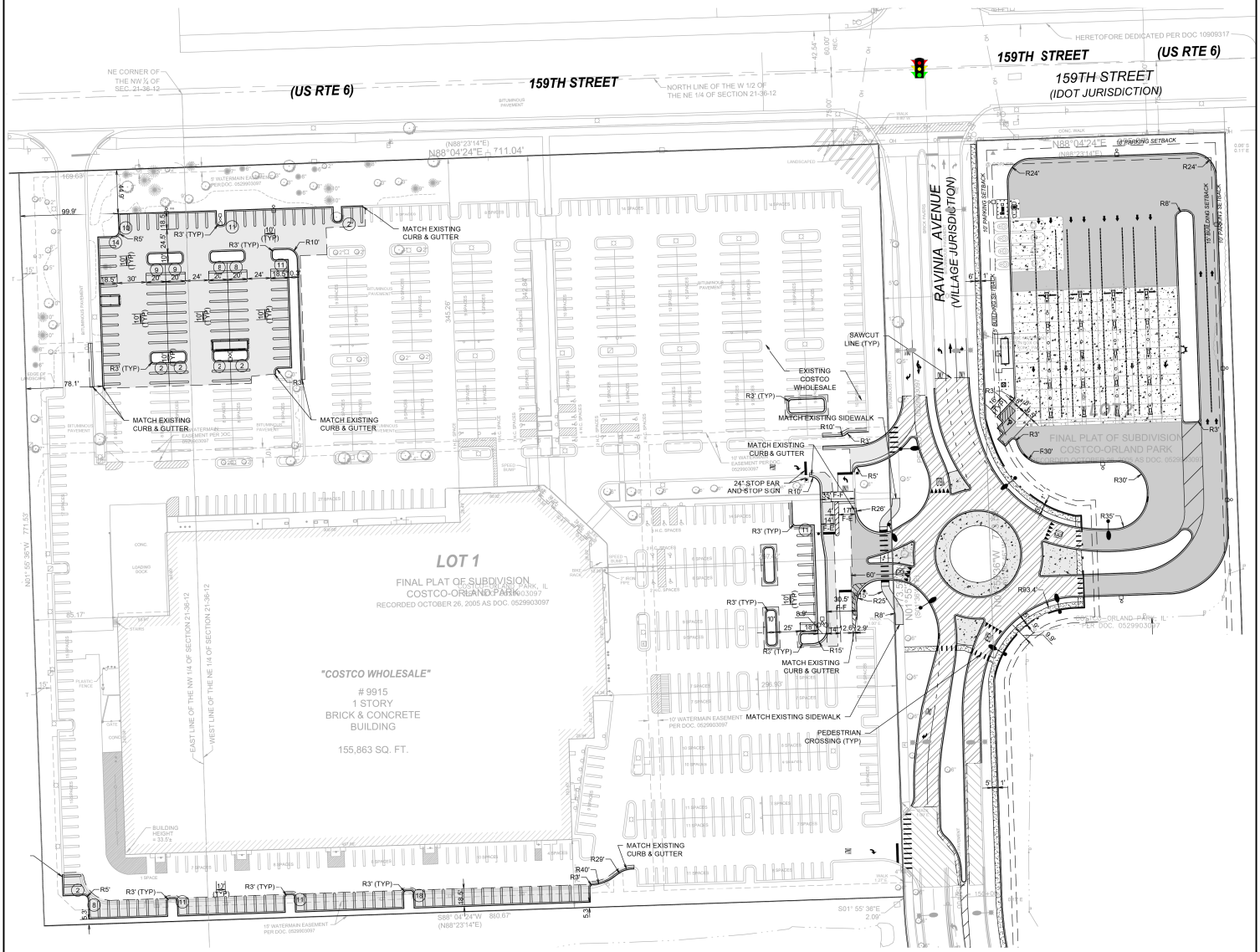

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FIGURE 2
CONCEPTUAL SITE PLAN

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II. PROJECT CONDITIONS

Land Uses

The land uses near the project site primarily consist of residential and retail uses as well as undeveloped land. The surrounding land uses are illustrated in Figure 3.

Roadway System

The characteristics of the roadways in the vicinity of the site are presented below. The existing lane configurations in the study area are illustrated in Figure 4.

Roadway Descriptions

159th Street/US Route 6 is an east/west roadway classified as a Strategic Regional Arterial (SRA) with a posted speed limit of 40 mph adjacent to the proposed development. 159th Street has a four-lane section that widens to provide left and right turn lanes at major intersections while the rest of the corridor has a raised landscaped median. 159th Street is under the jurisdiction of the Illinois Department of Transportation (IDOT). The north side of 159th Street provides a sidewalk up to the west of Ravinia Avenue where it ends. There is a multi-use path that runs east/west along the south side of 159th Street.

LaGrange Road/US Route 45 is a north/south roadway classified as a Strategic Regional Arterial (SRA) with a posted speed limit of 45 mph under IDOT jurisdiction. LaGrange Road has a six-lane section that widens to provide left and right turn lanes at major intersections while the rest of the corridor has a raised landscaped median. LaGrange Road is under the jurisdiction of the Illinois Department of Transportation (IDOT). A sidewalk is provided on the west side of LaGrange Road and a multi-use path on the east side of the roadway.

Ravinia Avenue is a north/south roadway under the jurisdiction of The Village of Orland Park and classified as major collector north of 159th Street and a local road south of 159th Street. The south leg of Ravinia Avenue has a raised median and dead ends approximately 1,400 feet south of 159th Street with a multi-use path on the west side of road. The north leg of Ravinia Avenue is a two-lane section that widens to provide left turn lanes at major intersections and sidewalks are provided on both sides of the road. Ravinia Avenue has a posted speed limit of 30 mph.

Costco Roadway Access Driveways (North and South along Ravinia Avenue) are private driveways that provide access to the existing Costco Wholesale west of Ravinia Avenue. Each access driveway provides one departing lane and one eastbound shared left turn/right turn lane.

161st Street/Strip Mall Access Driveway is an east/west local roadway that provides access to the retail plazas on the east and west side of LaGrange Road. 161st Street is under municipal jurisdiction.

Intersection Descriptions

159th Street and Ravinia Avenue is a signalized intersection that is part of a coordinated signal network. The northbound and southbound approaches of Ravinia Avenue consist of one left turn lane, one through lane, and one right turn lane. The westbound approach of 159th Street consists of two left turn lanes, two through lanes, and one right turn lane while the eastbound approach consists of one left turn lane, one through lane, and one shared through/right turn lane. The northbound and southbound approaches operate with a protected/permitted left turn movement while the westbound and eastbound approaches operated with a protected only left turn movement. The traffic signal was observed during the peak hours and found that the cycle length for the weekday am peak hour is 120 seconds while the weekday pm peak hour and the Saturday midday peak hour is 130 seconds. The south leg provides a high visibility crosswalk while the east, west, and north legs of the intersection provide a standard pedestrian crosswalk.

LaGrange Road and 161st Street/ Strip Mall Access Driveway is an unsignalized intersection, two-way stop-controlled intersection with 161st Street signed as the stop approach. The northbound and southbound approaches of La Grange Road consist of one left turn lane, two through lanes, and one shared through/right turn lane. The eastbound approach of 161st Street consists of one left turn lane, one through lane, and one right turn lane while the westbound approach consists of one left turn lane and one shared through/right turn lane. Standard pedestrian crosswalks are provided on the east and west legs of the intersection.

North and South Costco Driveways and Ravinia Avenue are unsignalized three-leg intersections with the west leg signed as the stop approach. The northbound approach consists of one left turn lane and two through lanes while the southbound approach consists of one through lane and one shared through/right turn lane. The eastbound approach consists of one left turn/right turn lane.

Right-In Right-Out Costco Driveway and 159th Street is an unsignalized intersection, three-leg intersection with the north leg signed as the stop approach. The northbound approach consists of one right turn lane. The eastbound approach consists of one through lane and one shared through/right turn lane. The westbound approach consists of two through lanes.

COSTCO WHOLESALE
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FIGURE 3
LAND USE MAP

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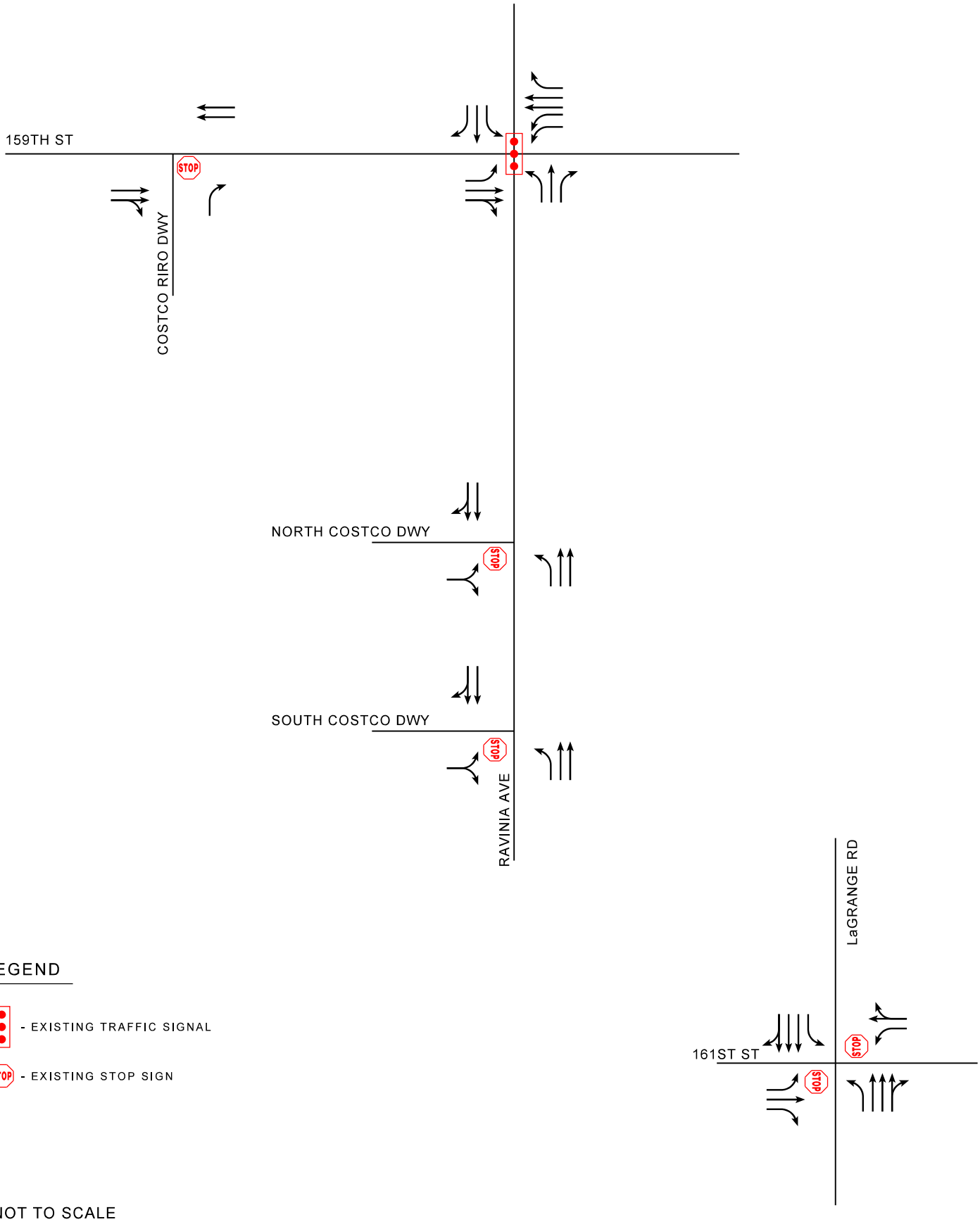

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FIGURE 4
EXISTING LANE CONFIGURATION

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Traffic Volumes

To assist in the evaluation of the traffic impact on the roadway system resulting from the proposed development, existing vehicular volumes were collected at the study area intersections.

Existing traffic counts were collected on Thursday, August 1, 2024, and Saturday, August 3, 2024, at the study area intersections. The weekday am peak period traffic counts were collected from 7:00 am to 9:00 am, the weekday pm peak period were collected from 3:00 pm to 7:00 pm, and the Saturday midday peak period were collected from 11:00 am to 3:00 pm. The time periods of the traffic counts were selected to coincide with the typical peak hours of the arterial roadways like 159th Street and LaGrange Road, as well as the typical peak hours for a retail development.

The weekday am peak hour occurs between 8:00 am – 9:00 am, the weekday pm peak hour occurs between 4:30 pm – 5:30 pm, and the Saturday midday peak hour occurs 12:15 pm – 1:15 pm. The existing peak hour volumes at the study area intersections are illustrated in Figure 5. A summary of the traffic volumes collected in fifteen-minute increments is provided in Appendix A.

Proposed Development

Land Use Development

The areas to the south and east of the site are planned to be developed in the upcoming years. A residential development is planned to be constructed on the south of the existing Costco warehouse connecting with Ravinia Avenue with 132 detached single-family residences. The peak hour traffic volumes generated by this development will be included in the future 2050 scenario and excerpts from the TIS have been included in Appendix B.

Similarly, the undeveloped land to the east of the existing Costco warehouse, at the southwest corner of 159th Street and LaGrange Road is proposed to be developed as a retail mixed-use development. The proposed site plan calls for two 100-room hotels, approximately 96,022 square feet of strip retail space, a 25,000 square foot supermarket, and various restaurant facilities totaling approximately 43,660 square feet. At the time of this traffic study, it is unknown when this mixed used facility will be built, but it will be included in the future 2050 scenario. Site traffic volume figures from this site have been included in Appendix B.

Roadway Development

The Village of Orland Park plans to extend Ravinia Avenue from its current dead-end south of Costco, connecting it to the retail plaza on LaGrange Road at 161st Street. With the extension of Ravinia Avenue, it is anticipated that some vehicular traffic will utilize this roadway as a cut through instead of traveling north then west at 159th Street and LaGrange Road.

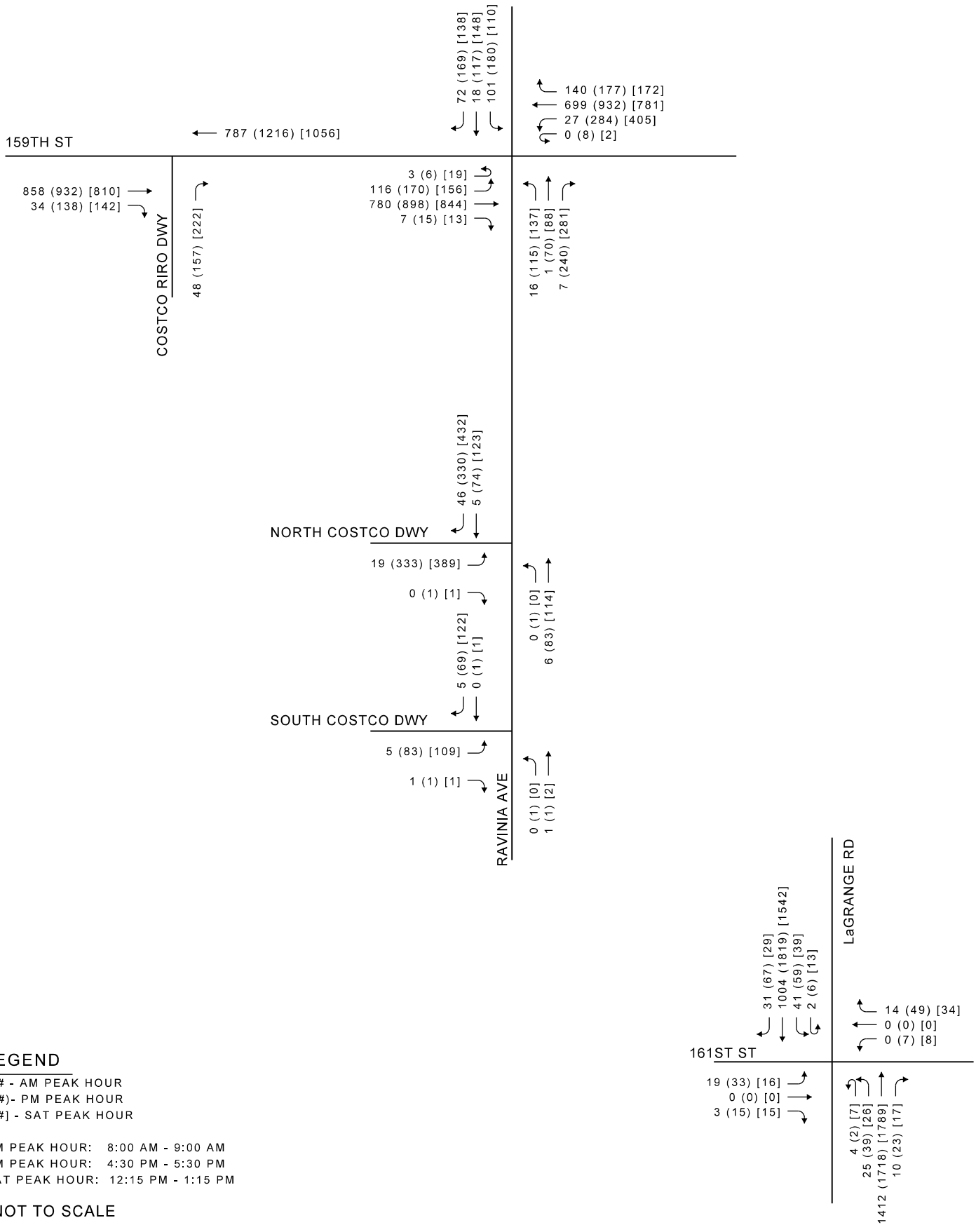
Additionally, with the relocation of the Costco Gas Station facility to the east of Ravinia Avenue, a one-lane roundabout is being proposed at the North Costco Driveway and Ravinia Avenue. The east leg of the intersection will be built to provide access to the gas station. This roundabout will provide a one-lane approach at each leg. A right-turn only entrance is proposed on Ravinia Avenue north of the proposed roundabout that will access the Costco warehouse.

Following initial discussions with the Village of Orland Park, it was requested to evaluate and provide a second single-lane roundabout at the existing South Costco driveway on Ravina Avenue. This driveway is approximately 250 feet south of the proposed roundabout at the north Costco driveway and the future relocated gas station driveway. It is anticipated that additional right of way would need to be acquired to construct the second roundabout, either from the Costco parking lot to the west or the environmental area to the east. This existing three leg intersection will likely not be expanded with a fourth leg to the east due to the environmental areas that would be significantly impacted.

As discussed in this report, the traffic data collected and future development projections at this intersection indicate that the current eastbound stop controlled South Costco driveway operates at an adequate level of service under both current and future full build-out scenarios. While the roundabout would also operate with low delays in the future, it is anticipated that a cost-benefit analysis would indicate that the existing intersection configuration as the more favorable option compared to a roundabout.

After further discussions with the Village of Orland Park and several access alternatives evaluated at the South Costco Driveway, it was determined that the South Costco Driveway will be reconfigured to be a right in/right out/left in driveway. This option will accommodate future traffic along Ravinia Avenue as well as providing safe and efficient access to the site driveways. As a result, all eastbound-to-northbound traffic exiting the Costco will have to exit at the North Costco Driveway through the proposed roundabout.

Additionally, with the extension of Ravinia Avenue to LaGrange Road during the 2050 future scenario, it is expected that the intersection of LaGrange Road and 161st Street will warrant a traffic signal as well as dual northbound left turn lanes. It is anticipated that the Village will coordinate with IDOT and other stakeholders on this project, including a traffic analysis to determine intersection design and a traffic signal warrant analysis. Therefore, for the purpose of this study, the intersection of LaGrange Road and 161st Street was analyzed as a signalized intersection with an additional northbound left turn lane to accommodate the future 2050 traffic volumes.



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COSTCO WHOLESALE
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FIGURE 5
EXISTING TRAFFIC VOLUMES

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III. TRAFFIC FORECASTS

Project Traffic Volumes

Trip Generation

The relocation of the existing gas station to the east side of Ravinia Avenue will not generate new trips but rather reroute existing trips generated by the existing Costco Warehouse. In order to estimate the rerouted vehicular trips, a summary of the existing warehouse traffic volumes was gathered by adding all inbound and outbound trips at the three Costco driveways. Costco has completed numerous gas station relocations and expansion throughout the Midwest and in Illinois. Based on this experience and that the gas station patrons are not open to the public but rather only to Costco members, the demand for gas does not noticeably increase. The reason for the relocation and expansion is to provide more parking and to provide a quicker and better experience for Costco's members.

It is worth noting the unique commercial business that Costco offers to its patrons. Costco provides a distinctive shopping experience for its members, offering bulk products and an on-site gas station. This unique setup creates significant interactions between vehicular trips to the warehouse and the gas station. Based on transactional data provided by Costco, Orland Park Store No. 647, three different types of vehicular trips were identified: trips to the warehouse only, trips to the gas station only, and combined trips where patrons visit both the warehouse and the gas station. Based on the transactional data, it is found that 68 percent of the total vehicle trips are warehouse only trips, 20 percent are gas station only trips, and 12 percent are combined trips to both the warehouse and gas station.

As previously mentioned, the existing traffic volumes at the three Costco driveways were utilized to obtain the existing Costco trip generation. Table 1 provides a summary of the existing Costco trip generation. For the weekday am peak hour, there are more inbound trips than outbound trips. It is assumed that all of the outbound trips are gas station trips and that the same amount of those trips will be inbound trips. The remaining trips are likely employee or delivery trips.

Table 1: Existing Costco Trip Generation

LAND USE	Weekday AM			Weekday PM			Saturday MD		
	In	Out	Total	In	Out	Total	In	Out	Total
Costco Wholesale Corporation Orland Park, IL #647	85	73	**158**	537	575	**1,112**	696	722	**1,418**
Warehouse ONLY - 68% *Employee Trip During AM	12*	0	**107**	365	391	**756**	473	491	**964**
Gas ONLY - 20%	73	73	**32**	107	115	**222**	139	144	**284**
Total Gas & Warehouse - 12%	0	0	**19**	65	69	**133**	84	87	**170**
Total Trip Generation:	***85***	***73***	***158***	***537***	***575***	***1,112***	***696***	***722***	***1,418***

Using the transaction summary data, the percentage of warehouse only, gas station only, and both trips have been applied to the inbound and outbound trips to estimate the types of trips to and from the site.

Trip Distribution and Assignment

Based on the new location of the gas station, the assignment of traffic to the driveways is based on the accessibility of inbound and outbound traffic at the Costco parking lot as well as the new access to the gas station. Therefore, using the type of vehicular trip and the existing trip generation, the rerouted gas station trips can be estimated. The distribution and reassignment of the rerouted gas station trips are illustrated in Figure 6.

The assignment of traffic to the driveways follows a similar distribution to the existing condition, with adjustments made to account for modifications to the internal roadway network and the relocation of the gas station. The proposed access plan will maintain the existing right-in/right-out driveway along 159th Street and the two driveways on Ravinia Avenue. However, the North Costco Driveway will be modified from a t-intersection with stop control on the west leg by constructing the east leg to provide access to the gas station and the intersection modified to a roundabout. Additionally, the South Costco Driveway will be modified to right in/right out/left in movements only with all the eastbound left turning traffic shifted to the north driveway.

Future 2025 Background Traffic Volumes

Background traffic volumes are estimated for two different scenario years, including the opening year of the gas relocation in 2025 and the 2050 full area build out with the Ravinia Avenue extension. These volumes account for future non-project related growth in the area. Background traffic volumes were developed in coordination with the Chicago Metropolitan Agency for Planning (CMAP). Background growth rates were estimated from CMAP for the study area roadways based on the Annual Average Daily Traffic (AADT) that were obtained from the IDOT database. A summary of the CMAP growth rates is provided in Table 2. CMAP correspondence is provided in Appendix C.

Table 2: CMAP Growth Rates

Street	AADT		Total Growth from Count Year to 2050	Compounded Yearly Rate	Total Growth from 2024 to 2025	Total Growth from 2024 to 2050
	Existing AADT (Year)	2050 Proj.				
LaGrange Road North of 159th Street	33,600 (2023)	40,000	19.0%	0.6%	0.6%	18.3%
LaGrange Road South of 159th Street	33,500 (2023)	38,900	16.1%	0.6%	0.6%	15.5%
159th Street East of LaGrange Road	35,000 (2023)	38,500	10.0%	0.4%	0.4%	9.6%
159th Street West of LaGrange Road	24,200 (2023)	28,700	18.6%	0.6%	0.6%	17.8%
Ravinia Avenue North of 159th Street	5,600 (2022)	6,700	19.6%	0.6%	0.6%	18.1%

Overall, the CMAP projections indicate that there will be growth in traffic on the study area roadways. For the purpose of the 2025 Phase 1, a uniform total growth factor of 0.6 percent is applied to all non-Costco related movements throughout the study area to accommodate non-project related growth.

The 2025 background traffic volumes are illustrated in Figure 7.

Future 2025 with Gas Station Relocation Traffic Volumes

The total rerouted trips are added to the background traffic volumes to obtain the 2025 future with gas station relocation traffic volumes for the study area intersections. Future with gas station relocation traffic volumes are depicted in Figure 8.

Figure 9 illustrates the proposed lane configuration for the 2025 future with gas relocation scenario.

Future 2050 Area Build Out with Ravinia Avenue Extension Traffic Volumes

Future 2050 Background Traffic Volumes

As indicated by the CMAP traffic projections, background growth will continue along LaGrange Road and 159th Street to 2050. To keep the street segment growth consistent with the CMAP projections, only the through movements along that street segment received the corresponding growth rate as rerouted traffic will be estimated separately for the Ravinia Avenue extension.

In addition to the CMAP growth rates, traffic has been estimated and added to the study area intersections for two adjacent developments planned in the aera. In coordination with the Village of Orland Park, the traffic from two nearby developments have been identified and will be included in the 2050 future with Ravinia Extension scenarios:

- Estates at Ravinia Meadow – Residential Development (South of the Existing Costco Warehouse near the existing dead-end of Ravinia Avenue)
    - 132 detached single-family units
- Retail Mixed-Use Development (Southwest corner of 159th Street and LaGrange Road)
    - Two hotels with approximately 200 rooms
    - 25,000 square foot supermarket
    - Approximately 96,022 square feet of strip retail space
    - Approximately 43,660 square feet of various restaurant facilities

The vehicular traffic volumes from these two developments will be added to the 2050 Future with Ravinia Avenue Extension. Additional site traffic volume figures and the overall adjacent development locations are included in Appendix B.

Existing Rerouted Traffic Volumes with Ravinia Extension

The construction of the Ravinia Avenue extension will result in an adjustment to the existing traffic patterns in the area as adjacent developments will have additional options to access the area roadways and vehicles will be able to use the new extension to avoid some travel movements and intersections. For instance, currently traffic from the south on LaGrange Road has to use 159th Street to access the Costco, but with the extension, those trips can now use Ravinia Avenue.

In coordination with CMAP, it is anticipated that approximately four percent of the average daily traffic (38,900 vehicles reduced to 37,700 vehicles) along LaGrange Road south of 159th Street will utilize the Ravinia Avenue extension. Therefore, a four percent reduction of the northbound and southbound through volumes along LaGrange Road were adjusted and rerouted to use the Ravinia Avenue Extension.

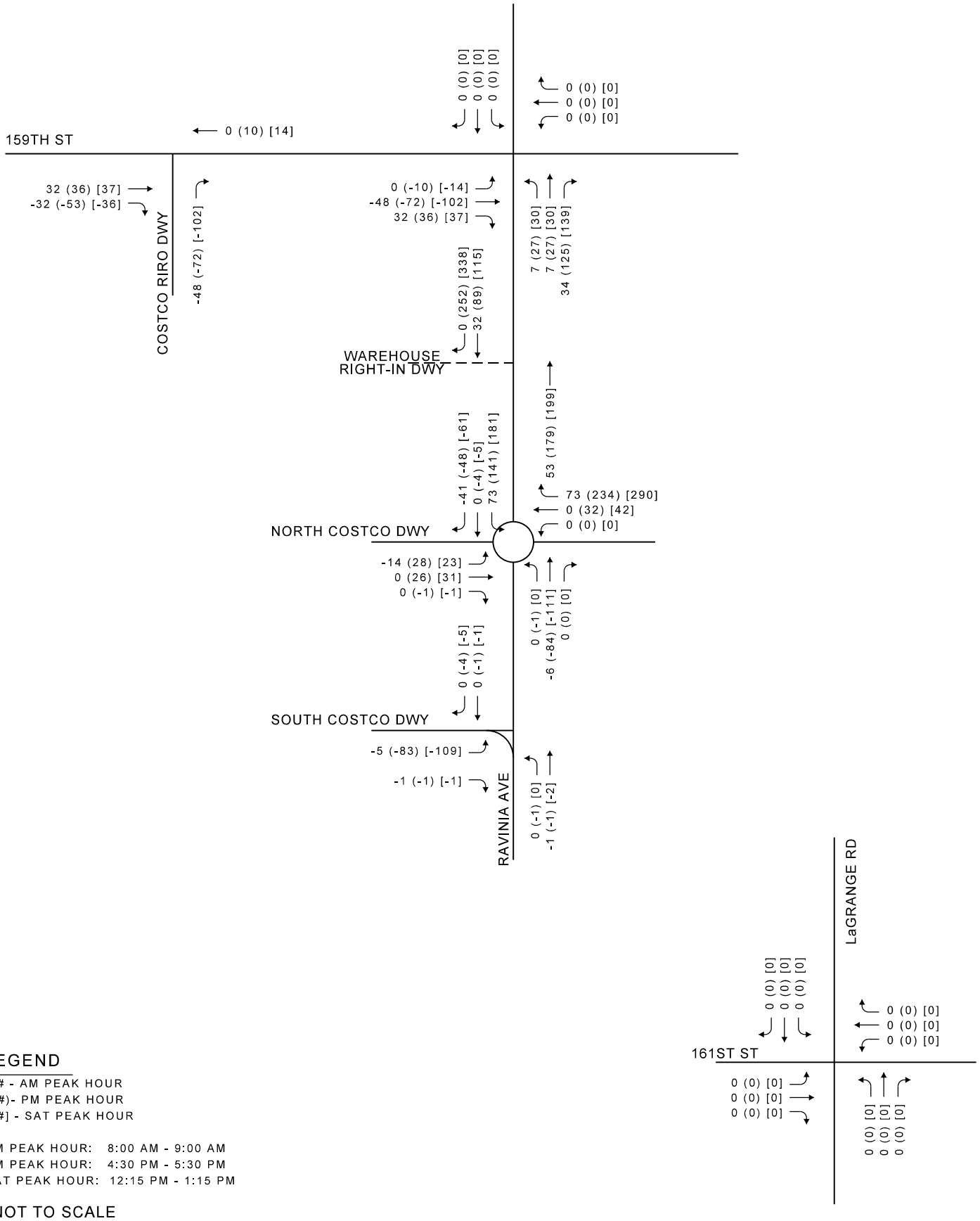
Costco Rerouted Traffic Volumes with Ravinia Extension

Similar to the existing rerouted traffic volumes along LaGrange Road and 159th Street, it is anticipated that Costco traffic will be rerouted to utilize the new access connecting south of LaGrange Road to 159th Street to the west. Based on the existing Costco traffic patterns, it is estimated that approximately 15 percent of the Costco generated traffic volumes travel to and from the south on LaGrange Road. Therefore, 15 percent of the Costco generated traffic volumes has been rerouted to utilize the Ravinia Extension.

In summary, the future 2050 peak hour traffic volumes the background growth in the area based on CMAP projections, the traffic from the two new developments south and east of Costco, and a redistribution of traffic from 159th Street and LaGrange Road that would likely use the new extension to bypass the 159th Street and LaGrange Road intersection or travel on Ravinia Avenue north of 159th Street, and the redistribution of Costco traffic using the Ravinia Avenue extension. Appendix H includes a summary of traffic volume exhibits that illustrate the development of the 2050 traffic volumes.

The existing rerouted traffic volumes, the adjacent development traffic volumes, and the Costco rerouted traffic volumes total project trips are added to the background volume to obtain the future with project traffic volumes for the study area intersections. Future with project traffic volumes are depicted in Figure 10.

Figure 11 illustrates the proposed lane configuration for the 2050 future with Ravinia Extension scenario.



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ORLAND PARK, IL #647

FIGURE 6
GAS STATION RELOCATION
TRAFFIC VOLUMES

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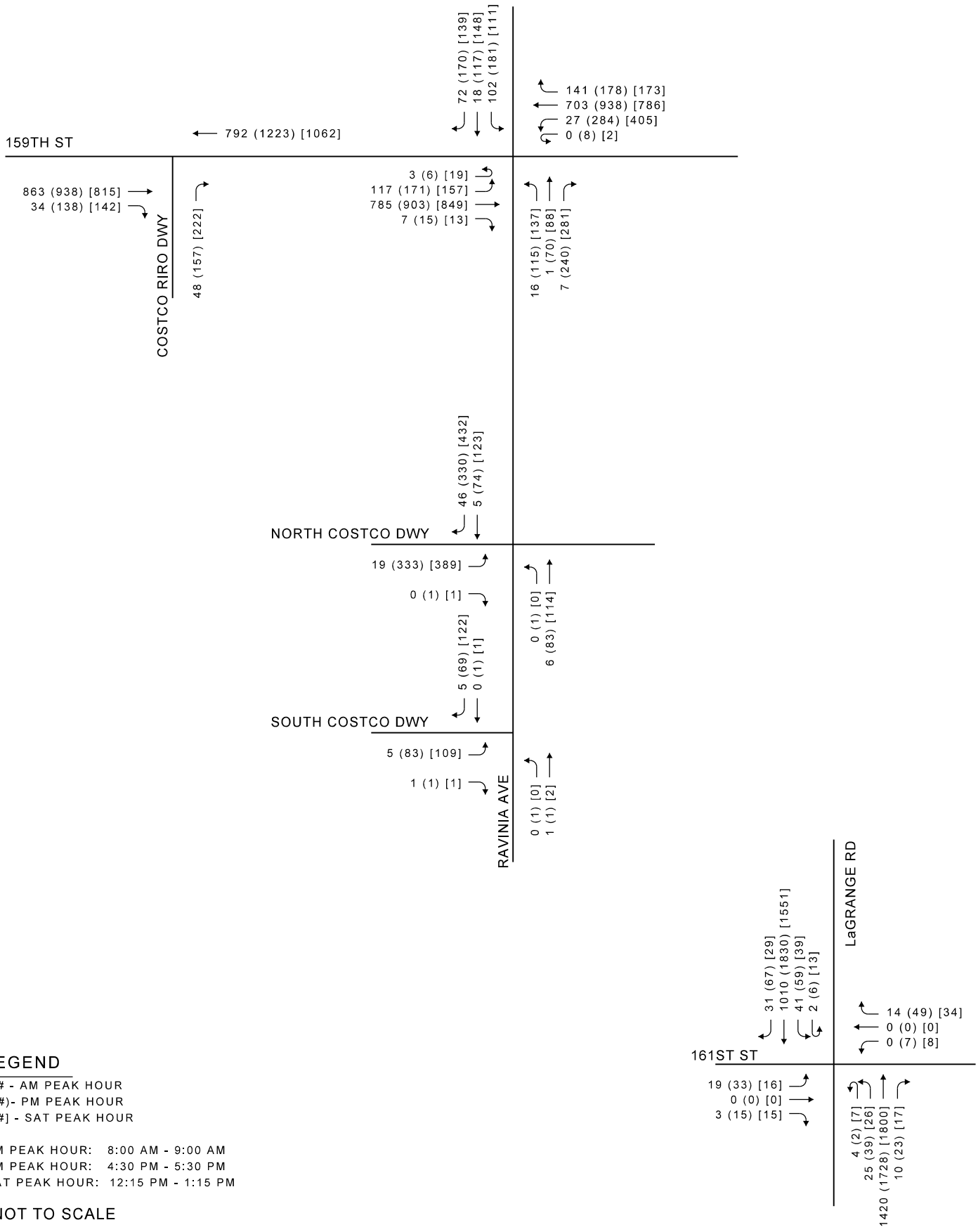

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FIGURE 7
2025 BACKGROUND TRAFFIC VOLUMES

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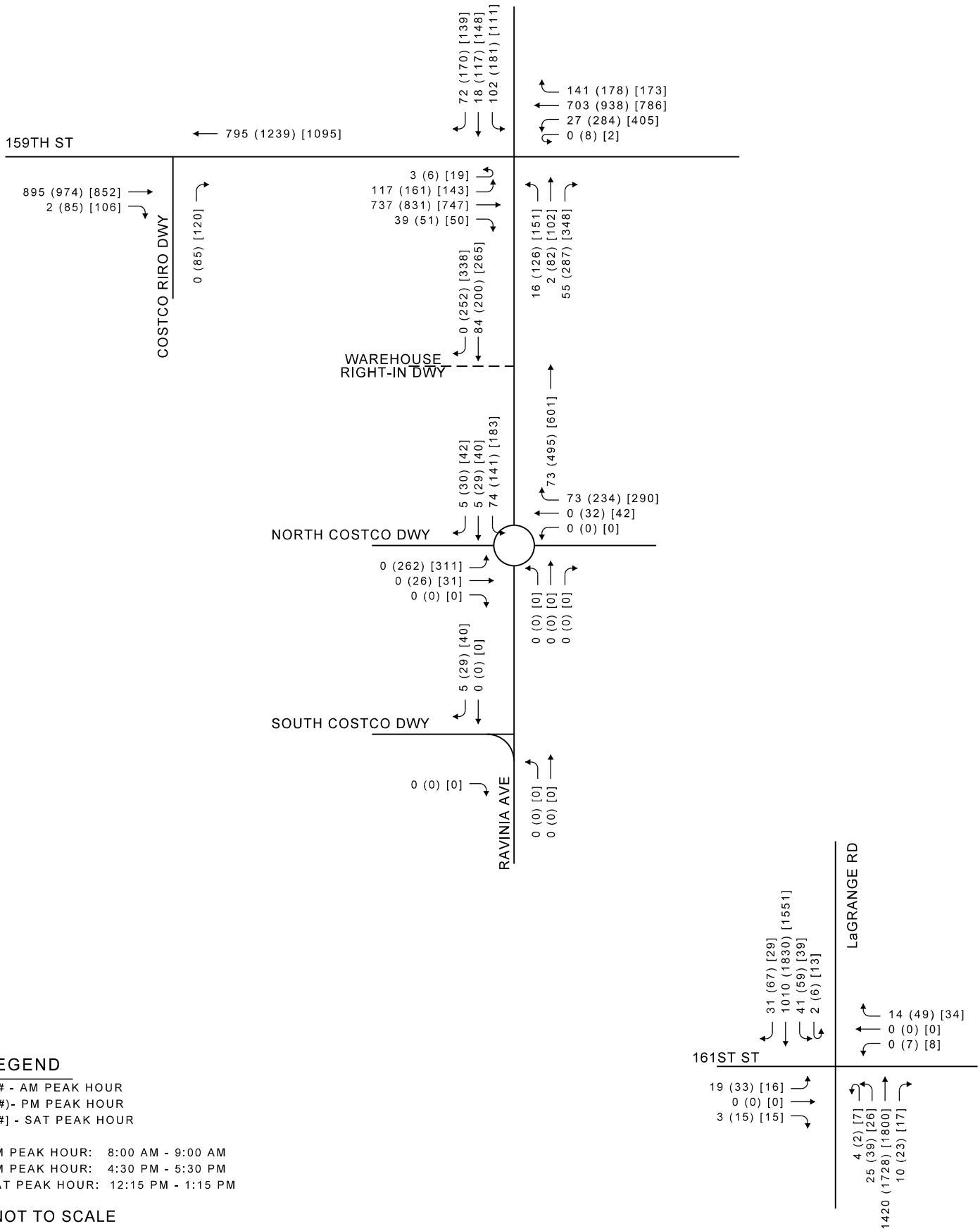

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COSTCO WHOLESALE
ORLAND PARK, IL #647

FIGURE 8
2025 FUTURE WITH PROJECT TRAFFIC VOLUMES

ORLAND PARK ILLINOIS

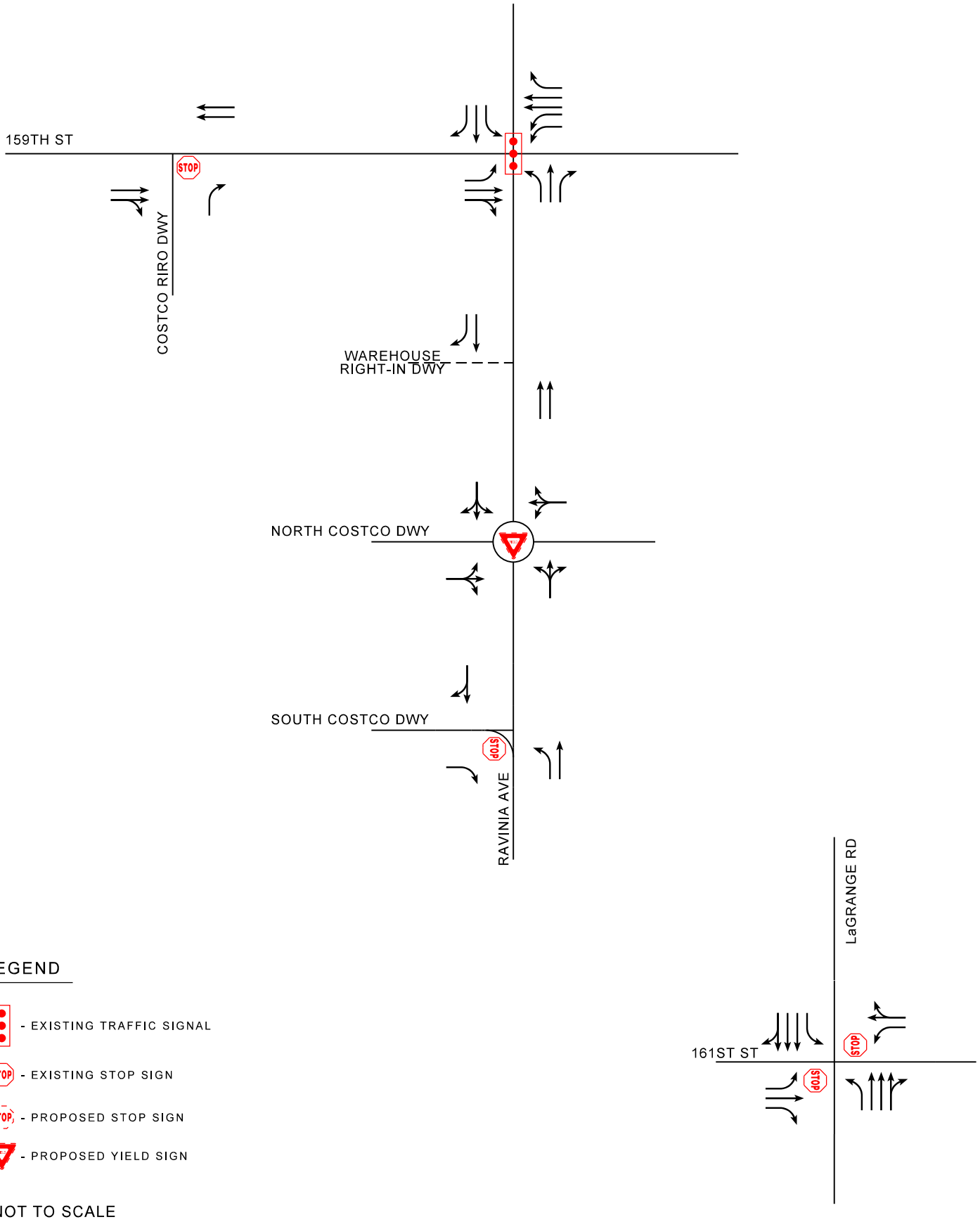

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FIGURE 9
2025 PROPOSED LANE CONFIGURATION

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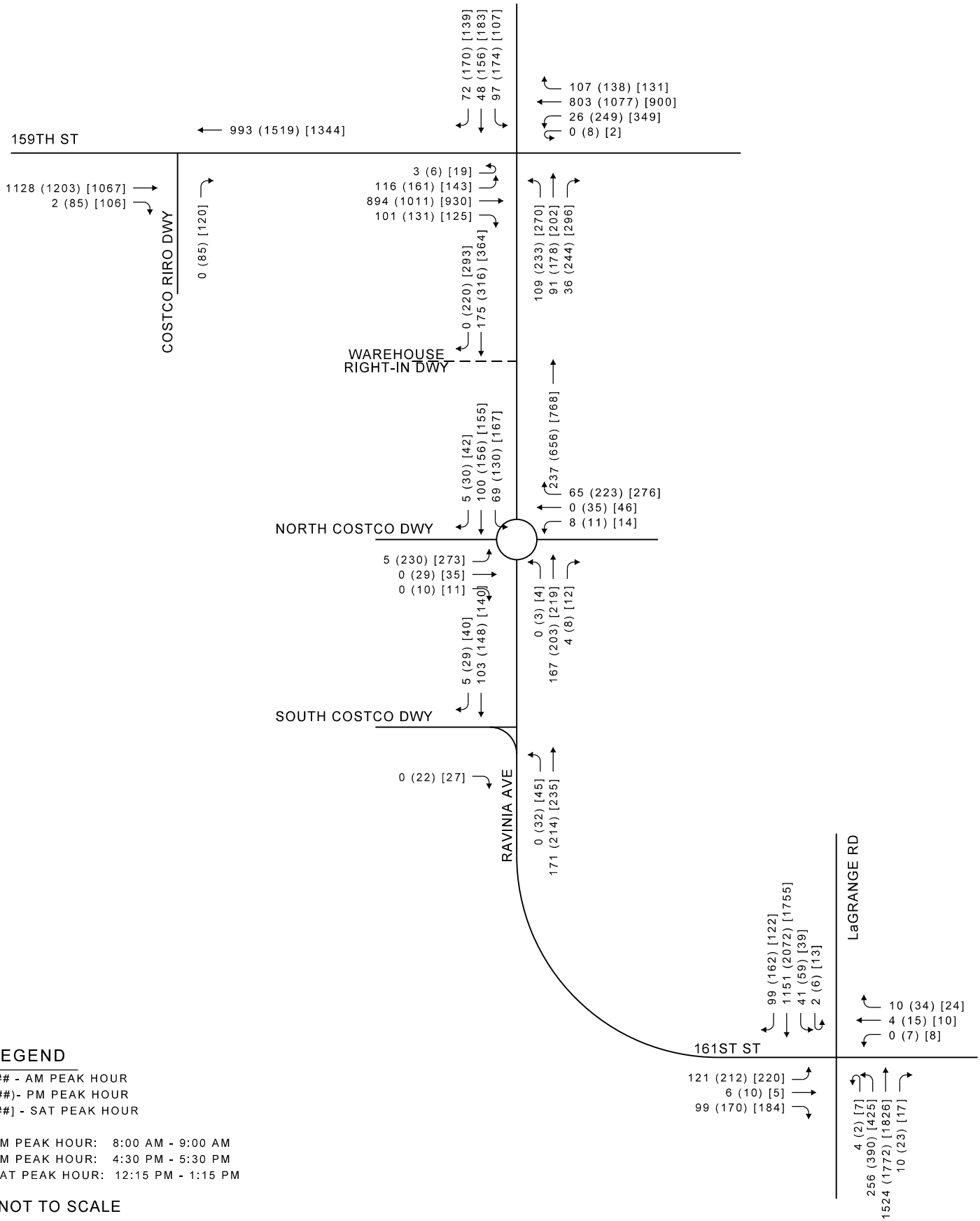

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COSTCO WHOLESALE
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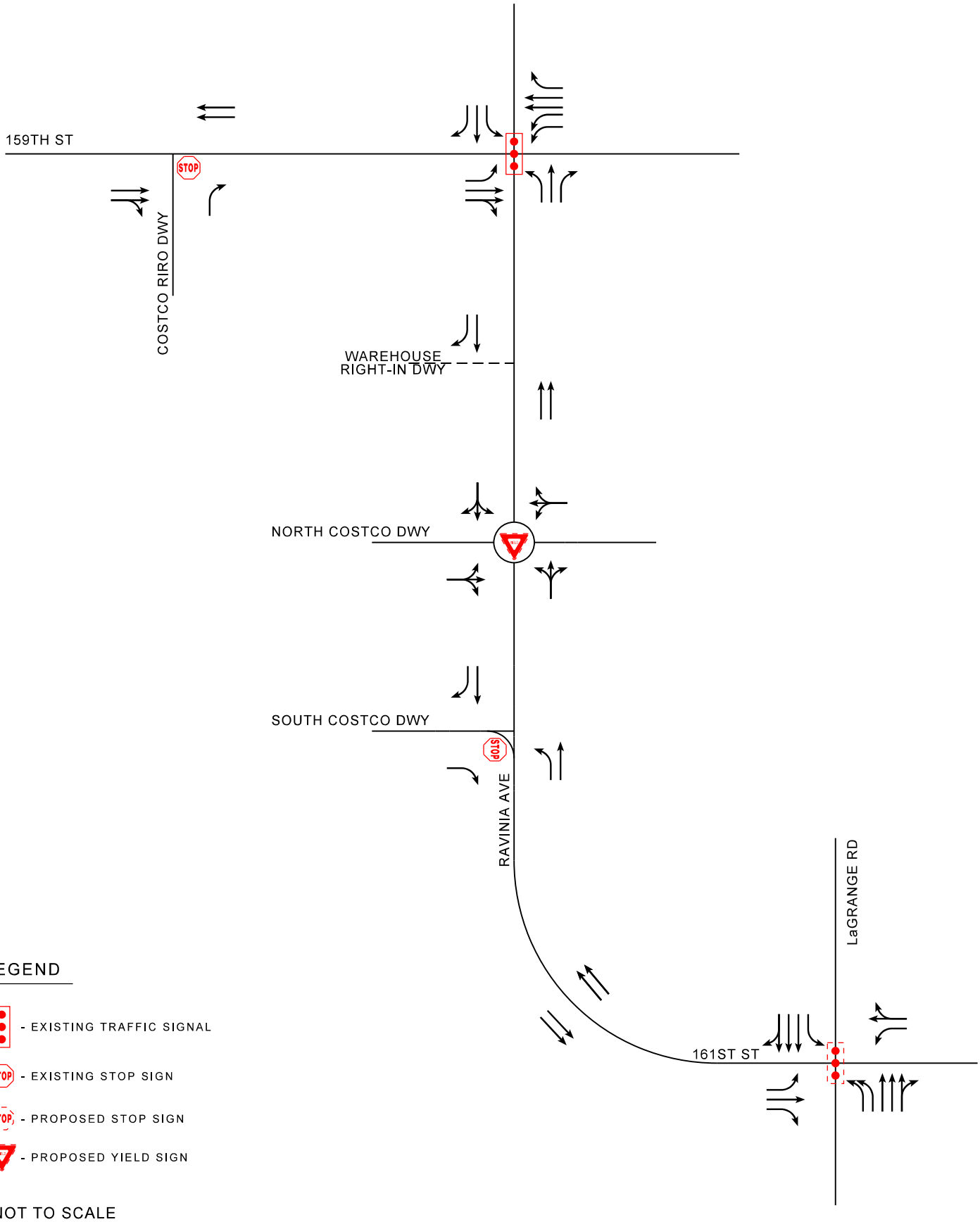
FIGURE 10
2050 FUTURE WITH PROJECT TRAFFIC VOLUMES

ORLAND PARK ILLINOIS



COSTCO WHOLESALE
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FIGURE 11
2050 PROPOSED LANE CONFIGURATION

ORLAND PARK ILLINOIS

IV. TRAFFIC ANALYSIS

Capacity Analysis

The operation of a facility is evaluated based on level of service (LOS) calculations obtained by analytical methods defined in the Transportation Research Board's *Highway Capacity Manual (HCM), 7th Edition*. The concept of LOS is defined as a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

There are six LOS letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst.

The LOS of an intersection is based on the average control delay per vehicle. For a signalized intersection, the delay is calculated for each lane group and then aggregated for each approach and for the intersection as a whole. Generally, the LOS is reported for the intersection as a whole. For an unsignalized intersection, the delay is only calculated and reported for each minor movement. An overall intersection LOS is not calculated.

There are different LOS criteria for signalized and unsignalized intersections primarily due to driver perceptions of transportation facilities. The perception is that a signalized intersection is expected to carry higher traffic volumes and experience a greater average delay than an unsignalized intersection. The LOS criteria for signalized and unsignalized intersections are provided in Table 3.

Table 3: Level of Service Definitions for Signalized and Unsignalized Intersections

Level of Service	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	$\leq$ 10	$\leq$ 10.0
B	> 10.0 and $\leq$ 20.0	> 10.0 and $\leq$ 15.0
C	> 20.0 and $\leq$ 35.0	> 15.0 and $\leq$ 25.0
D	> 35.0 and $\leq$ 55.0	> 25.0 and $\leq$ 35.0
E	> 55.0 and $\leq$ 80.0	> 35.0 and $\leq$ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, *Highway Capacity Manual 7th Edition*, National Research Council, 2016.

Typically, various state and local governments adopt standards varying between LOS C and LOS E, depending on the area's size and roadway characteristics.

The study area includes the existing signalized intersection of 159th Street and Ravinia Avenue, and the existing unsignalized intersections of 159th Street and Costco Right in/Right out Driveway, North Costco Driveway and Ravinia Avenue, South Costco Driveway and Ravinia Avenue, and 161st Street and LaGrange Road. Capacity analysis was performed with Synchro 12.2. Models were created for the weekday am, weekday pm, and Saturday midday peak hours for the existing, 2025 background, 2025 future with gas station relocation, and Future 2050 Area Build Out with Ravinia Avenue Extension scenarios. The capacity analysis for the roundabout was performed with Sidra Intersection 10.0.

The capacity analysis results at the signalized intersections are summarized in Table 4 and at the unsignalized intersections in Table 5. The traffic signal timing plans were provided by CBBEL reviewer which the timings were obtained from field controller and utilized for this analysis. Supporting capacity analysis worksheets are provided in Appendices D, E, F, and G, respectively.

Table 4: Capacity Analysis of Signalized Intersections

Intersection	Peak Hour	Scenario	Eastbound		Westbound		Northbound		Southbound		Intersection	
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Ravinia Avenue & 159th Street	Weekday AM	Existing (2024)	15.7	B	12.5	B	34.5	C	35.4	D	16.4	B
		Background (2025)	15.7	B	12.6	B	34.5	C	35.5	D	16.5	B
		Future with Project (2025)	16.4	B	12.7	B	24.6	C	35.3	D	16.9	B
		Future with Project (2050)	22.0	C	20.1	C	43.1	D	32.8	C	24.2	C
	Weekday PM	Existing (2024)	31.3	C	29.9	C	28.3	C	34.5	C	30.8	C
		Background (2025)	31.4	C	30.0	C	28.4	C	34.4	C	30.9	C
		Future with Project (2025)	31.5	C	30.1	C	29.6	C	34.1	C	31.0	C
		Future with Project (2050)	37.8	D	35.6	D	34.6	C	37.1	D	36.4	D
	Satuday MD	Existing (2024)	37.2	D	33.2	C	22.7	C	37.3	D	33.3	C
		Background (2025)	37.3	D	33.2	C	22.8	C	37.3	D	33.4	C
		Future with Project (2025)	37.0	D	33.1	C	24.0	C	37.2	D	33.1	C
		Future with Project (2050)	45.7	D	38.6	D	29.2	C	39.4	D	39.1	D
LaGrange Road & 161st Street	Weekday AM	Existing (2024)	-	-	-	-	-	-	-	-	-	-
		Background (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2050)	40.3	D	34.3	C	16.5	B	14.0	B	17.2	B
	Weekday PM	Existing (2024)	-	-	-	-	-	-	-	-	-	-
		Background (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2050)	64.4	E	41.9	D	24.4	C	28.7	C	29.8	C
	Satuday MD	Existing (2024)	-	-	-	-	-	-	-	-	-	-
		Background (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2025)	-	-	-	-	-	-	-	-	-	-
		Future with Project (2050)	55.0	E	36.6	D	22.5	C	24.6	C	26.3	C

Table 5: Capacity Analysis of Unsignalized Intersections

Intersection / Approach	Weekday AM								Weekday PM								Saturday MD							
	2024 Existing		2025 Background		2025 Future w/ Project		2050 Future w/ Project		2024 Existing		2025 Background		2025 Future w/ Project		2050 Future w/ Project		2024 Existing		2025 Background		2025 Future w/ Project		2050 Future w/ Project	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
159th Street & Costco RIRO Driveway (Two-Way Stop Controlled)																								
NB Right	13.1	B	13.1	B	0.0	A	0.0	A	16.5	C	16.5	C	14.2	B	16.5	C	18.8	C	18.9	C	14.8	B	17.5	C
Ravinia Aveue & North Costco Driveway (Two-Way Stop Controlled)																								
NB Left	0.0	A	0.0	A	Roundabout		Roundabout		8.2	A	8.2	A	Roundabout		Roundabout		0.0	A	0.0	A	Roundabout		Roundabout	
EB App.	8.9	A	8.9	A					16.3	C	16.3	C					33.0	D	33.0	D				
Ravinia Aveue & South Costco Driveway (Two-Way Stop Controlled)																								
NB Left	0.0	A	0.0	A	0.0	A	0.0	A	7.4	A	7.4	A	0.0	A	7.7	A	0.0	A	0.0	A	0.0	A	7.8	A
EB App.	8.7	A	8.7	A	0.0	A	0.0	A	9.2	A	9.2	A	0.0	A	9.3	A	9.6	A	9.6	A	0.0	A	9.3	A
LaGrange Road & 161st Street (Two-Way Stop Controlled)																								
NB Left	15.5	C	15.5	C	15.5	C	Signalized		43.0	E	43.7	E	43.7	E	Signalized		24.2	C	24.4	C	24.4	C	Signalized	
EB Left	51.1	F	51.9	F	51.9	F			>100	F	>100	F	>100	F			>100	F	>100	F	>100	F		
EB Thru	0.0	A	0.0	A	0.0	A			0.0	A	0.0	A	0.0	A			0.0	A	0.0	A	0.0	A		
EB Right	13.8	B	13.8	B	13.8	B			23.0	C	23.1	C	23.1	C			18.4	C	18.5	C	18.5	C		
WB left	0.0	A	0.0	A	0.0	A			>100	F	>100	F	>100	F			>100	F	>100	F	>100	F		
WB Thru/Right	17.4	C	17.5	C	17.5	C			23.8	C	24.0	C	24.0	C			22.8	C	22.9	C	22.9	C		
SB Left	25.2	D	25.4	D	25.4	D			41.7	E	42.4	E	42.4	E			36.5	E	37.1	E	37.1	E		
Ravinia Aveue & Nouth Costco Driveway (Yield Controlled)																								
NB App.	-	-	-	-	2.9	A	4.0	A	-	-	-	-	4.3	A	7.1	A	-	-	-	-	4.8	A	8.6	A
WB App.	-	-	-	-	3.0	A	3.9	A	-	-	-	-	6.6	A	8.7	A	-	-	-	-	8.2	A	11.5	B
SB App.	-	-	-	-	3.0	A	3.6	A	-	-	-	-	4.1	A	5.0	A	-	-	-	-	4.6	A	5.6	A
EB App.	-	-	-	-	2.9	A	3.3	A	-	-	-	-	6.0	A	7.0	A	-	-	-	-	7.2	A	8.3	A
Intersection	-	-	-	-	3.0	A	3.8	A	-	-	-	-	5.7	A	6.9	A	-	-	-	-	6.8	A	8.4	A

Existing Scenario

Based on the analysis results for the signalized intersection of 159th Street and Ravinia Avenue, the major approaches operate with LOS D or better while the overall intersection operates at LOS B during the weekday am and at LOS C during the weekday pm peak hour and the Saturday midday peak hour.

All movements at the unsignalized intersections operate adequately with the exception of the eastbound and westbound left turn movements at 161st Street and LaGrange Road which operate with high delays during all three time periods.

2025 Background Scenario

For the 2025 background scenario, delays tend to increase slightly at the signalized intersection. The addition of background traffic results in similar delay times for each approach and the overall intersection. It is worth noting that minor delay improvements are observed on some minor street approaches. This is due to the increased side street volumes placing more calls on the intersection approach which extends the effective green times for the side street and results in a decreased average delay for that approach.

Similar to the existing scenario, all movements at the unsignalized intersections operate adequately with the exception of the eastbound and westbound left turn movements at 161st Street and LaGrange Road which operate with high delays during all three time periods.

2025 Future with Gas Station Relocation Scenario

Intersection delays tend to increase with the relocation of the gas station east of Ravinia Avenue. A slight increase in delay is observed on the northbound approach and decrease on the eastbound approach as less traffic is using the right in/right out driveway west of 159th Street and Ravinia Avenue. Overall, each approach continues to operate at LOS D or better during all three time periods while the overall intersection operates at LOS B during the weekday am peak hour and at LOS C during the weekday pm peak hour and the Saturday midday peak hour.

All movements at the unsignalized intersections continue to operate adequately, with all levels of service remaining at LOS D or better with the exception of the eastbound and westbound left turn movements at 161st Street and LaGrange Road. Minimal delays are observed for the roundabout at the North Costco Driveway and Ravinia Avenue.

Future 2050 Area Build Out with Ravinia Avenue Extension Scenario

As previously mentioned, it is anticipated that the extension of Ravinia Avenue to LaGrange Road will warrant a traffic signal and a second northbound left turn lane at the intersection of LaGrange Road and 161st Street. Therefore, in the Future 2050 Area Build Out with Ravinia Avenue Extension Scenario, this intersection has been analyzed as a signalized intersection.

The signalized intersection delays tend to increase with the relocation of the gas station east of Ravinia Avenue, the addition of the residential and mixed-use developments, as well as the rerouted cut-through traffic along Ravinia Avenue. Overall, the approaches of the Ravinia Avenue and 159th Street intersection continue to operate at LOS D or better during all three time periods while the overall intersection operates at LOS C during the weekday am peak hour and at LOS D during the weekday pm and Saturday midday peak hour. The major approaches of 161st Street and LaGrange Road operate at LOS E of better during all three time periods while the overall intersection operates at LOS B during the weekday am peak hour and at LOS C during the weekday pm and Saturday midday peak hours. As the Ravinia Avenue extension is planned and as the new adjacent developments are constructed, it is anticipated that the intersection geometry and traffic signal timing will be reviewed and updated to minimize delays and efficiently move traffic through the area.

All movements at the unsignalized intersections continue to operate adequately, with all levels of service remaining at LOS C or better. No delays are observed for the roundabout at the North Costco Driveway and Ravinia Avenue.

Queue Length Analysis

A queue length analysis was conducted at each of the study area intersections. A summary of this analysis is provided in Table 6. This data is comprised of the 95th percentile queue output from the Synchro and Sidra analysis.

At 159th Street and Ravinia Avenue, the northbound right turn and southbound left turn queues exceed the provided storage length for several of the scenarios during the weekday pm and Saturday peak hours. For the northbound right turn, it should be noted that this is a trap lane with the through lane becoming the right turn lane, so the storage length is actually much longer than the striped 150-foot storage. Additionally, the southbound left turn exceeds the storage length for each scenario during the weekday pm peak hour. However, the queue does not exceed the storage length by more than 30 feet, or approximately one vehicle. It is anticipated that this additional queue length can be accommodated within the taper length.

The projected queue lengths for the proposed roundabout at the North Costco Driveway are within the proposed storage lengths. At LaGrange Road and 161st Street, the additional traffic with the Ravinia Avenue extension creates several turn lanes where the queue length exceeds the storage length. As the Ravinia Avenue extension is planned and as the new adjacent developments are constructed, it is anticipated that the intersection geometry will be reviewed so that the turn lane storage lengths can accommodate the projected queue lengths.

Table 6: 95th Percentile Queue Lengths

Intersection	Peak Hour	Scenario	Eastbound		Westbound		Northbound		Southbound	
			Left	Right	Left	Right	Left	Right	Left	Right
159th Street & Costco RIRO Driveway (Two-Way Stop Controlled)	Weekday AM	Existing (2024)	-	-	-	-	-	10	-	-
		Background (2025)	-	-	-	-	-	10	-	-
		Future with Project (2025)	-	-	-	-	-	0	-	-
		Future with Project (2050)	-	-	-	-	-	0	-	-
	Weekday PM	Existing (2024)	-	-	-	-	-	38	-	-
		Background (2025)	-	-	-	-	-	38	-	-
		Future with Project (2025)	-	-	-	-	-	18	-	-
		Future with Project (2050)	-	-	-	-	-	20	-	-
	Saturday MD	Existing (2024)	-	-	-	-	-	65	-	-
		Background (2025)	-	-	-	-	-	65	-	-
		Future with Project (2025)	-	-	-	-	-	28	-	-
		Future with Project (2050)	-	-	-	-	-	33	-	-
	Storage (ft)		-	-	-	-	-	85	-	-
	Taper (ft)		-	-	-	-	-	-	-	-
159th Street & Ravinia Avenue (Signalized)	Weekday AM	Existing (2024)	157	-	27	20	30	0	124	33
		Background (2025)	158	-	27	20	30	0	124	33
		Future with Project (2025)	158	-	27	20	30	38	123	33
		Future with Project (2050)	157	-	27	23	120	17	107	34
	Weekday PM	Existing (2024)	216	-	167	32	121	85	181	46
		Background (2025)	216	-	167	33	121	86	183	46
		Future with Project (2025)	207	-	167	33	129	125	181	46
		Future with Project (2050)	207	-	150	42	213	76	160	63
	Saturday MD	Existing (2024)	222	-	225	36	140	54	116	42
		Background (2025)	223	-	225	36	140	55	117	42
		Future with Project (2025)	214	-	240	32	162	209	123	48
		Future with Project (2050)	209	-	201	40	246	62	102	62
	Storage (ft)		275	-	400	200	295	150	160	165
	Taper (ft)		150	-	290	245	95	25	100	105
Ravinia Avenue & North Costco Driveway (Two-Way Stop Controlled -- Ex 2024 & BG 2025) (Roundabout -- FwP 2025 & FwP 2050)	Weekday AM	Existing (2024)	3	-	-	-	0	-	-	-
		Background (2025)	3	-	-	-	0	-	-	-
		Future with Project (2025)	0		8		0		8	
		Future with Project (2050)	0		8		18		18	
	Weekday PM	Existing (2024)	78	-	-	-	0	-	-	-
		Background (2025)	78	-	-	-	0	-	-	-
		Future with Project (2025)	38		38		0		20	
		Future with Project (2050)	38		43		33		38	
	Saturday MD	Existing (2024)	193	-	-	-	0	-	-	-
		Background (2025)	193	-	-	-	0	-	-	-
		Future with Project (2025)	50		50		0		30	
		Future with Project (2050)	50		80		38		45	
	Storage (ft)		35	-	-	-	65	-	-	-
	Taper (ft)		-	-	-	-	105	-	-	-

Note: 95th Percentile Queue Lengths in Feet.

Table 6: 95th Percentile Queue Lengths (cont.)

Intersection	Peak Hour	Scenario	Eastbound		Westbound		Northbound		Southbound	
			Left	Right	Left	Right	Left	Right	Left	Right
Ravinia Avenue & South Costco Driveway (Two-Way Stop Controlled)	Weekday AM	Existing (2024)	0	-	-	-	0	-	-	-
		Background (2025)	0	-	-	-	0	-	-	-
		Future with Project (2025)	-	0	-	-	0	-	-	-
		Future with Project (2050)	-	0	-	-	0	-	-	-
	Weekday PM	Existing (2024)	8	-	-	-	0	-	-	-
		Background (2025)	8	-	-	-	0	-	-	-
		Future with Project (2025)	-	0	-	-	0	-	-	-
		Future with Project (2050)	-	3	-	-	3	-	-	-
	Saturday MD	Existing (2024)	13	-	-	-	0	-	-	-
		Background (2025)	13	-	-	-	0	-	-	-
		Future with Project (2025)	-	0	-	-	0	-	-	-
		Future with Project (2050)	-	3	-	-	3	-	-	-
	Storage (ft)		35	-	-	-	110	-	-	-
	Taper (ft)		-	-	-	-	105	-	-	-
LaGrange Road & 161st Street (Two-Way Stop Controlled)	Weekday AM	Existing (2024)	18	0	5	0	8	-	18	-
		Background (2025)	18	0	5	0	8	-	20	-
		Future with Project (2025)	18	0	5	0	8	-	20	-
		Future with Project (2050)	149	24	0	0	146	-	72	-
	Weekday PM	Existing (2024)	120	5	23	20	30	-	45	-
		Background (2025)	123	5	23	20	33	-	48	-
		Future with Project (2025)	123	5	23	20	33	-	48	-
		Future with Project (2050)	337	74	20	-	250	-	115	-
	Saturday MD	Existing (2024)	38	5	20	13	13	-	33	-
		Background (2025)	38	5	20	13	13	-	33	-
		Future with Project (2025)	38	5	20	13	13	-	33	-
		Future with Project (2050)	284	71	20	-	232	-	85	-
	Storage (ft)		70	70	45	-	190	-	270	-
	Taper (ft)		80	25	80	-	190	-	160	-

Note: 95th Percentile Queue Lengths in Feet.

V. CONCLUSIONS

The purpose of this study is to evaluate the potential traffic impacts for a proposed Costco gas station relocation. The gas station will be relocated east of Ravinia Avenue adjacent to the existing Costco Warehouse at the southeast corner of 159th Street and Ravinia Avenue. The proposed members-only gas station consists of 40 gas pumps.

The existing gas station, located at the northwest corner of the Costco property, will be replaced with additional parking spaces. The proposed access plan includes modifying the existing northern Costco driveway on Ravinia Avenue into a single-lane roundabout with the east leg providing access to the proposed gas station. A right-turn only entrance is proposed on Ravinia Avenue north of the proposed roundabout that will access the Costco warehouse. Additionally, the south Costco driveway will be modified from the existing full access driveway to a limited access right in/right out/left in only driveway. As part of the adjacent development plans, Ravinia Avenue is proposed to be extended from its current terminus south of the Costco development to LaGrange Road at 161st Street.

The Village of Orland Park plans to extend Ravinia Avenue from its current dead-end south of Costco, connecting it to the retail plaza on LaGrange Road at 161st Street. With the extension of Ravinia Avenue, it is anticipated that some vehicular traffic will utilize this roadway as a cut through instead of traveling north then west at 159th Street and LaGrange Road.

Additionally, with the relocation of the Costco Gas Station facility to the east of Ravinia Avenue, a one-lane roundabout is being proposed at the North Costco Driveway and Ravinia Avenue. The east leg of the intersection will be built to provide access to the gas station. This roundabout will provide a one-lane approach at each leg.

Following initial discussions with the Village of Orland Park, it was requested to evaluate and provide a second single-lane roundabout at the existing South Costco driveway on Ravina Avenue. This driveway is approximately 250 feet south of the proposed roundabout at the north Costco driveway and the future relocated gas station driveway. It is anticipated that additional right of way would need to be acquired to construct the second roundabout, either from the Costco parking lot to the west or the environmental area to the east. This existing three leg intersection will likely not be expanded with a fourth leg to the east due to the environmental areas that would be significantly impacted.

As discussed in this report, the traffic data collected and future development projections at this intersection indicate that the current eastbound stop controlled South Costco driveway operates at an adequate level of service under both current and future full build-out scenarios. While the roundabout would also operate with low delays in the future, it is anticipated that a cost-benefit analysis would indicate that the existing intersection configuration as the more favorable option compared to a roundabout.

After further discussions with the Village of Orland Park and several access alternatives evaluated at the South Costco Driveway, it was determined that the South Costco Driveway will be reconfigured to be a right in/right out/left in driveway. This option will accommodate future traffic along Ravinia Avenue as well as providing safe and efficient access to the site driveways. As a result, all eastbound-to-northbound traffic exiting the Costco will have to exit at the North Costco Driveway through the proposed roundabout.

Traffic estimates are projected utilizing growth rates from CMAP that projected traffic volumes to 2050. Traffic estimates were projected to 2025, which is the anticipated build out year, as well as 2050 which accounts for traffic generated by the adjacent developments and the extension of Ravinia Avenue to LaGrange Road. The study area includes the existing signalized intersection of 159th Street and Ravinia Avenue, and the existing unsignalized intersections of 159th Street and Costco Right in/Right out Driveway, North Costco Driveway and Ravinia Avenue, South Costco Driveway and Ravinia Avenue, and 161st Street and LaGrange Road.

Additionally, with the extension of Ravinia Avenue to LaGrange Road during the 2050 future scenario, it is expected that the intersection of LaGrange Road and 161st Street will warrant a traffic signal as well as dual northbound left turn lanes. Therefore, for the purpose of this study, the intersection of LaGrange Road and 161st Street was analyzed as a signalized intersection with an additional northbound left turn lane to accommodate the future 2050 traffic volumes.

Results of the capacity analysis indicate that the signalized intersection of 159th Street and Ravinia Avenue operates at LOS D or better during all three peak hours for all future scenarios. All movements at the unsignalized intersections operate adequately for all future scenarios, with all levels of service remaining at LOS D or better with the exception of the eastbound and westbound left turn movements at 161st Street and LaGrange Road which operates with high delays during all three time periods. The major approaches of 161st Street and LaGrange Road operate at LOS E of better during all three time periods while the overall intersection operates at LOS B during the weekday am peak hour and at LOS C during the weekday pm and Saturday midday peak hours. As the Ravinia Avenue extension is planned and as the new adjacent developments are constructed, it is anticipated that the intersection geometry and traffic signal timing will be reviewed and updated to minimize delays and efficiently move traffic through the area.

Additionally, a 95th percentile queue analysis was conducted and the projected queue lengths for the proposed roundabout at the North Costco Driveway are within the proposed storage lengths. At LaGrange Road and 161st Street, the additional traffic with the Ravinia Avenue extension creates significant queues with the current stop-controlled intersection. When the extension is constructed, it is likely that this intersection will be signalized and the queue lengths will likely be accommodated within the storage lengths.

APPENDIX A

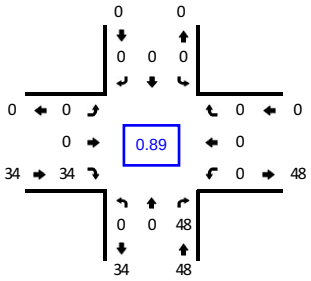
EXISTING TRAFFIC COUNTS

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

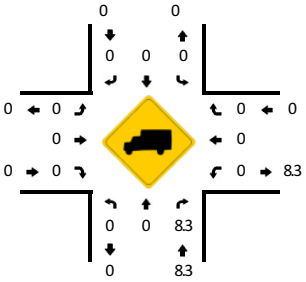
LOCATION: Costco RIRO Dwy -- 159th St
CITY/STATE: Orland Park, IL

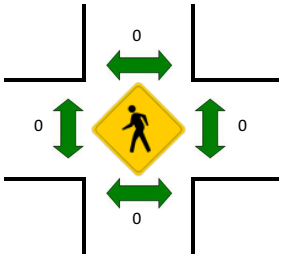
QC JOB #: 16665811
DATE: Thu, Aug 1 2024

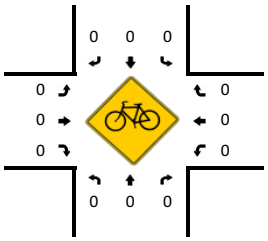
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

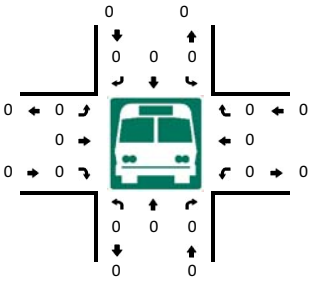


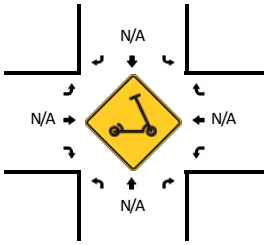
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	Costco RIRO Dwy (Northbound)				Costco RIRO Dwy (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	7	0	0	0	0	0	0	0	9	0	0	0	0	0	16	
7:15 AM	0	0	12	0	0	0	0	0	0	0	4	0	0	0	0	0	16	
7:30 AM	0	0	9	0	0	0	0	0	0	0	4	0	0	0	0	0	13	
7:45 AM	0	0	11	0	0	0	0	0	0	0	5	0	0	0	0	0	16	61
8:00 AM	0	0	11	0	0	0	0	0	0	0	9	0	0	0	0	0	20	65
8:15 AM	0	0	10	0	0	0	0	0	0	0	4	0	0	0	0	0	14	63
8:30 AM	0	0	17	0	0	0	0	0	0	0	11	0	0	0	0	0	28	78
8:45 AM	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	0	20	82

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	68	0	0	0	0	0	0	0	44	0	0	0	0	0	112
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:02 PM

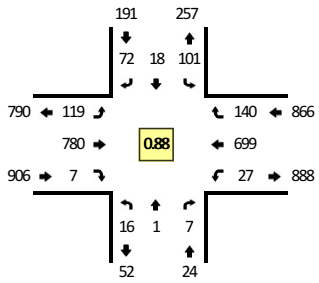
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

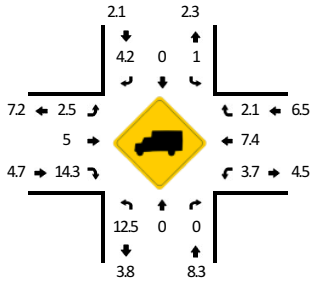
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

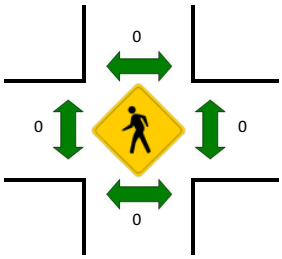
LOCATION: S Ravinia Ave -- 159th St
CITY/STATE: Orland Park, IL

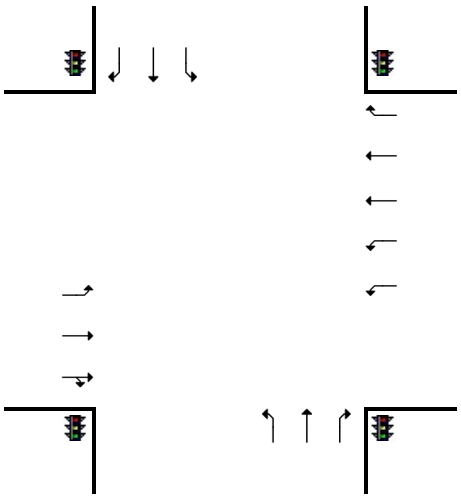
QC JOB #: 16665812
DATE: Thu, Aug 1 2024

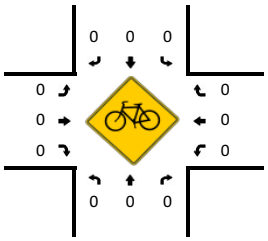
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

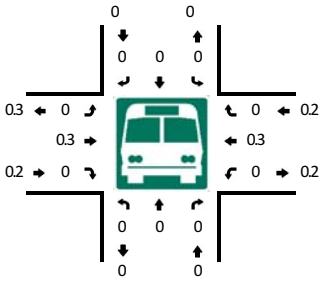


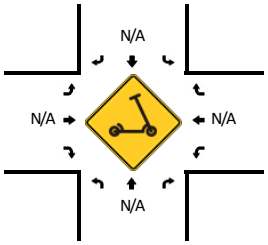












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	0	2	0	22	3	13	0	10	122	1	0	5	105	16	0	303	
7:15 AM	1	0	1	0	16	4	5	0	17	152	0	0	4	174	35	1	410	
7:30 AM	0	0	1	0	26	3	11	0	22	159	1	1	7	155	27	1	414	
7:45 AM	3	0	2	0	26	5	20	0	40	214	0	0	8	184	60	0	562	1689
8:00 AM	1	0	1	0	18	3	16	0	27	184	1	1	4	177	31	0	464	1850
8:15 AM	3	0	1	0	25	3	25	0	32	154	3	0	10	189	47	0	492	1932
8:30 AM	5	1	4	0	24	6	15	0	21	192	2	1	4	165	24	0	464	1982
8:45 AM	7	0	1	0	34	6	16	0	36	250	1	1	9	168	38	0	567	1987

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	0	4	0	136	24	64	0	144	1000	4	4	36	672	152	0	2268
Heavy Trucks	8	0	0		0	0	4		8	56	0		0	48	4		128
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:02 PM

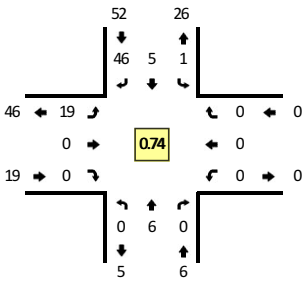
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

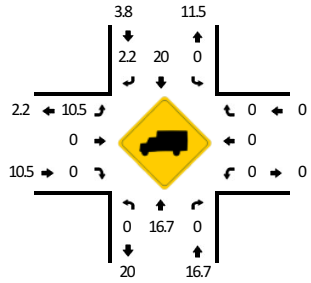
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

LOCATION: S Ravinia Ave -- North Costco Dwy
CITY/STATE: Orland Park, IL

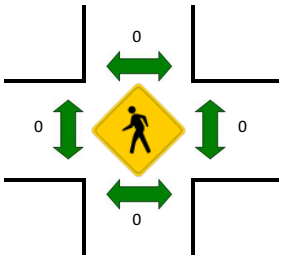
QC JOB #: 16665813
DATE: Thu, Aug 1 2024

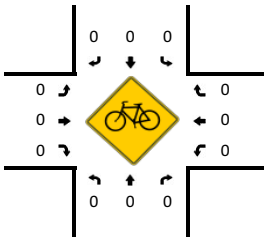
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

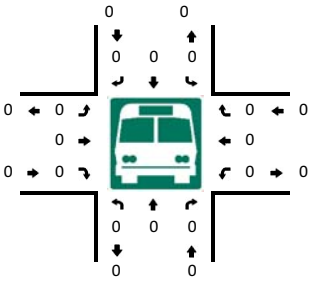


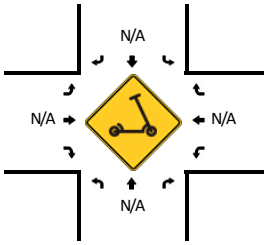


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				North Costco Dwy (Eastbound)				North Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	2	7	0	5	0	0	0	0	0	0	0	14	
7:15 AM	0	1	0	0	0	1	7	0	1	0	0	0	0	0	0	0	10	
7:30 AM	0	0	0	0	0	4	5	0	1	0	0	0	0	0	0	0	10	
7:45 AM	0	0	0	0	0	4	10	1	4	0	0	0	0	0	0	0	19	53
8:00 AM	0	1	0	0	0	2	6	0	2	0	0	0	0	0	0	0	11	50
8:15 AM	0	1	0	0	0	1	15	0	3	0	0	0	0	0	0	0	20	60
8:30 AM	0	2	0	0	0	1	10	0	7	0	0	0	0	0	0	0	20	70
8:45 AM	0	2	0	0	0	1	15	1	7	0	0	0	0	0	0	0	26	77

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	8	0	0	0	4	60	4	28	0	0	0	0	0	0	0	104
Heavy Trucks	0	4	0		0	0	0		4	0	0		0	0	0		8
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:02 PM

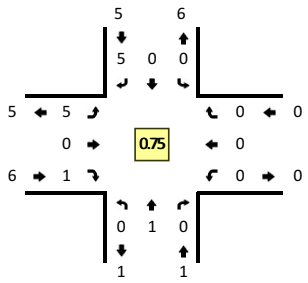
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

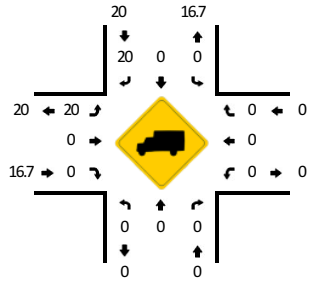
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

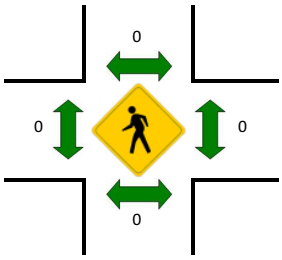
LOCATION: S Ravinia Ave -- South Costco Dwy
CITY/STATE: Orland Park, IL

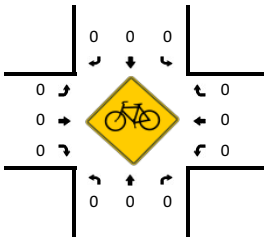
QC JOB #: 16665814
DATE: Thu, Aug 1 2024

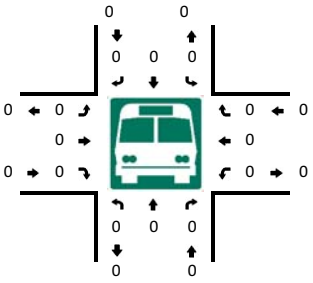
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

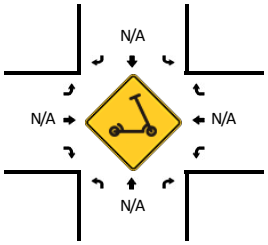












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				South Costco Dwy (Eastbound)				South Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	
7:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	
7:30 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	
7:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	12
8:00 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3	13
8:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	13
8:30 AM	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0	0	4	13
8:45 AM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	12

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	4	0	0	0	0	4	0	4	0	4	0	0	0	0	0	16
Heavy Trucks	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
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:02 PM

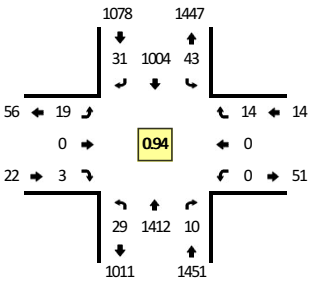
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

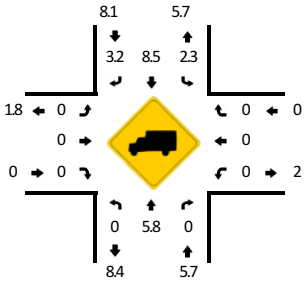
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

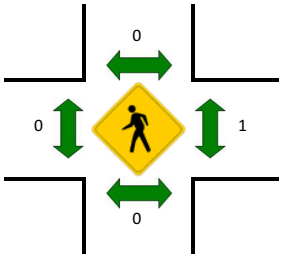
LOCATION: 96th Ave/LaGrange Rd -- 161st St
CITY/STATE: Orland Park, IL

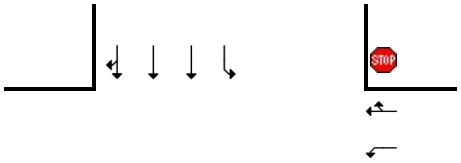
QC JOB #: 16665815
DATE: Thu, Aug 1 2024

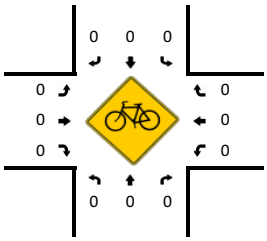
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

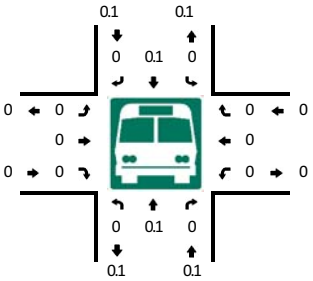


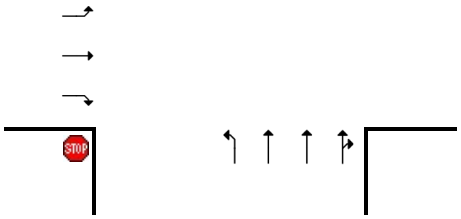


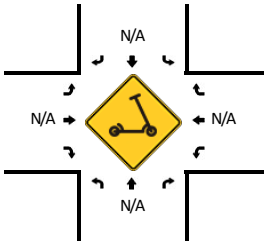












15-Min Count Period Beginning At	96th Ave/LaGrange Rd (Northbound)				96th Ave/LaGrange Rd (Southbound)				161st St (Eastbound)				161st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	227	2	0	4	211	4	2	7	1	0	0	1	0	0	0	461	
7:15 AM	4	288	1	0	5	211	4	1	3	0	0	0	0	0	4	0	521	
7:30 AM	5	312	3	0	4	262	7	0	5	0	3	0	0	0	0	0	601	
7:45 AM	6	341	5	1	9	271	8	0	8	0	1	0	0	0	2	0	652	2235
8:00 AM	3	335	2	0	1	229	8	1	7	0	1	0	0	0	0	0	587	2361
8:15 AM	8	378	1	1	9	236	9	0	3	0	2	0	0	0	4	0	651	2491
8:30 AM	7	339	3	0	12	269	7	0	3	0	0	0	0	0	4	0	644	2534
8:45 AM	7	360	4	3	19	270	7	1	6	0	0	0	0	0	6	0	683	2565

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	1440	16	12	76	1080	28	4	24	0	0	0	0	0	24	0	2732
Heavy Trucks	0	88	0		0	112	0		0	0	0		0	0	0		200
Buses	0	0	0		0	4	0		0	0	0		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:02 PM

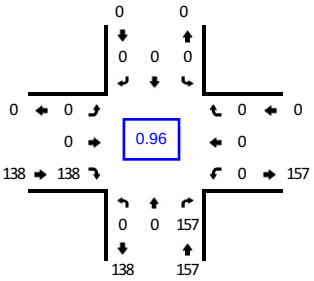
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

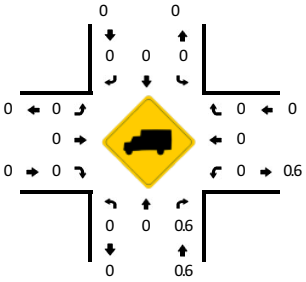
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

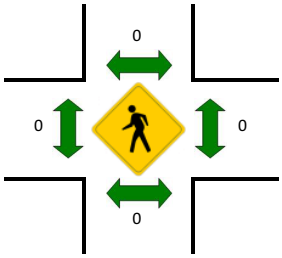
LOCATION: Costco RIRO Dwy -- 159th St
CITY/STATE: Orland Park, IL

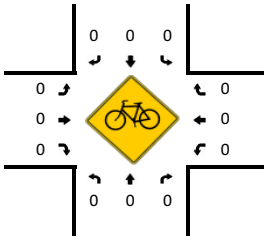
QC JOB #: 16665801
DATE: Thu, Aug 1 2024

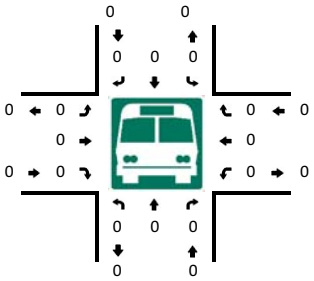
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

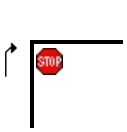


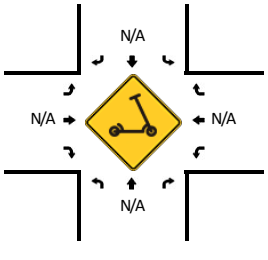












15-Min Count Period Beginning At	Costco RIRO Dwy (Northbound)				Costco RIRO Dwy (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	39	0	0	0	0	0	0	0	37	0	0	0	0	0	76	
3:15 PM	0	0	46	0	0	0	0	0	0	0	28	0	0	0	0	0	74	
3:30 PM	0	0	43	0	0	0	0	0	0	0	31	0	0	0	0	0	74	
3:45 PM	0	0	35	0	0	0	0	0	0	0	33	0	0	0	0	0	68	292
4:00 PM	0	0	47	0	0	0	0	0	0	0	31	0	0	0	0	0	78	294
4:15 PM	0	0	38	0	0	0	0	0	0	0	27	0	0	0	0	0	65	285
4:30 PM	0	0	34	0	0	0	0	0	0	0	34	0	0	0	0	0	68	279
4:45 PM	0	0	39	0	0	0	0	0	0	0	33	0	0	0	0	0	72	283
5:00 PM	0	0	40	0	0	0	0	0	0	0	37	0	0	0	0	0	77	282
5:15 PM	0	0	44	0	0	0	0	0	0	0	34	0	0	0	0	0	78	295
5:30 PM	0	0	37	0	0	0	0	0	0	0	32	0	0	0	0	0	69	296
5:45 PM	0	0	38	0	0	0	0	0	0	0	31	0	0	0	0	0	69	293
6:00 PM	0	0	39	0	0	0	0	0	0	0	27	0	0	0	0	0	66	282
6:15 PM	0	0	30	0	0	0	0	0	0	0	25	0	0	0	0	0	55	259
6:30 PM	0	0	29	0	0	0	0	0	0	0	27	0	0	0	0	0	56	246
6:45 PM	0	0	37	0	0	0	0	0	0	0	29	0	0	0	0	0	66	243

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	176	0	0	0	0	0	0	0	136	0	0	0	0	0	312
Heavy Trucks	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
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

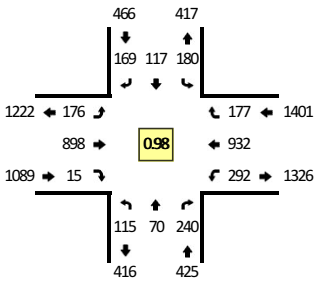
Report generated on 8/26/2024 12:12 PM

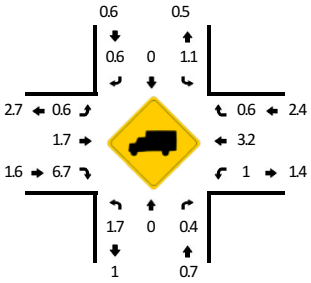
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

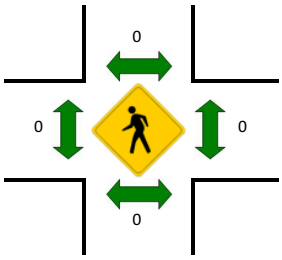
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

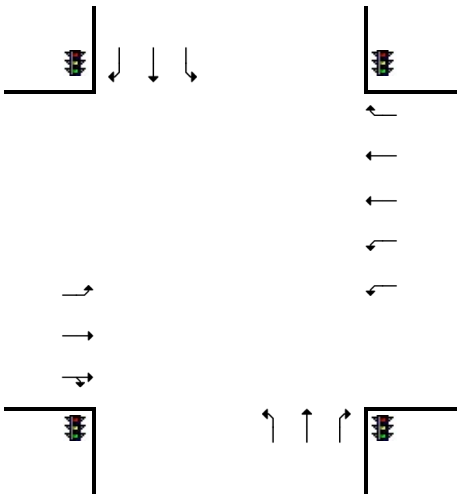
LOCATION: S Ravinia Ave -- 159th St | **QC JOB #:** 16665803
CITY/STATE: Orland Park, IL | **DATE:** Thu, Aug 1 2024

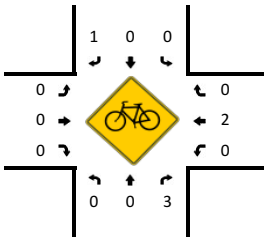
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

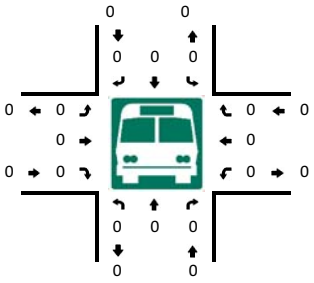


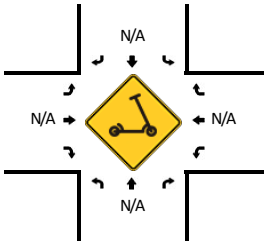












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	33	26	73	0	39	27	36	0	39	196	3	3	85	179	42	1	782	
3:15 PM	33	20	68	0	41	43	36	0	49	229	1	4	84	224	38	0	870	
3:30 PM	43	22	67	0	56	23	39	0	52	217	9	1	80	185	51	0	845	
3:45 PM	27	15	61	0	39	29	45	0	42	228	3	5	87	229	45	0	855	3352
4:00 PM	30	25	58	0	39	25	32	0	42	217	3	2	75	234	51	0	833	3403
4:15 PM	28	23	76	0	32	38	40	0	49	197	5	4	74	226	44	0	836	3369
4:30 PM	37	15	45	0	51	20	43	0	43	226	4	2	67	250	40	4	847	3371
4:45 PM	29	17	67	0	39	34	43	0	42	221	6	2	84	206	39	1	830	3346
5:00 PM	27	19	65	0	47	29	46	0	47	208	2	0	75	221	51	2	839	3352
5:15 PM	22	19	63	0	43	34	37	0	38	243	3	2	58	255	47	1	865	3381
5:30 PM	31	19	56	0	43	31	36	0	38	228	0	6	74	217	44	1	824	3358
5:45 PM	25	25	52	0	42	27	51	0	27	224	6	2	66	207	40	2	796	3324
6:00 PM	23	19	69	0	41	33	31	0	50	217	3	2	69	216	40	1	814	3299
6:15 PM	9	11	25	0	42	13	38	0	27	211	7	7	66	170	40	2	668	3102
6:30 PM	36	31	75	0	18	17	35	0	26	194	4	2	64	230	36	0	768	3046
6:45 PM	24	13	58	0	21	21	35	0	34	189	2	2	64	213	29	1	706	2956

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	76	252	0	172	136	148	0	152	972	12	8	232	1020	188	4	3460
Heavy Trucks	0	0	0		4	0	0		0	8	0		0	36	0		48
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

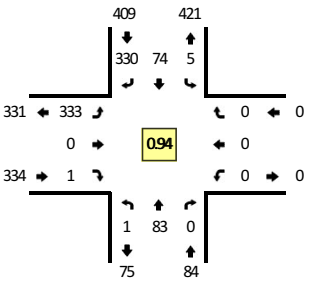
Report generated on 8/26/2024 12:12 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

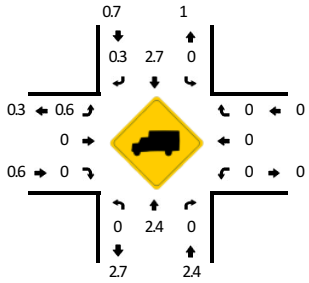
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

LOCATION: S Ravinia Ave -- North Costco Dwy
CITY/STATE: Orland Park, IL

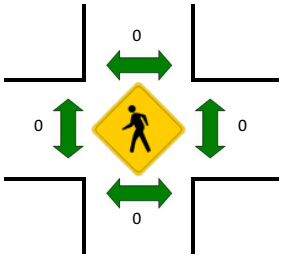
QC JOB #: 16665805
DATE: Thu, Aug 1 2024

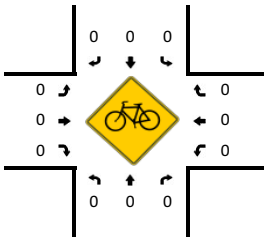
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

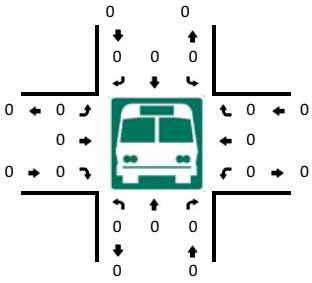


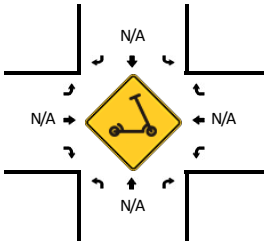


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				North Costco Dwy (Eastbound)				North Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	26	0	0	0	14	97	0	107	0	0	0	0	0	0	0	244	
3:15 PM	0	16	0	0	0	28	93	1	100	0	0	0	0	0	0	0	238	
3:30 PM	0	38	0	0	0	29	84	1	96	0	1	0	0	0	0	0	249	
3:45 PM	0	17	0	0	0	25	97	0	85	0	1	0	0	0	0	0	225	956
4:00 PM	0	22	0	0	0	20	83	0	100	0	0	0	0	0	0	0	225	937
4:15 PM	0	22	0	0	0	21	93	3	96	0	0	0	0	0	0	0	235	934
4:30 PM	0	23	0	0	0	15	76	0	81	0	0	0	0	0	0	0	195	880
4:45 PM	1	21	0	0	0	26	90	1	81	0	1	0	0	0	0	0	221	876
5:00 PM	0	20	0	0	0	22	86	2	89	0	0	0	0	0	0	0	219	870
5:15 PM	0	19	0	0	0	11	78	2	82	0	0	0	0	0	0	0	192	827
5:30 PM	0	19	0	0	0	14	88	0	84	0	0	0	0	0	0	0	205	837
5:45 PM	0	15	0	0	0	19	83	0	88	0	0	0	0	0	0	0	205	821
6:00 PM	0	20	0	0	0	11	89	2	86	0	0	0	0	0	0	0	208	810
6:15 PM	0	13	0	0	0	8	81	1	38	0	1	0	0	0	0	0	142	760
6:30 PM	0	25	0	0	0	16	67	3	112	0	0	0	0	0	0	0	223	778
6:45 PM	0	13	0	0	0	13	70	0	81	0	0	0	0	0	0	0	177	750

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	84	0	0	0	104	360	4	324	0	4	0	0	0	0	0	884
Heavy Trucks	0	4	0		0	4	0		0	0	0		0	0	0		8
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:12 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

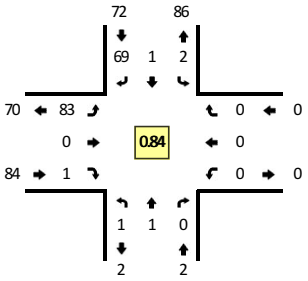
Type of peak hour being reported: System-wide Peak

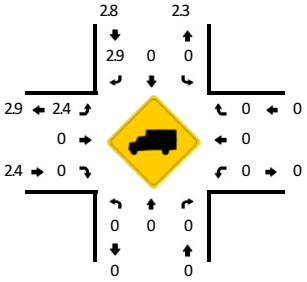
Method for determining peak hour: Total Entering Volume

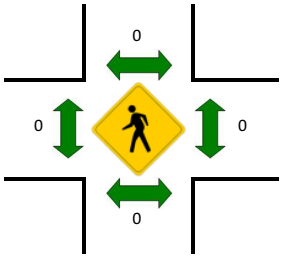
LOCATION: S Ravinia Ave -- South Costco Dwy
CITY/STATE: Orland Park, IL

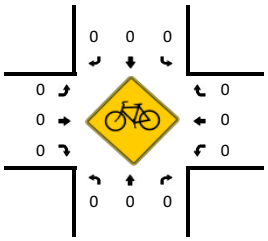
QC JOB #: 16665807
DATE: Thu, Aug 1 2024

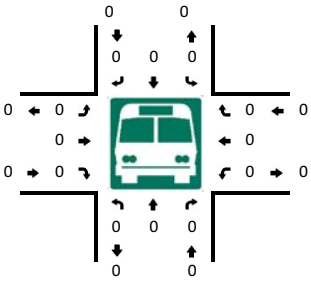
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

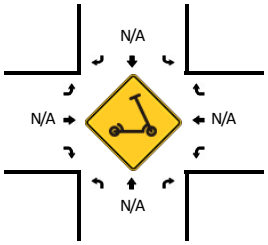












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				South Costco Dwy (Eastbound)				South Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	0	0	14	0	28	0	0	0	0	0	0	0	42	
3:15 PM	0	0	0	0	0	0	28	0	16	0	0	0	0	0	0	0	44	
3:30 PM	0	0	0	0	0	0	28	1	35	0	0	0	0	0	0	0	64	
3:45 PM	0	0	0	0	0	0	25	0	16	0	0	0	0	0	0	0	41	191
4:00 PM	0	0	0	0	0	1	16	3	20	0	0	0	0	0	0	0	40	189
4:15 PM	1	0	0	0	0	0	21	0	21	0	1	0	0	0	0	0	44	189
4:30 PM	1	1	0	0	0	1	13	1	21	0	1	0	0	0	0	0	39	164
4:45 PM	0	0	0	0	0	0	25	0	22	0	0	0	0	0	0	0	47	170
5:00 PM	0	0	0	0	0	0	21	1	19	0	0	0	0	0	0	0	41	171
5:15 PM	0	0	0	0	0	0	10	0	21	0	0	0	0	0	0	0	31	158
5:30 PM	0	1	0	0	0	0	15	0	16	0	0	0	0	0	0	0	32	151
5:45 PM	0	0	0	0	0	0	19	0	17	0	0	0	0	0	0	0	36	140
6:00 PM	0	0	0	0	0	0	11	0	19	0	0	0	0	0	0	0	30	129
6:15 PM	0	0	0	0	0	0	6	1	12	0	0	0	0	0	0	0	19	117
6:30 PM	0	0	0	0	0	0	18	0	25	0	0	0	0	0	0	0	43	128
6:45 PM	0	0	0	0	0	0	13	0	13	0	0	0	0	0	0	0	26	118

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	100	0	88	0	0	0	0	0	0	0	188
Heavy Trucks	0	0	0		0	0	4		4	0	0		0	0	0		8
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:12 PM

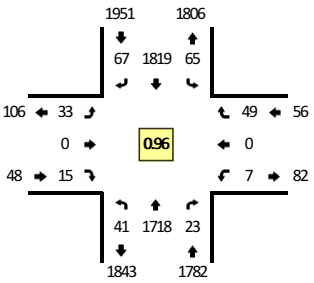
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

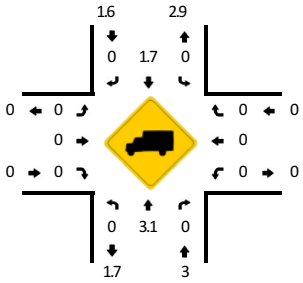
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

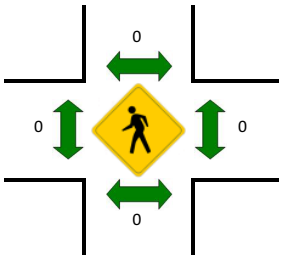
LOCATION: 96th Ave/LaGrange Rd -- 161st St
CITY/STATE: Orland Park, IL

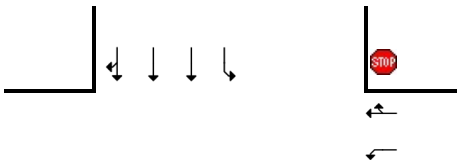
QC JOB #: 16665809
DATE: Thu, Aug 1 2024

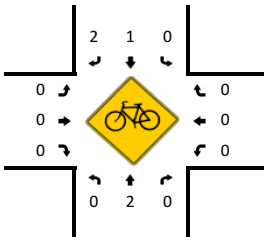
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

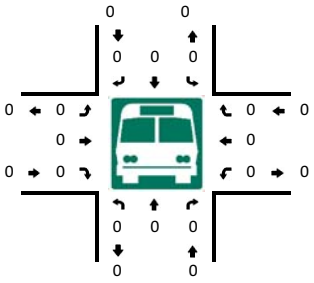


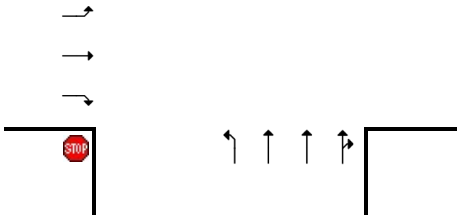


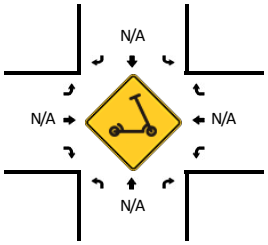












15-Min Count Period Beginning At	96th Ave/LaGrange Rd (Northbound)				96th Ave/LaGrange Rd (Southbound)				161st St (Eastbound)				161st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	11	409	4	0	7	446	6	5	8	0	3	0	3	0	12	0	914	
3:15 PM	6	398	1	0	10	418	10	3	6	0	3	0	2	0	9	0	866	
3:30 PM	4	410	5	0	16	447	6	0	9	0	4	0	3	0	9	0	913	
3:45 PM	12	424	4	0	17	411	8	2	5	0	2	0	2	0	15	0	902	3595
4:00 PM	8	409	2	0	18	433	19	6	6	0	8	0	1	0	13	0	923	3604
4:15 PM	11	381	5	1	10	447	18	3	6	0	4	0	3	0	13	0	902	3640
4:30 PM	12	443	6	0	14	433	16	2	7	0	4	0	4	0	12	0	953	3680
4:45 PM	13	426	6	1	14	477	17	2	7	0	3	0	1	0	12	0	979	3757
5:00 PM	6	415	4	1	10	427	18	1	10	0	5	0	1	0	12	0	910	3744
5:15 PM	8	434	7	0	21	482	16	1	9	0	3	0	1	0	13	0	995	3837
5:30 PM	8	395	1	2	9	404	26	8	5	0	11	0	3	0	13	0	885	3769
5:45 PM	10	383	10	1	25	410	14	2	7	0	5	0	2	0	18	0	887	3677
6:00 PM	10	372	6	2	18	416	19	3	13	0	12	0	3	0	12	0	886	3653
6:15 PM	14	326	9	3	17	391	18	2	6	0	16	0	1	1	13	0	817	3475
6:30 PM	8	376	5	0	11	365	12	3	3	1	6	0	2	0	20	0	812	3402
6:45 PM	10	348	8	1	7	337	10	0	14	1	9	0	3	0	16	0	764	3279

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	1736	28	0	84	1928	64	4	36	0	12	0	4	0	52	0	3980
Heavy Trucks	0	32	0		0	32	0		0	0	0		0	0	0		64
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:13 PM

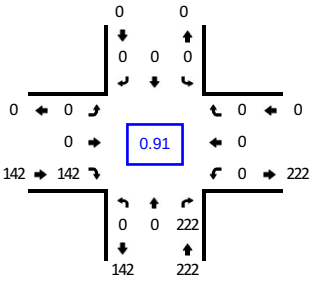
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

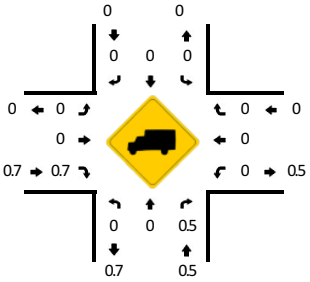
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Costco RIRO Dwy -- 159th St
CITY/STATE: Orland Park, IL

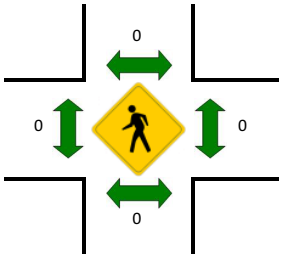
QC JOB #: 16665802
DATE: Sat, Aug 3 2024

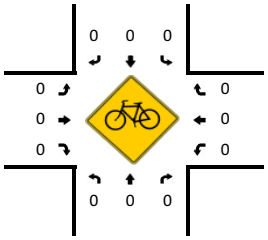
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:45 PM -- 1:00 PM

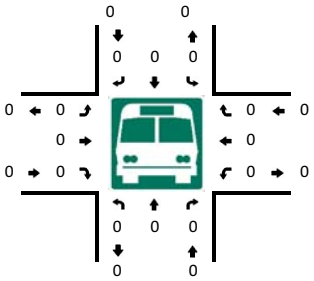


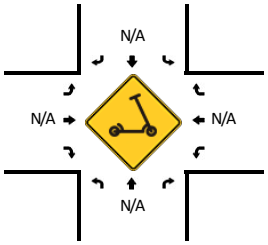


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	Costco RIRO Dwy (Northbound)				Costco RIRO Dwy (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	42	0	0	0	0	0	0	0	50	0	0	0	0	0	92	
11:15 AM	0	0	46	0	0	0	0	0	0	0	48	0	0	0	0	0	94	
11:30 AM	0	0	42	0	0	0	0	0	0	0	41	0	0	0	0	0	83	
11:45 AM	0	0	42	0	0	0	0	0	0	0	45	0	0	0	0	0	87	356
12:00 PM	0	0	49	0	0	0	0	0	0	0	38	0	0	0	0	0	87	351
12:15 PM	0	0	55	0	0	0	0	0	0	0	38	0	0	0	0	0	93	350
12:30 PM	0	0	49	0	0	0	0	0	0	0	39	0	0	0	0	0	88	355
12:45 PM	0	0	57	0	0	0	0	0	0	0	37	0	0	0	0	0	94	362
1:00 PM	0	0	61	0	0	0	0	0	0	0	28	0	0	0	0	0	89	364
1:15 PM	0	0	44	0	0	0	0	0	0	0	36	0	0	0	0	0	80	351
1:30 PM	0	0	59	0	0	0	0	0	0	0	35	0	0	0	0	0	94	357
1:45 PM	0	0	52	0	0	0	0	0	0	0	40	0	0	0	0	0	92	355
2:00 PM	0	0	49	0	0	0	0	0	0	0	38	0	0	0	0	0	87	353
2:15 PM	0	0	49	0	0	0	0	0	0	0	26	0	0	0	0	0	75	348
2:30 PM	0	0	37	0	0	0	0	0	0	0	31	0	0	0	0	0	68	322
2:45 PM	0	0	55	0	0	0	0	0	0	0	35	0	0	0	0	0	90	320

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	228	0	0	0	0	0	0	0	148	0	0	0	0	0	376
Heavy Trucks	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
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

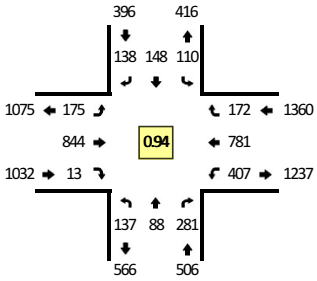
Report generated on 8/26/2024 12:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

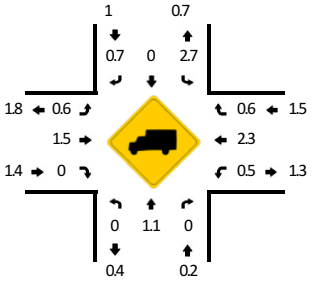
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

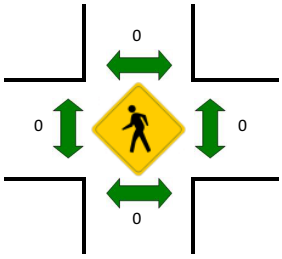
LOCATION: S Ravinia Ave -- 159th St | **QC JOB #:** 16665804
CITY/STATE: Orland Park, IL | **DATE:** Sat, Aug 3 2024

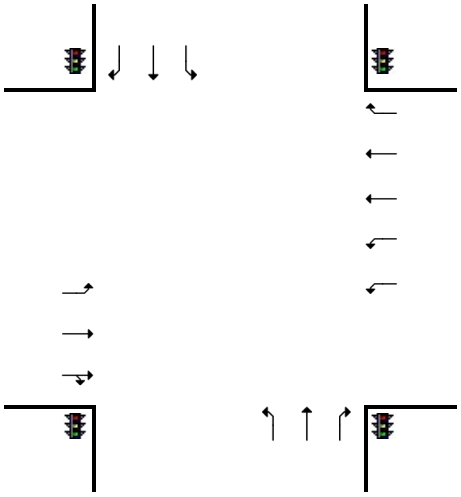
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 1:00 PM -- 1:15 PM

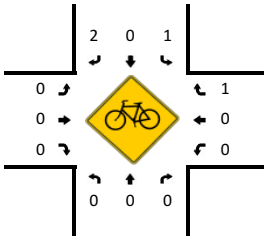


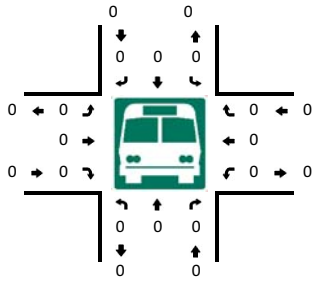
TRUE DATA TO IMPROVE MOBILITY

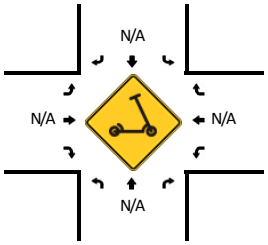












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				159th St (Eastbound)				159th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	34	15	55	0	32	39	29	0	39	185	6	3	108	175	38	0	758	
11:15 AM	31	23	79	0	24	34	26	0	37	213	5	2	113	172	40	1	800	
11:30 AM	31	15	64	0	36	32	19	0	31	221	3	7	79	203	38	1	780	
11:45 AM	34	27	77	0	34	41	31	0	49	194	6	4	120	180	45	0	842	3180
12:00 PM	36	30	82	0	37	41	34	0	54	202	4	3	108	157	43	1	832	3254
12:15 PM	31	23	47	0	23	30	29	0	42	246	2	3	93	201	50	1	821	3275
12:30 PM	31	27	90	0	19	49	38	0	39	195	1	4	105	192	49	0	839	3334
12:45 PM	30	23	63	0	35	34	40	0	39	187	7	3	109	153	34	1	758	3250
1:00 PM	45	15	81	0	33	35	31	0	36	216	3	9	98	235	39	0	876	3294
1:15 PM	21	22	79	0	25	27	46	0	46	189	5	1	89	166	34	3	753	3226
1:30 PM	18	19	71	0	40	37	39	0	55	215	4	3	79	195	42	0	817	3204
1:45 PM	36	18	84	0	26	33	39	0	41	188	4	4	96	175	50	1	795	3241
2:00 PM	33	28	66	0	34	32	38	0	52	204	2	5	108	201	53	1	857	3222
2:15 PM	19	22	76	0	23	42	37	2	30	196	3	6	86	194	42	0	778	3247
2:30 PM	26	17	51	0	37	25	33	0	46	222	1	1	76	221	45	0	801	3231
2:45 PM	31	25	77	0	24	38	37	0	37	204	3	0	91	187	52	1	807	3243

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	60	324	0	132	140	124	0	144	864	12	36	392	940	156	0	3504
Heavy Trucks	0	0	0		0	0	0		4	8	0		4	32	0		48
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		4	0	0		0	0	0		0	0	4		8
Scooters																	

Comments:

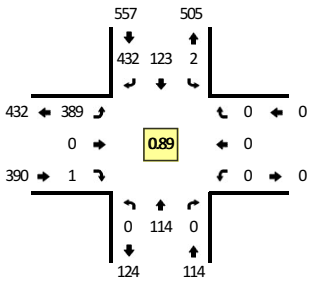
Report generated on 8/26/2024 12:16 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

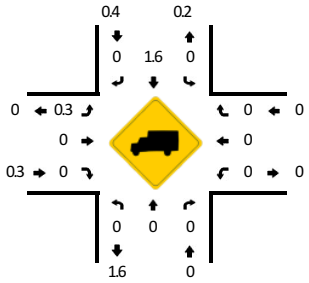
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

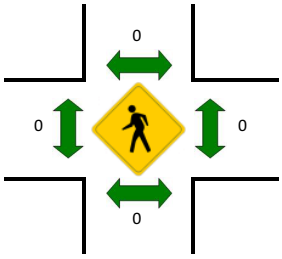
LOCATION: S Ravinia Ave -- North Costco Dwy
CITY/STATE: Orland Park, IL

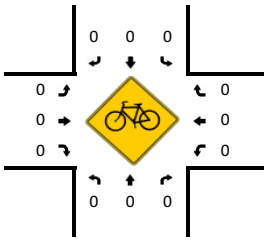
QC JOB #: 16665806
DATE: Sat, Aug 3 2024

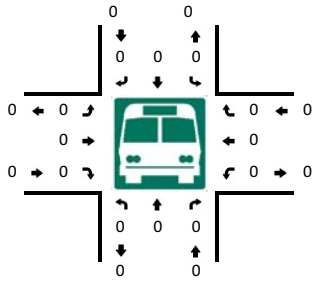
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:30 PM -- 12:45 PM

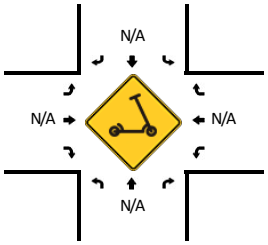












15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				North Costco Dwy (Eastbound)				North Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	22	0	0	0	30	125	1	84	0	0	0	0	0	0	0	262	
11:15 AM	0	30	0	0	0	35	118	1	101	0	1	0	0	0	0	0	286	
11:30 AM	0	32	0	0	0	18	98	1	89	0	0	0	0	0	0	0	238	
11:45 AM	0	22	0	0	0	36	126	0	110	0	0	0	0	0	0	0	294	1080
12:00 PM	0	24	0	0	0	28	119	0	114	0	0	0	0	0	0	0	285	1103
12:15 PM	0	27	0	0	0	23	103	0	81	0	0	0	0	0	0	0	234	1051
12:30 PM	0	32	0	0	0	43	111	0	111	0	0	0	0	0	0	0	297	1110
12:45 PM	0	20	0	0	0	36	116	1	91	0	1	0	0	0	0	0	265	1081
1:00 PM	0	35	0	0	0	21	102	1	106	0	0	0	0	0	0	0	265	1061
1:15 PM	0	15	0	0	0	25	96	0	106	0	0	0	0	0	0	0	242	1069
1:30 PM	0	24	0	0	0	26	102	1	85	0	0	0	0	0	0	0	238	1010
1:45 PM	0	33	0	0	0	26	106	2	100	0	0	0	0	0	0	0	267	1012
2:00 PM	0	28	0	0	0	33	104	1	95	0	1	0	0	0	0	0	262	1009
2:15 PM	0	28	0	0	0	24	105	0	93	0	1	0	0	0	0	0	251	1018
2:30 PM	0	21	0	0	0	25	83	0	78	0	0	0	0	0	0	0	207	987
2:45 PM	0	27	0	0	0	28	103	1	101	0	3	0	0	0	0	0	263	983

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	128	0	0	0	172	444	0	444	0	0	0	0	0	0	0	1188
Heavy Trucks	0	0	0		0	4	0		4	0	0		0	0	0		8
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:16 PM

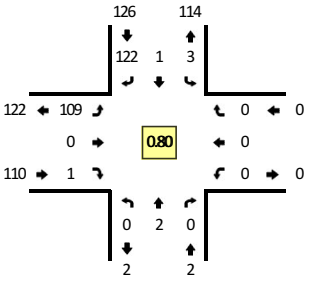
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

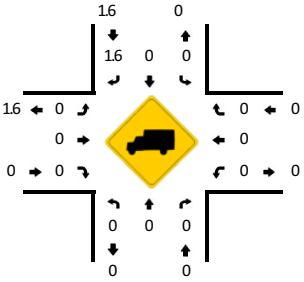
LOCATION: S Ravinia Ave -- South Costco Dwy
CITY/STATE: Orland Park, IL

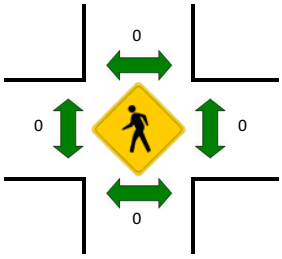
QC JOB #: 16665808
DATE: Sat, Aug 3 2024

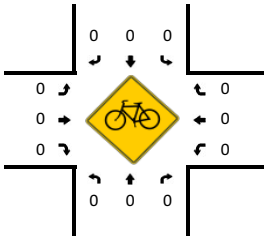
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:30 PM -- 12:45 PM

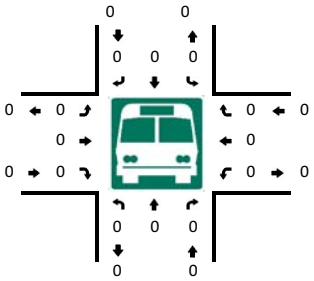


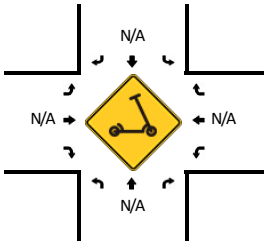
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	S Ravinia Ave (Northbound)				S Ravinia Ave (Southbound)				South Costco Dwy (Eastbound)				South Costco Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	0	30	0	21	0	0	0	0	0	0	0	51	
11:15 AM	0	0	0	0	0	0	33	3	27	0	0	0	0	0	0	0	63	
11:30 AM	0	0	0	0	0	0	18	0	32	0	0	0	0	0	0	0	50	
11:45 AM	0	0	0	0	0	0	36	0	22	0	0	0	0	0	0	0	58	222
12:00 PM	0	0	0	0	0	0	25	0	24	0	0	0	0	0	0	0	49	220
12:15 PM	0	1	0	0	0	0	25	1	26	0	1	0	0	0	0	0	54	211
12:30 PM	0	0	0	0	0	0	43	0	31	0	0	0	0	0	0	0	74	235
12:45 PM	0	0	0	0	0	0	34	1	19	0	0	0	0	0	0	0	54	231
1:00 PM	0	1	0	0	0	1	20	1	33	0	0	0	0	0	0	0	56	238
1:15 PM	0	0	0	0	0	0	26	0	15	0	0	0	0	0	0	0	41	225
1:30 PM	0	2	0	0	0	1	24	0	22	0	1	0	0	0	0	0	50	201
1:45 PM	0	0	0	0	0	0	25	2	31	0	0	0	0	0	0	0	58	205
2:00 PM	0	0	0	0	0	0	33	1	27	0	0	0	0	0	0	0	61	210
2:15 PM	0	0	0	0	0	0	23	2	27	0	0	0	0	0	0	0	52	221
2:30 PM	0	1	0	0	0	1	24	0	19	0	0	0	0	0	0	0	45	216
2:45 PM	0	0	0	0	0	0	29	1	26	0	0	0	0	0	0	0	56	214

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	172	0	124	0	0	0	0	0	0	0	296
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	0		4
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/26/2024 12:16 PM

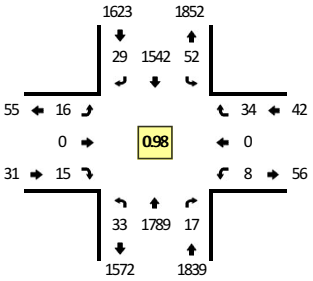
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

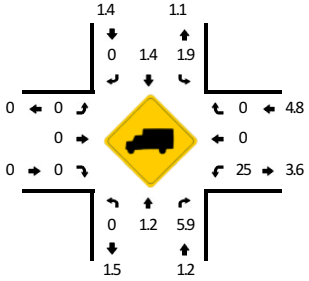
LOCATION: 96th Ave/LaGrange Rd -- 161st St
CITY/STATE: Orland Park, IL

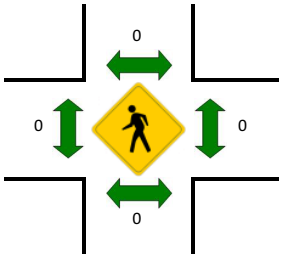
QC JOB #: 16665810
DATE: Sat, Aug 3 2024

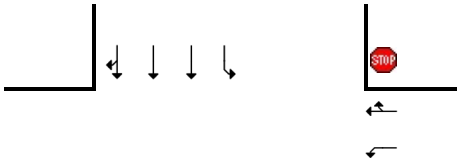
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:15 PM -- 12:30 PM

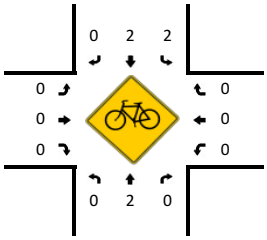


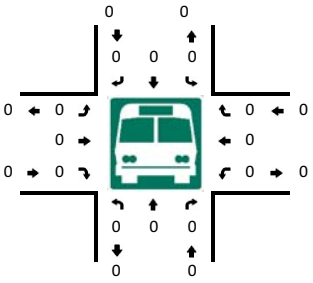
TRUE DATA TO IMPROVE MOBILITY

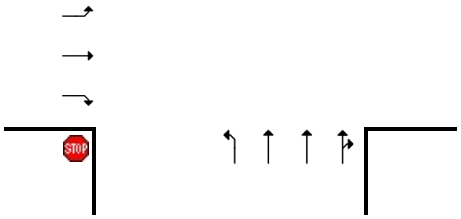


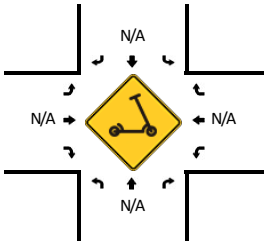












15-Min Count Period Beginning At	96th Ave/LaGrange Rd (Northbound)				96th Ave/LaGrange Rd (Southbound)				161st St (Eastbound)				161st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	10	409	4	1	8	316	4	2	8	0	6	0	2	1	5	0	776	
11:15 AM	6	429	4	2	13	321	8	1	7	0	8	0	1	0	9	0	809	
11:30 AM	6	458	6	1	7	326	6	1	9	0	8	0	1	0	6	0	835	
11:45 AM	7	410	3	0	10	336	12	1	9	0	2	0	3	0	7	0	800	3220
12:00 PM	5	454	5	1	9	386	9	5	5	0	9	0	1	0	1	0	890	3334
12:15 PM	6	498	3	3	8	357	4	3	6	0	3	0	1	0	10	0	902	3427
12:30 PM	5	429	4	1	11	390	7	2	4	0	0	0	3	0	6	0	862	3454
12:45 PM	5	434	4	3	6	398	11	5	3	0	6	0	3	0	8	0	886	3540
1:00 PM	10	428	6	0	14	397	7	3	3	0	6	0	1	0	10	0	885	3535
1:15 PM	5	393	4	2	15	363	7	4	9	1	2	0	4	0	4	0	813	3446
1:30 PM	8	412	6	1	12	381	11	5	12	0	5	0	2	0	16	0	871	3455
1:45 PM	3	463	7	2	8	364	9	2	12	1	2	0	0	0	12	0	885	3454
2:00 PM	10	454	2	1	9	404	7	1	5	0	7	0	2	0	13	0	915	3484
2:15 PM	5	381	4	1	8	387	2	5	4	0	7	0	1	1	12	0	818	3489
2:30 PM	6	414	2	1	5	389	5	2	9	0	5	0	1	0	16	0	855	3473
2:45 PM	12	370	4	0	10	402	10	2	10	0	2	0	0	0	11	0	833	3421

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	1992	12	12	32	1428	16	12	24	0	12	0	4	0	40	0	3608
Heavy Trucks	0	20	0		4	20	0		0	0	0		0	0	0		44
Buses	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	4	0		4	0	0		0	0	0		0	0	0		8
Scooters																	

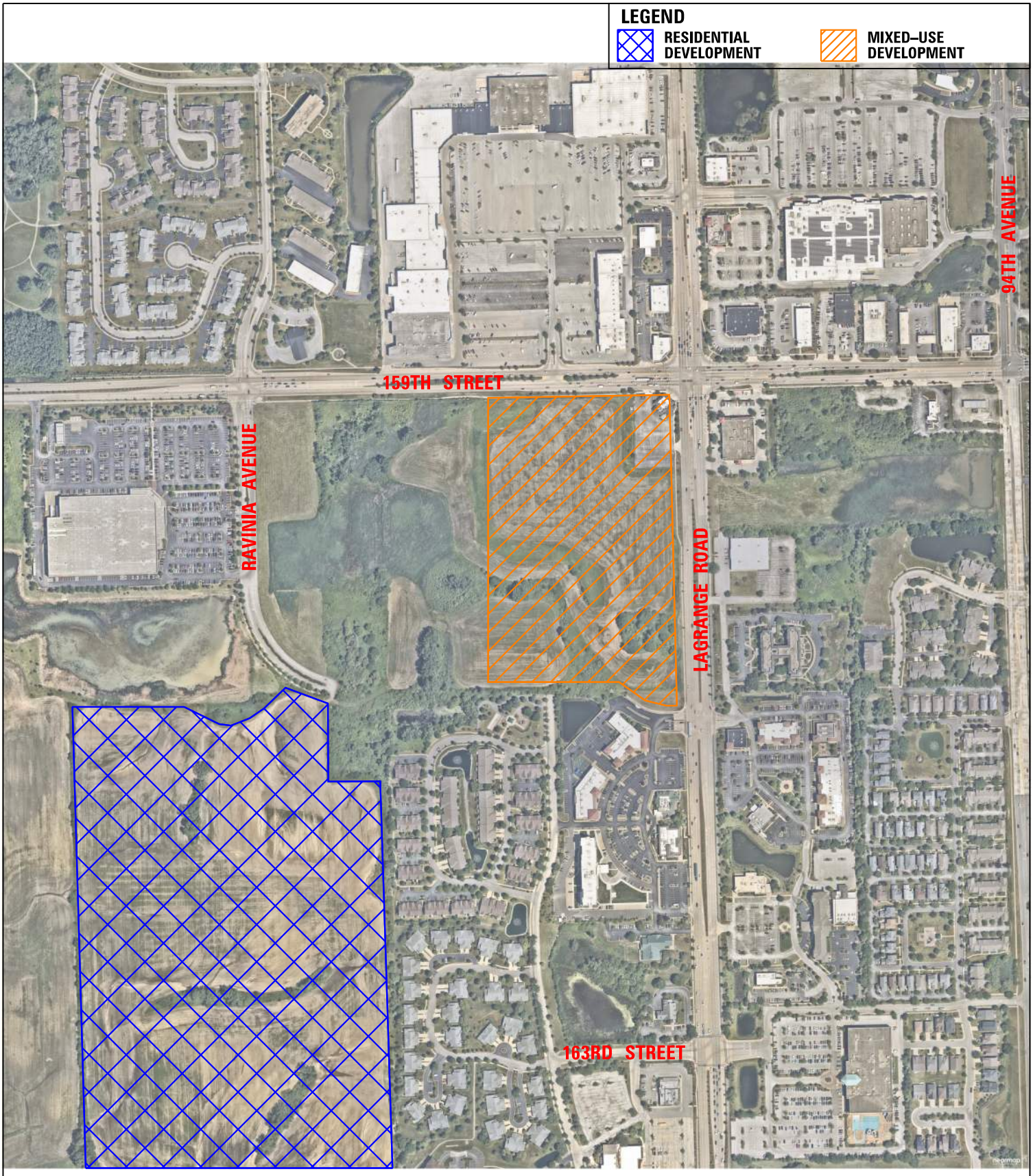
Comments:

Report generated on 8/26/2024 12:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX B

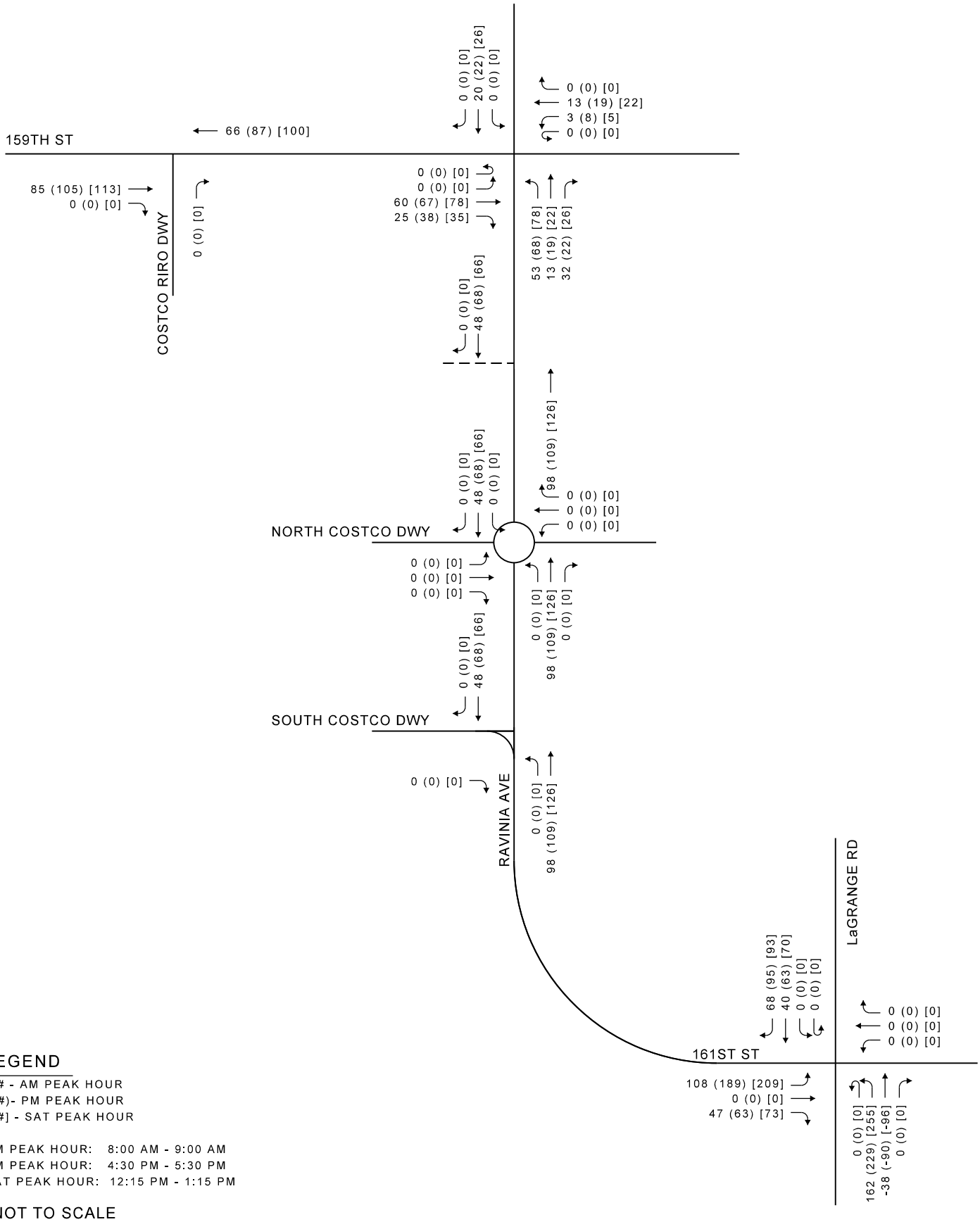
ADJACENT DEVELOPMENT EXCERPTS



COSTCO WHOLESALE
ORLAND PARK, IL #647

EXHIBIT 1
ADJACENT DEVELOPMENT LOCATIONS

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

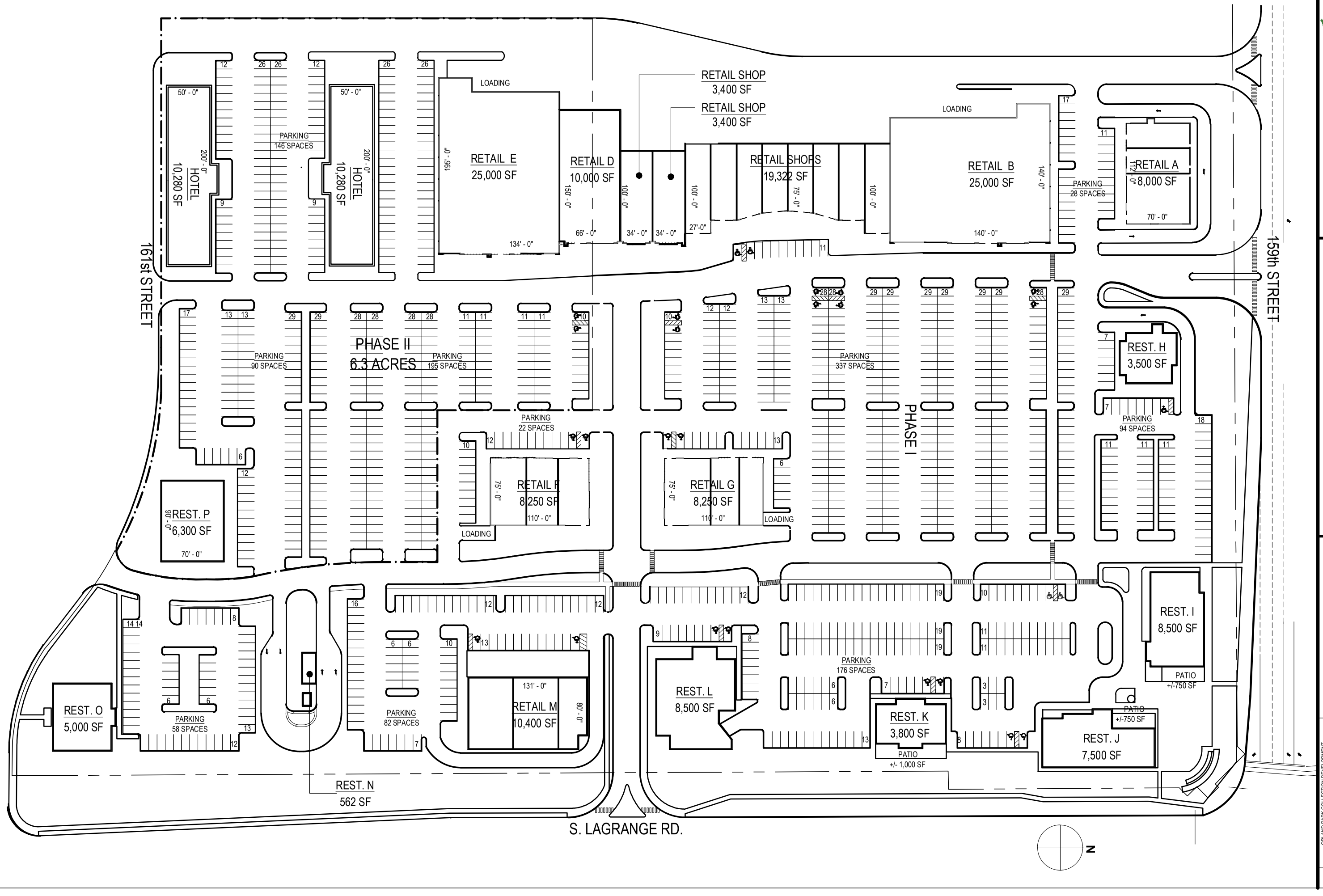
COSTCO WHOLESALE
ORLAND PARK, IL #647

ADJACENT DEVELOPMENT TRAFFIC VOLUMES WITH RAVINIA EXTENSION

ORLAND PARK ILLINOIS

Pete's Market
Store Design Development

LUC	LAND USE	SIZE	Daily	Weekday AM			Weekday PM			Saturday MD		
			Total	In	Out	Total	In	Out	Total	In	Out	Total
310	Hotel	200 Room	**1,744**	52	41	**93**	61	59	**120**	81	63	**144**
	Internal Capture Reduction:		-	-2	-10	-12	-24	-24	-48	-23	-20	-43
	Pass-By Trips:		-	0	0	0	0	0	0	0	0	0
821	Strip Retail Plaza (40-150k) - Retail A, C, D, E, F, G, M	96,022 SF	**8,802**	210	129	**339**	411	444	**855**	436	419	**855**
	Internal Capture Reduction:		-	-22	-17	-39	-71	-74	-145	-126	-131	-257
	Pass-By Trips:		-	-51	-51	-102	-121	-121	-242	-78	-78	-156
850	Supermarket - Retail B	25,000 SF	**2,624**	42	30	**72**	126	125	**251**	164	164	**328**
	Internal Capture Reduction:		-	-4	-4	-8	-22	-21	-43	-47	-51	-98
	Pass-By Trips:		-	0	0	0	-37	-37	-74	-41	-41	-82
930	Fast Casual Restaurant - Retail K	3,800 SF	**369**	3	2	**5**	29	23	**52**	68	56	**124**
	Internal Capture Reduction:		-	0	0	0	-10	-11	-21	-20	-17	-37
	Pass-By Trips:		-	0	0	0	-7	-7	-14	-19	-19	-38
931	Fine Dining Restaurant - Retail L	8,500 SF	**713**	4	2	**6**	44	22	**66**	54	37	**91**
	Internal Capture Reduction:		-	0	0	0	-15	-11	-26	-16	-11	-27
	Pass-By Trips:		-	0	0	0	-9	-9	-18	-14	-14	-28
932	High-Turnover (Sit-Down) Restaurant - Building I, J, O, P	27,300 SF	**2,927**	144	117	**261**	151	96	**247**	156	149	**305**
	Internal Capture Reduction:		-	-14	-12	-26	-52	-46	-98	-45	-47	-92
	Pass-By Trips:		-	0	0	0	-32	-32	-64	-46	-46	-92
934	Fast-Food Restaurant with Drive-Thru Window - Building H	3,500 SF	**1,636**	80	76	**156**	60	56	**116**	99	94	**193**
	Internal Capture Reduction:		-	-8	-8	-16	-21	-27	-48	-29	-29	-58
	Pass-By Trips:		-	-34	-34	-68	-17	-17	-34	-34	-34	-68
938	Coffee/Donut Shop with Drive-Through Window and No Indoor Seating - Building N	1 Drive-Through	**179**	18	18	**36**	8	7	**15**	18	18	**36**
	Internal Capture Reduction:		-	-2	-2	-4	-3	-3	-6	-5	-6	-11
	Pass-By Trips:		-	-14	-14	-28	-4	-4	-8	-11	-11	-22
	Total Trip Generation:		**18,994**	**553**	**415**	**968**	**890**	**832**	**1,722**	**1076**	**1000**	**2,076**
	Less Internal Capture:		*-52*	*-53*	*-105*	*-218*	*-217*	*-435*	*-312*	*-312*	*-623*	
	Internal Capture Rate:		*11%*			*25%*			*30%*			
	Total External Trips		***501***	***362***	***863***	***672***	***615***	***1287***	***765***	***689***	***1453***	
	Less Pass-by:		*-99*	*-99*	*-198*	*-227*	*-227*	*-454*	*-243*	*-243*	*-486*	
	Total New Traffic Generated on Network:		***402***	***263***	***665***	***445***	***388***	***833***	***522***	***446***	***967***	



PETE'S MARKET
STORE DESIGN + DEVELOPMENT
4333 SOUTH PULASKI ROAD
CHICAGO, ILLINOIS 60632
773.843.1400

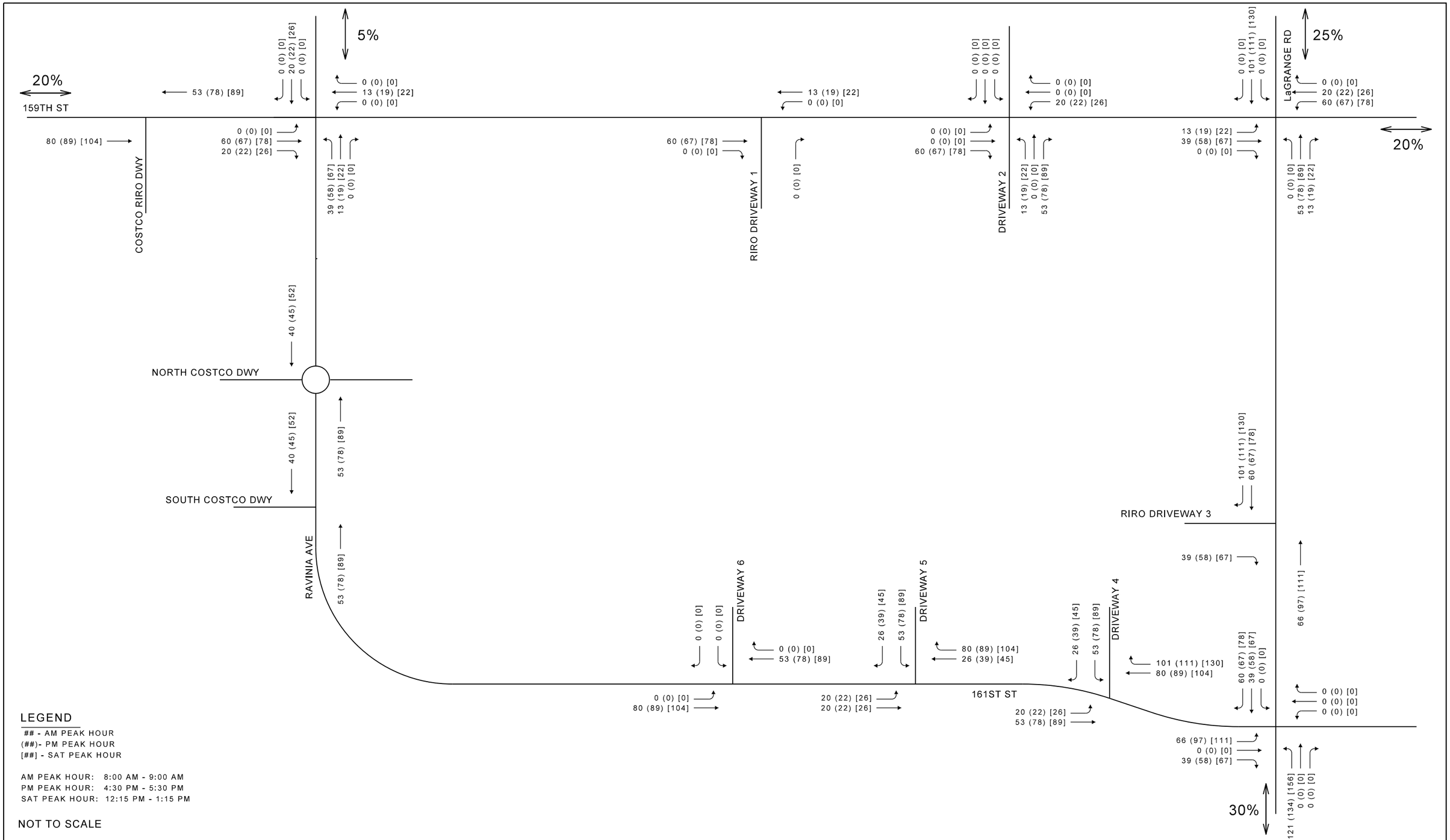
ORLAND PARK COLLECTION DEVELOPMENT
PROJECT ID: ORLAND PARK
STORE NUMBER 18
PETE'S MARKET
LAGRANGE RD. & 159TH STREET
ORLAND PARK, IL

FILE NAME:
DRAWN BY:
CHECKED BY:
DATE: 08.09.24
REVIEWED:

NO. DATE BY REVISIONS

SCALE: NTS

SP-1



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

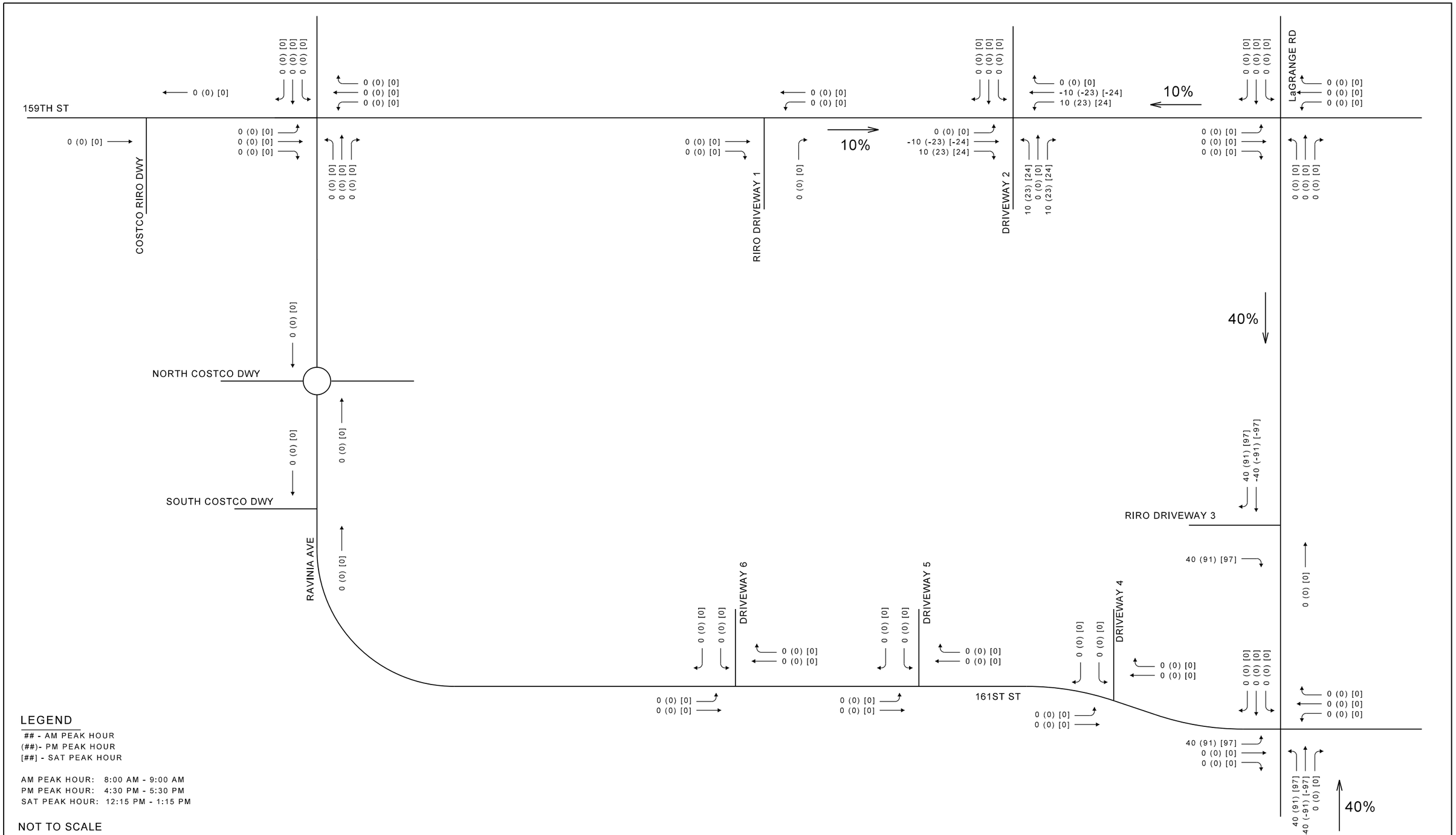
AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE
ORLAND PARK, IL #647

ORLAND PARK ILLINOIS

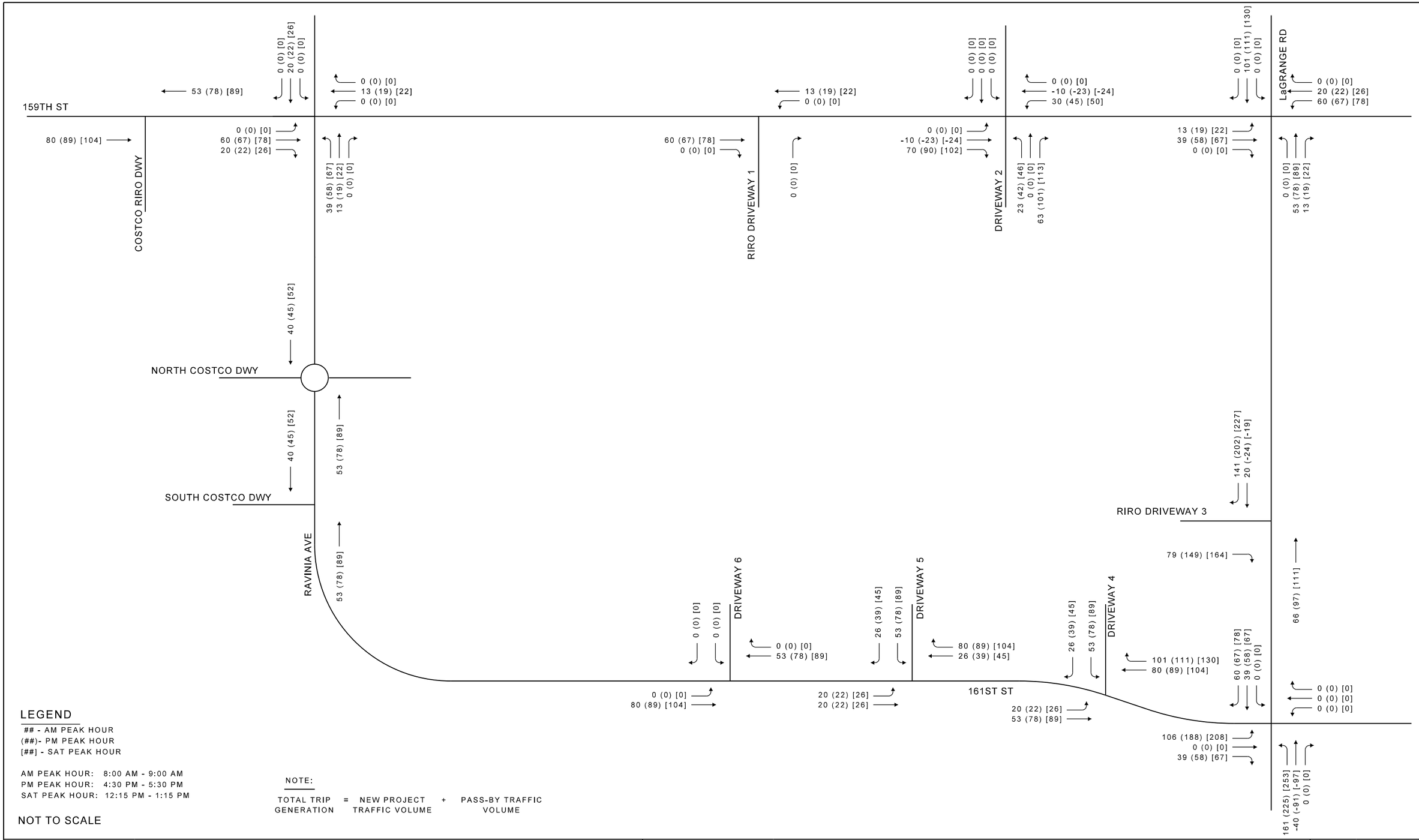
PETE'S MARKET
NEW PROJECT TRAFFIC VOLUMES



COSTCO WHOLESALE
ORLAND PARK, IL #647

ORLAND PARK ILLINOIS

PETE'S MARKET
PASS BY TRAFFIC VOLUMES



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

NOTE:

TOTAL TRIP GENERATION = NEW PROJECT TRAFFIC VOLUME + PASS-BY TRAFFIC VOLUME

COSTCO WHOLESALE
ORLAND PARK, IL #647

ORLAND PARK ILLINOIS

PETE'S MARKET
TOTAL SITE TRAFFIC VOLUMES

Traffic Impact Study
Proposed Residential Development

Orland Park, Illinois

Prepared For:

PULTE GROUP

KLOA

Kenig, Lindgren, O'Hara, Aboona, Inc.

August 22, 2024

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 site will be developed with a residential development consisting of 132 single-family homes. Access to the site will be provided via proposed connections to Ravinia Avenue and 165th Street. A copy of the preliminary site plan is included in the Appendix.

Future Extension of Ravinia Avenue to 161st Street

With the development of the commercial parcel to the east, Ravinia Avenue will be extended east to connect with 161st Street, providing additional access for the site and Costco to LaGrange Road. This extension of Ravinia Avenue would have the same cross-section as the existing roadway which will allow for the provision of a westbound left-turn lane into the proposed development.

Directional Distribution

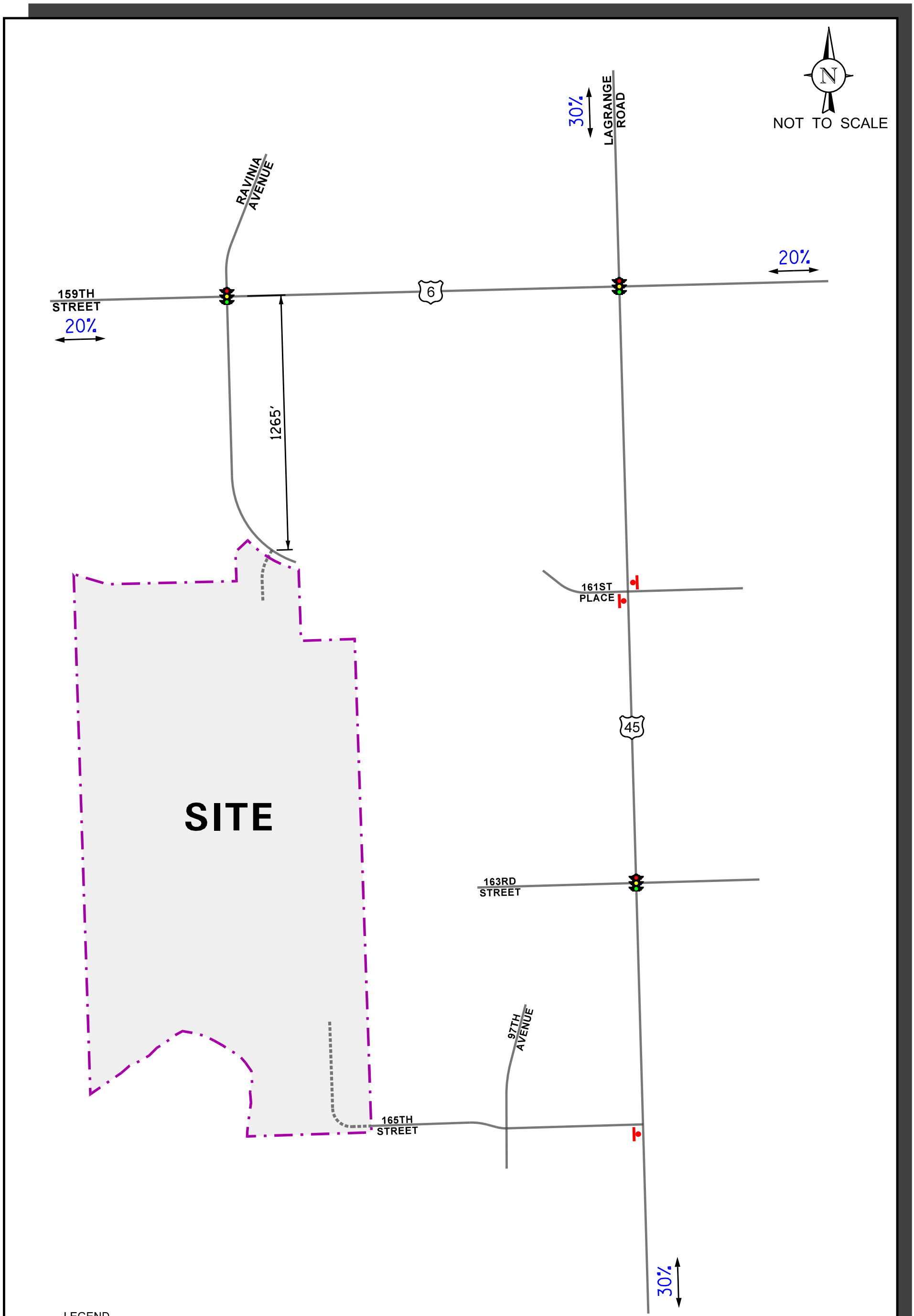
The directions from which residents will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the development-generated traffic. Figure 5 also shows the distance, in feet, between the existing and proposed access intersections.

Peak Hour Traffic Volumes

The number of peak hour trips estimated to be generated by the proposed residential development was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The "Single-Family Detached Housing" (Land-Use Code 210) rates were used to determine the traffic to be generated by the development. **Table 6** shows the weekday morning, weekday evening, and Saturday midday peak hour traffic to be generated by the proposed residential development.

Table 6
PROJECTED DEVELOPMENT-GENERATED TRAFFIC VOLUMES

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
210	Single-Family Detached Housing (132 Units)	24	72	96	81	48	129	45	56	101

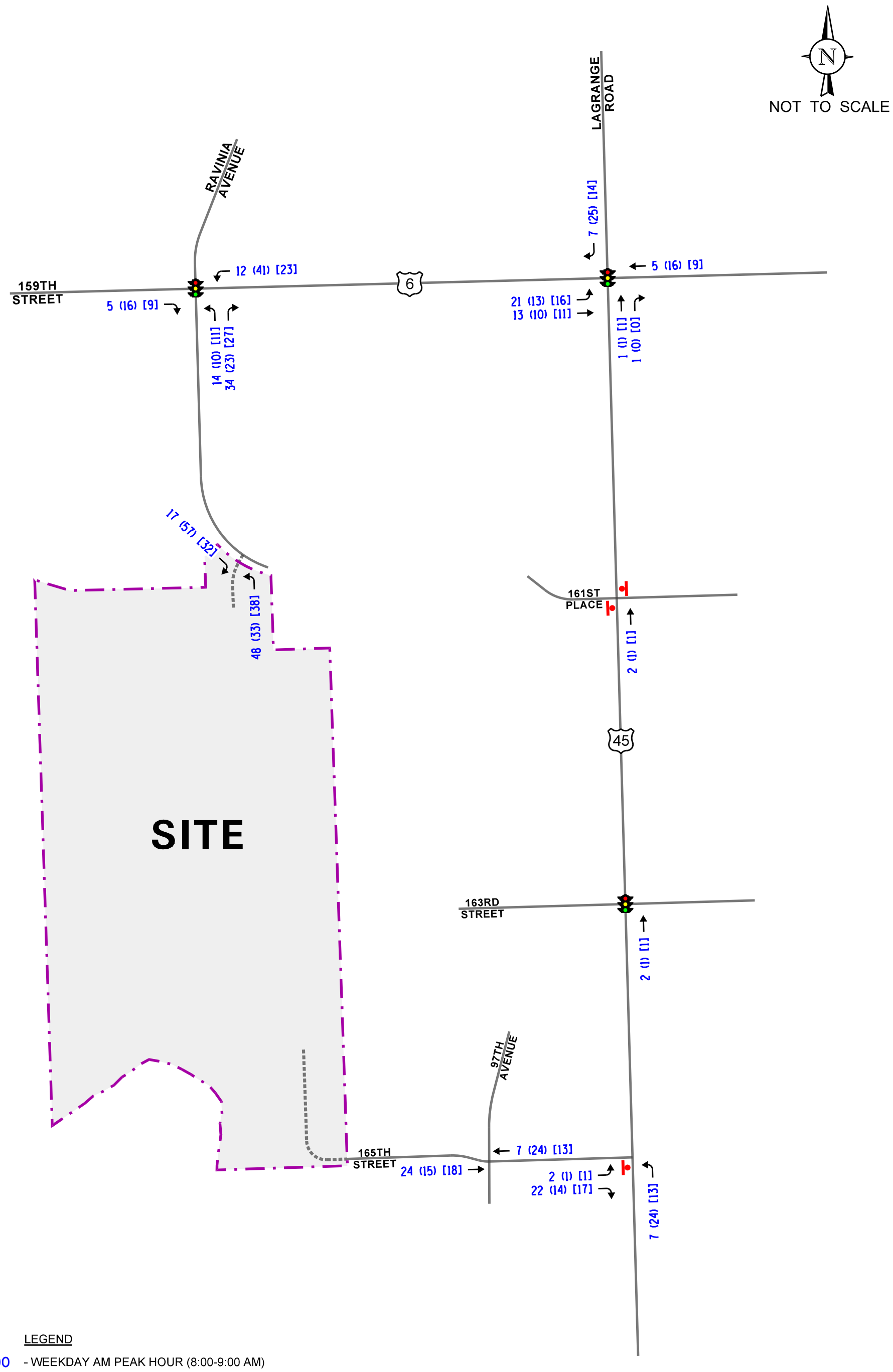


ESTATES AT
RAVINIA MEADOW
ORLAND PARK, ILLINOIS

DIRECTIONAL DISTRIBUTION

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-194 Figure: 5



LEGEND

00 - WEEKDAY AM PEAK HOUR (8:00-9:00 AM)

(00) - WEEKDAY PM PEAK HOUR (4:30-5:30 PM)

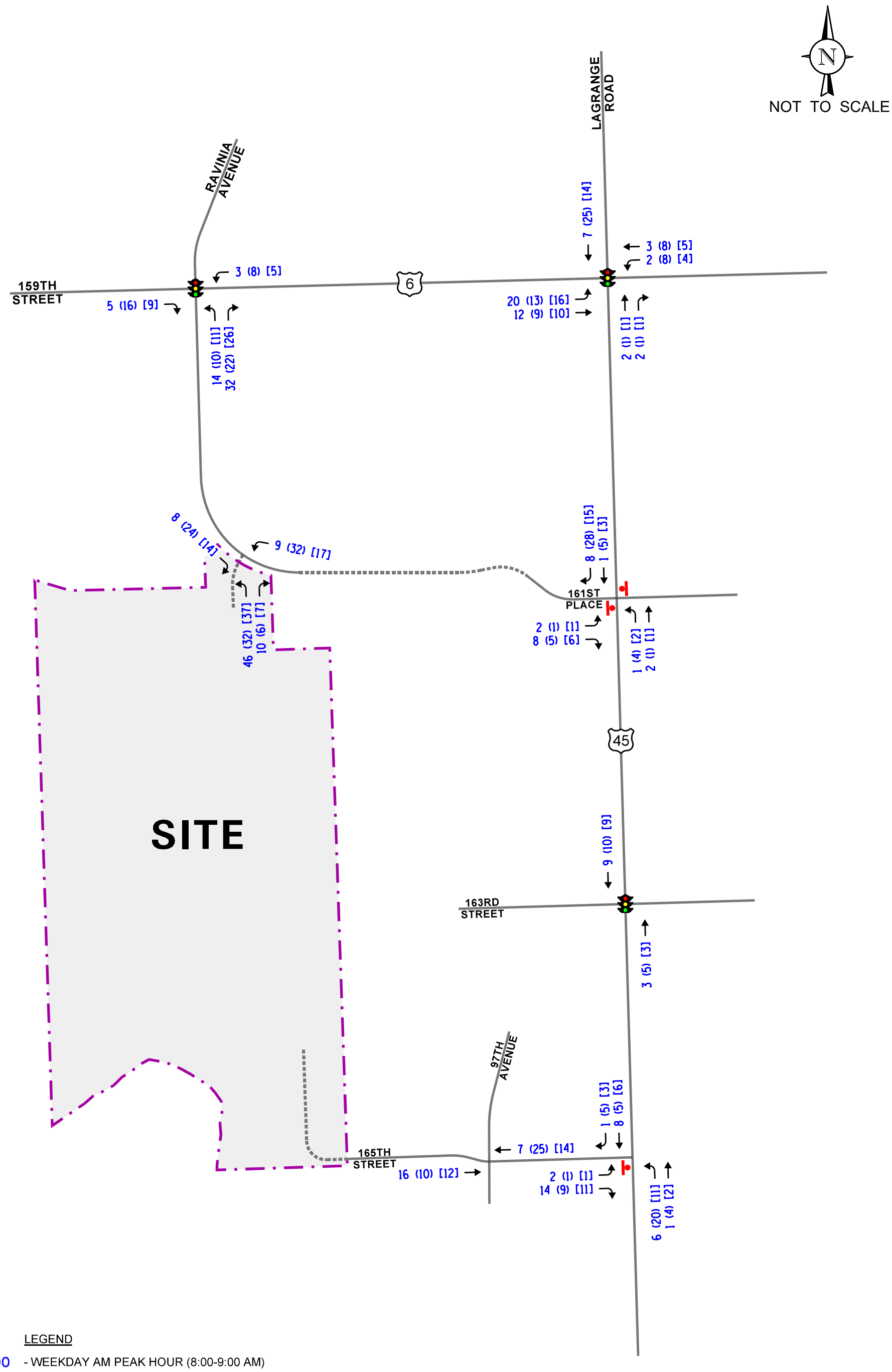
[00] - SATURDAY AFTERNOON PEAK HOUR (1:00-2:00 PM)

ESTATES AT
RAVINIA MEADOW
ORLAND PARK, ILLINOIS

SITE-GENERATED TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-194 Figure: 6A



LEGEND

00 - WEEKDAY AM PEAK HOUR (8:00-9:00 AM)

(00) - WEEKDAY PM PEAK HOUR (4:30-5:30 PM)

[00] - SATURDAY AFTERNOON PEAK HOUR (1:00-2:00 PM)

ESTATES AT
RAVINIA MEADOW
ORLAND PARK, ILLINOIS

SITE-GENERATED TRAFFIC VOLUMES
WITH RAVINIA EXTENSION

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-194 Figure: 6B

APPENDIX C

CMAP CORRESPONDENCE

Chicago Metropolitan Agency for Planning

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September 27, 2024

Peter Reinhofer, P.E.
Chicago Traffic Services Leader/Senior Project Manager
V3 Companies
7325 Janes Avenue
Woodridge, IL 60517

Subject: 159th Street and Ravinia Avenue
IDOT

Dear Mr. Reinhofer:

In response to a request made on your behalf and dated September 27, 2024, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	2023 ADT	No-Build 2050 ADT	Build Ravinia Extn 2050 ADT
159th Street West of Ravinia Ave)	Not Requested	Not Requested	+1,300 maximum
159th Street West of LaGrange Road	24,200	28,700	29,100 (+400)
159th Street East of LaGrange Road	35,000	38,500	38,900 (+400)
LaGrange Road North of 159th Street	33,600	40,000	38,800 (-1,500)
LaGrange Road South of 159th Street	33,500	38,900	37,700 (-1,500)
Ravinia Avenue North of 159th Street	5,600	6,700	7,000 – 8,300
Ravinia Ave Extension from 159th St to LaGrange Rd	N/A	N/A	1,800

Traffic projections are developed using existing ADT data provided in the request letter and the results from the June 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

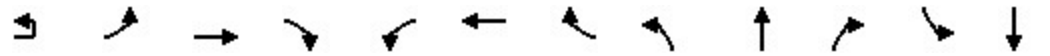
cc: Rios (IDOT)
2024_TrafficForecasts\OrlandPark\ck-103-24\ck-103-24.docx

APPENDIX D

CAPACITY ANALYSIS WORKSHEETS
2024 EXISTING

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	116	780	7	27	699	140	16	1	7	101	18
Future Volume (vph)	3	116	780	7	27	699	140	16	1	7	101	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	2000
Storage Length (ft)		275		0	400		200	295		150	160	
Storage Lanes		1		0	2		1	1		0	1	
Taper Length (ft)		150			290			95			100	
Lane Util. Factor	0.95	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	3432	0	3367	3551	1583	1597	2000	1615	1787	2000
Flt Permitted		0.950			0.950						0.851	
Satd. Flow (perm)	0	1770	3432	0	3367	3551	1583	1681	2000	1615	1601	2000
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			1				159			59		
Link Speed (mph)			40			40			30			30
Link Distance (ft)			880			1894			530			571
Travel Time (s)			15.0			32.3			12.0			13.0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	2%	5%	14%	4%	7%	2%	13%	0%	0%	1%	0%
Adj. Flow (vph)	3	132	886	8	31	794	159	18	1	8	115	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	894	0	31	794	159	18	1	8	115	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors		1	2		1	2	1	1	2	1	1	2
Detector Template		Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)		20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6		20	6	20	20	6	20	20	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA
Protected Phases	5!	5	2		1	6	3	7	4	1!	3	8

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	72
Future Volume (vph)	72
Ideal Flow (vphpl)	1900
Storage Length (ft)	165
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1553
Right Turn on Red	Yes
Satd. Flow (RTOR)	82
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.88
Heavy Vehicles (%)	4%
Adj. Flow (vph)	82
Shared Lane Traffic (%)	
Lane Group Flow (vph)	82
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pm+ov
Protected Phases	5!



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Permitted Phases							6	4		4	8	
Detector Phase	5	5	2		1	6	3	7	4	1	3	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	24.5	9.5	9.5	24.5	9.5	9.5	24.5
Total Split (s)	20.0	20.0	45.0		20.0	45.0	25.0	25.0	30.0	20.0	25.0	30.0
Total Split (%)	16.7%	16.7%	37.5%		16.7%	37.5%	20.8%	20.8%	25.0%	16.7%	20.8%	25.0%
Maximum Green (s)	15.5	15.5	39.0		15.5	39.0	21.5	21.5	24.0	15.5	21.5	24.0
Yellow Time (s)	3.5	3.5	4.5		3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.5	0.0	0.0	1.5	1.0	0.0	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0		4.5	6.0	3.5	3.5	6.0	4.5	3.5	6.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Don't Walk (s)			11.0			11.0			11.0			11.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		14.4	87.2		6.6	75.3	95.3	8.5	5.6	9.0	16.3	9.2
Actuated g/C Ratio		0.12	0.73		0.06	0.63	0.79	0.07	0.05	0.08	0.14	0.08
v/c Ratio		0.64	0.36		0.17	0.36	0.12	0.16	0.01	0.05	0.48	0.13
Control Delay (s/veh)		63.5	8.4		55.7	13.1	1.1	48.6	55.0	0.4	52.4	52.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		63.5	8.4		55.7	13.1	1.1	48.6	55.0	0.4	52.4	52.0
LOS		E	A		E	B	A	D	D	A	D	D
Approach Delay (s/veh)			15.7			12.5			34.5			35.4
Approach LOS			B			B			C			D
90th %ile Green (s)	19.7	19.7	69.5		7.9	57.7	16.7	8.3	5.9	7.9	16.7	14.3
90th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
70th %ile Green (s)	16.5	16.5	77.8		7.1	68.4	21.1	7.7	0.0	7.1	21.1	7.4
70th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Hold	Gap	Skip	Gap	Hold	Gap
50th %ile Green (s)	14.4	14.4	86.5		6.5	78.6	13.0	0.0	0.0	6.5	13.0	10.5
50th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Skip	Skip	Gap	Gap	Hold
30th %ile Green (s)	12.2	12.2	99.6		0.0	82.9	10.9	0.0	0.0	0.0	10.9	8.4
30th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Skip	Skip	Skip	Gap	Hold
10th %ile Green (s)	9.0	9.0	102.5		0.0	89.0	8.0	0.0	0.0	0.0	8.0	5.5
10th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Skip	Skip	Skip	Gap	Hold
Queue Length 50th (ft)		101	121		11	132	0	14	1	0	86	15
Queue Length 95th (ft)		157	236		27	256	20	30	7	0	124	38
Internal Link Dist (ft)			800			1814			450			491
Turn Bay Length (ft)		275			400		200	295		150	160	
Base Capacity (vph)		243	2493		434	2228	1387	306	400	290	339	400
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.36		0.07	0.36	0.11	0.06	0.00	0.03	0.34	0.05

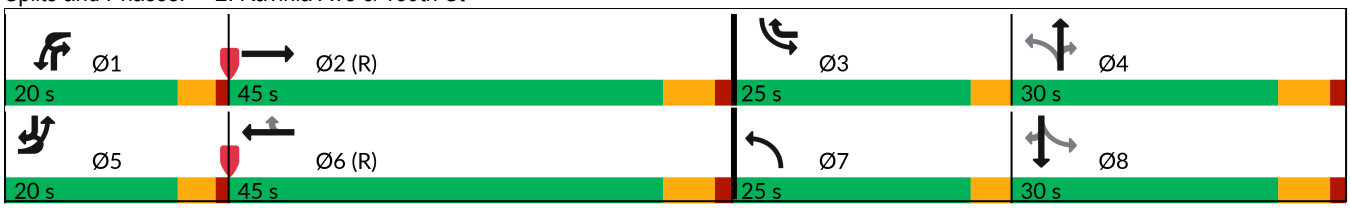
Intersection Summary

Lane Group	SBR
Permitted Phases	8
Detector Phase	5
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	20.0
Total Split (%)	16.7%
Maximum Green (s)	15.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Don't Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	29.6
Actuated g/C Ratio	0.25
v/c Ratio	0.18
Control Delay (s/veh)	7.4
Queue Delay	0.0
Total Delay (s/veh)	7.4
LOS	A
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.7
90th %ile Term Code	Gap
70th %ile Green (s)	16.5
70th %ile Term Code	Gap
50th %ile Green (s)	14.4
50th %ile Term Code	Gap
30th %ile Green (s)	12.2
30th %ile Term Code	Gap
10th %ile Green (s)	9.0
10th %ile Term Code	Gap
Queue Length 50th (ft)	0
Queue Length 95th (ft)	33
Internal Link Dist (ft)	
Turn Bay Length (ft)	165
Base Capacity (vph)	471
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.17

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 16.4		Intersection LOS: B	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	858	34	0	787	0	48
Future Vol, veh/h	858	34	0	787	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	0	0	7	0	8
Mvmt Flow	964	38	0	884	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	501
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.38
Pot Cap-1 Maneuver	-	-	0	-	0	500
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	500
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	13.07
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	500	-	-	-
HCM Lane V/C Ratio	0.108	-	-	-
HCM Ctrl Dly (s/v)	13.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	0	0	6	5	46
Future Vol, veh/h	19	0	0	6	5	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	10	0	0	17	20	2
Mvmt Flow	26	0	0	8	7	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	42	34	69	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	4	-	-	-	-	-
Critical Hdwy	7	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	941	1037	1545	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	941	1037	1545	-	-	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.93	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	941	-	-
HCM Lane V/C Ratio	-	-	0.027	-	-
HCM Ctrl Dly (s/v)	0	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	0	1	0	5
Future Vol, veh/h	5	1	0	1	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	20	0	0	0	0	20
Mvmt Flow	7	1	0	1	0	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	4	3	7	0	-	0
Stage 1	3	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	7.2	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	967	1086	1627	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	967	1086	1627	-	-	-
Mov Cap-2 Maneuver	967	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	972	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.68	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1627	-	985	-	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Ctrl Dly (s/v)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	19	0	3	0	0	14	4	25	1412	10	2	41	1004	31
Future Vol, veh/h	19	0	3	0	0	14	4	25	1412	10	2	41	1004	31
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	6	0	0	2	9	3
Mvmt Flow	20	0	3	0	0	15	4	27	1502	11	2	44	1068	33

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	1839	2751	551	2088	2762	756	804	1101	0	0	1104	1513	0	0
Stage 1	1176	1176	-	1569	1569	-	-	-	-	-	-	-	-	-
Stage 2	663	1574	-	519	1193	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	82	20	414	57	20	304	573	355	-	-	392	220	-	-
Stage 1	152	267	-	80	173	-	-	-	-	-	-	-	-	-
Stage 2	384	172	-	469	263	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	57	15	414	42	14	304	375	375	-	-	224	224	-	-
Mov Cap-2 Maneuver	98	73	-	65	83	-	-	-	-	-	-	-	-	-
Stage 1	121	213	-	74	159	-	-	-	-	-	-	-	-	-
Stage 2	335	158	-	370	209	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	46.02	17.44	0.31	1
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	375	-	-	98	-	414	-	304	224	-	-
HCM Lane V/C Ratio	0.082	-	-	0.207	-	0.008	-	0.049	0.204	-	-
HCM Ctrl Dly (s/v)	15.5	-	-	51.1	0	13.8	0	17.4	25.2	-	-
HCM Lane LOS	C	-	-	F	A	B	A	C	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	-	0	-	0.2	0.7	-	-

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	6	170	898	15	8	284	932	177	115	70	240	180
Future Volume (vph)	6	170	898	15	8	284	932	177	115	70	240	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	295		150	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			95			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.998					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1788	3529	0	0	3468	3689	1599	1770	2000	1615	1787
Flt Permitted		0.950				0.950			0.681			0.507
Satd. Flow (perm)	0	1788	3529	0	0	3468	3689	1599	1269	2000	1615	954
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					173			210	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			530		
Travel Time (s)			15.0				32.3			12.0		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	2%	7%	0%	1%	3%	1%	2%	0%	0%	1%
Adj. Flow (vph)	6	173	916	15	8	290	951	181	117	71	245	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	931	0	0	298	951	181	117	71	245	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	117	169
Future Volume (vph)	117	169
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		172
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	119	172
Shared Lane Traffic (%)		
Lane Group Flow (vph)	119	172
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		18.2	66.6			16.6	65.0	90.3	23.0	10.0	30.1	32.9
Actuated g/C Ratio		0.14	0.51			0.13	0.50	0.69	0.18	0.08	0.23	0.25
v/c Ratio		0.72	0.52			0.68	0.52	0.16	0.43	0.46	0.46	0.51
Control Delay (s/veh)		68.9	24.1			61.7	25.3	2.0	43.4	66.5	10.1	44.1
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		68.9	24.1			61.7	25.3	2.0	43.4	66.5	10.1	44.1
LOS		E	C			E	C	A	D	E	B	D
Approach Delay (s/veh)			31.3				29.9			28.3		
Approach LOS			C				C			C		
90th %ile Green (s)	24.5	24.5	52.3		21.5	21.5	49.3	22.5	16.0	13.7	21.5	22.5
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Max	Gap	Gap	Gap	Max
70th %ile Green (s)	20.8	20.8	61.0		18.2	18.2	58.4	19.3	13.9	11.5	18.2	19.3
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	18.2	18.2	66.5		16.4	16.4	64.7	17.1	12.3	10.0	16.4	17.1
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	15.6	15.6	72.1		14.6	14.6	71.1	14.8	10.7	8.5	14.6	14.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	11.8	11.8	81.0		12.1	12.1	81.3	22.9	8.6	0.0	12.1	22.9
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Hold	Gap	Skip	Gap	Hold
Queue Length 50th (ft)		146	265			125	277	2	79	58	23	130
Queue Length 95th (ft)		216	405			167	425	32	121	107	85	181
Internal Link Dist (ft)			800				1814			450		
Turn Bay Length (ft)		275				400		200	295		150	160
Base Capacity (vph)		303	1807			573	1843	1199	399	492	588	385
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.59	0.52			0.52	0.52	0.15	0.29	0.14	0.42	0.48

Intersection Summary

Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	14.6	38.7
Actuated g/C Ratio	0.11	0.30
v/c Ratio	0.53	0.29
Control Delay (s/veh)	62.3	5.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	62.3	5.1
LOS	E	A
Approach Delay (s/veh)	34.5	
Approach LOS	C	
90th %ile Green (s)	20.2	24.5
90th %ile Term Code	Hold	Gap
70th %ile Green (s)	16.9	20.8
70th %ile Term Code	Hold	Gap
50th %ile Green (s)	14.8	18.2
50th %ile Term Code	Hold	Gap
30th %ile Green (s)	12.6	15.6
30th %ile Term Code	Hold	Gap
10th %ile Green (s)	8.3	11.8
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	96	0
Queue Length 95th (ft)	153	46
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	640
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.27

Intersection Summary

Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 30.8		Intersection LOS: C	
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	932	138	0	1216	0	157
Future Vol, veh/h	932	138	0	1216	0	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	3	0	1
Mvmt Flow	971	144	0	1267	0	164

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	557
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	476
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	476
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	16.46
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	476	-	-	-
HCM Lane V/C Ratio	0.343	-	-	-
HCM Ctrl Dly (s/v)	16.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.5	-	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	333	1	1	83	74	330
Future Vol, veh/h	333	1	1	83	74	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	2	3	0
Mvmt Flow	354	1	1	88	79	351

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	301	215	430	0	-	0
Stage 1	254	-	-	-	-	-
Stage 2	46	-	-	-	-	-
Critical Hdwy	6.82	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	670	796	1140	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	669	796	1140	-	-	-
Mov Cap-2 Maneuver	669	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	973	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1140	-	669	-	-
HCM Lane V/C Ratio	0.001	-	0.531	-	-
HCM Ctrl Dly (s/v)	8.2	-	16.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	3.1	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	83	1	1	1	1	69
Future Vol, veh/h	83	1	1	1	1	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	0	0	0	0	3
Mvmt Flow	99	1	1	1	1	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	45	42	83	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.84	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	959	1027	1526	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	959	1027	1526	-	-	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	1019	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.19	3.68	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	959	-	-
HCM Lane V/C Ratio	0.001	-	0.104	-	-
HCM Ctrl Dly (s/v)	7.4	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	33	0	15	7	0	49	2	39	1718	23	6	59	1819	67
Future Vol, veh/h	33	0	15	7	0	49	2	39	1718	23	6	59	1819	67
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	3	0	0	0	2	0
Mvmt Flow	34	0	16	7	0	51	2	41	1790	24	6	61	1895	70

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2866	3964	982	2780	3987	907	1434	1965	0	0	1324	1814	0	0
Stage 1	2065	2065	-	1887	1887	-	-	-	-	-	-	-	-	-
Stage 2	801	1899	-	893	2100	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.1	-	-
Pot Cap-1 Maneuver	~ 18	3	216	21	3	242	257	134	-	-	296	159	-	-
Stage 1	35	98	-	48	120	-	-	-	-	-	-	-	-	-
Stage 2	316	119	-	277	94	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 6	1	216	8	1	242	136	136	-	-	164	164	-	-
Mov Cap-2 Maneuver	~ 17	11	-	25	10	-	-	-	-	-	-	-	-	-
Stage 1	~ 21	57	-	33	83	-	-	-	-	-	-	-	-	-
Stage 2	171	82	-	151	55	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 648.04	45.38	0.99	1.39
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	136	-	-	17	-	216	25	242	164	-	-
HCM Lane V/C Ratio	0.313	-	-	2.006	-	0.072	0.288	0.211	0.413	-	-
HCM Ctrl Dly (s/v)	43	-	-	-$ 932.2	0	23	196.7	23.8	41.7	-	-
HCM Lane LOS	E	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	1.2	-	-	4.8	-	0.2	0.9	0.8	1.8	-	-

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

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	19	156	844	13	2	405	781	172	137	88	281	110
Future Volume (vph)	19	156	844	13	2	405	781	172	137	88	281	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	295		150	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			95			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.998					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1789	3533	0	0	3467	3725	1599	1805	1980	1615	1752
Flt Permitted		0.950				0.950			0.403			0.696
Satd. Flow (perm)	0	1789	3533	0	0	3467	3725	1599	766	1980	1615	1284
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					183			295	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			530		
Travel Time (s)			15.0				32.3			12.0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	1%	2%	1%	0%	1%	0%	3%
Adj. Flow (vph)	20	166	898	14	2	431	831	183	146	94	299	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	912	0	0	433	831	183	146	94	299	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	148	138
Future Volume (vph)	148	138
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		147
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.94	0.94
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	157	147
Shared Lane Traffic (%)		
Lane Group Flow (vph)	157	147
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		18.7	58.3			22.0	61.6	80.0	34.1	17.4	45.3	30.4
Actuated g/C Ratio		0.14	0.45			0.17	0.47	0.62	0.26	0.13	0.35	0.23
v/c Ratio		0.72	0.58			0.74	0.47	0.17	0.46	0.36	0.40	0.34
Control Delay (s/veh)		68.8	30.7			59.0	26.5	2.4	40.5	53.7	4.3	37.6
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		68.8	30.7			59.0	26.5	2.4	40.5	53.7	4.3	37.6
LOS		E	C			E	C	A	D	D	A	D
Approach Delay (s/veh)			37.2				33.2			22.7		
Approach LOS			D				C			C		
90th %ile Green (s)	25.1	25.1	42.3		27.9	27.9	45.1	16.3	18.8	23.5	27.9	16.3
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
70th %ile Green (s)	21.4	21.4	51.9		24.2	24.2	54.7	14.1	16.1	19.8	24.2	14.1
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
50th %ile Green (s)	18.7	18.7	58.0		22.2	22.2	61.5	12.5	14.3	17.3	22.2	12.5
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
30th %ile Green (s)	16.0	16.0	65.0		19.3	19.3	68.3	10.8	12.4	14.9	19.3	10.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
10th %ile Green (s)	12.2	12.2	74.3		16.2	16.2	78.3	8.2	9.4	11.3	16.2	8.2
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
Queue Length 50th (ft)		152	296			180	244	0	97	73	2	77
Queue Length 95th (ft)		222	449			225	380	36	140	122	54	116
Internal Link Dist (ft)			800				1814			450		
Turn Bay Length (ft)		275				400		200	295		150	160
Base Capacity (vph)		305	1585			625	1764	1164	390	487	770	434
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.61	0.58			0.69	0.47	0.16	0.37	0.19	0.39	0.27

Intersection Summary

Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	15.5	40.2
Actuated g/C Ratio	0.12	0.31
v/c Ratio	0.66	0.25
Control Delay (s/veh)	67.3	5.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	67.3	5.0
LOS	E	A
Approach Delay (s/veh)	37.3	
Approach LOS	D	
90th %ile Green (s)	21.0	25.1
90th %ile Term Code	Gap	Gap
70th %ile Green (s)	17.8	21.4
70th %ile Term Code	Gap	Gap
50th %ile Green (s)	15.5	18.7
50th %ile Term Code	Gap	Gap
30th %ile Green (s)	13.3	16.0
30th %ile Term Code	Gap	Gap
10th %ile Green (s)	10.1	12.2
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	128	0
Queue Length 95th (ft)	194	42
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	635
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.23

Intersection Summary

Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 33.3		Intersection LOS: C	
Intersection Capacity Utilization 74.7%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	810	142	0	1056	0	222
Future Vol, veh/h	810	142	0	1056	0	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	1	0	2	0	1
Mvmt Flow	890	156	0	1160	0	244

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	523
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	501
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	501
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	501	-	-	-
HCM Lane V/C Ratio	0.487	-	-	-
HCM Ctrl Dly (s/v)	18.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	2.6	-	-	-

Intersection	
Int Delay, s/veh	12.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	389	1	0	114	123	432
Future Vol, veh/h	389	1	0	114	123	432
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	437	1	0	128	138	485

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	312	624	0	-	0
Stage 1	381	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	547	690	967	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	547	690	967	-	-	-
Mov Cap-2 Maneuver	547	-	-	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	32.97	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	967	-	547	-	-
HCM Lane V/C Ratio	-	-	0.801	-	-
HCM Ctrl Dly (s/v)	0	-	33	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	7.7	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	109	1	0	2	1	122
Future Vol, veh/h	109	1	0	2	1	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	136	1	0	3	1	153

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	79	77	154	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	921	975	1439	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	1027	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	975	1439	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	1027	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.59	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1439	-	921	-	-
HCM Lane V/C Ratio	-	-	0.149	-	-
HCM Ctrl Dly (s/v)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	16	0	15	8	0	34	7	26	1789	17	13	39	1542	29
Future Vol, veh/h	16	0	15	8	0	34	7	26	1789	17	13	39	1542	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	1	6	0	2	1	0
Mvmt Flow	16	0	15	8	0	35	7	27	1826	17	13	40	1573	30

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2492	3605	802	2637	3611	921	1170	1603	0	0	1345	1843	0	0
Stage 1	1694	1694	-	1902	1902	-	-	-	-	-	-	-	-	-
Stage 2	798	1910	-	736	1709	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	32	5	284	26	5	237	360	202	-	-	288	150	-	-
Stage 1	66	150	-	46	118	-	-	-	-	-	-	-	-	-
Stage 2	318	117	-	347	148	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 16	3	284	14	3	237	221	221	-	-	166	166	-	-
Mov Cap-2 Maneuver	37	30	-	33	38	-	-	-	-	-	-	-	-	-
Stage 1	45	102	-	39	100	-	-	-	-	-	-	-	-	-
Stage 2	230	99	-	223	101	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	94.45	46.33	0.43	1.17
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	221	-	-	37	-	284	33	237	166	-	-
HCM Lane V/C Ratio	0.152	-	-	0.445	-	0.054	0.247	0.146	0.319	-	-
HCM Ctrl Dly (s/v)	24.2	-	-	165.8	0	18.4	146.5	22.8	36.5	-	-
HCM Lane LOS	C	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.5	-	0.2	0.8	0.5	1.3	-	-

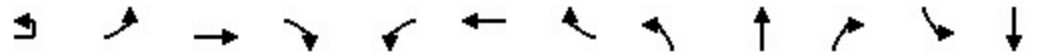
Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

APPENDIX E

CAPACITY ANALYSIS WORKSHEETS
2025 BACKGROUND

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	117	785	7	27	703	141	16	1	7	102	18
Future Volume (vph)	3	117	785	7	27	703	141	16	1	7	102	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	2000
Storage Length (ft)		275		0	400		200	295		150	160	
Storage Lanes		1		0	2		1	1		0	1	
Taper Length (ft)		150			290			95			100	
Lane Util. Factor	0.95	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	3432	0	3367	3551	1583	1597	2000	1615	1787	2000
Flt Permitted		0.950			0.950						0.851	
Satd. Flow (perm)	0	1770	3432	0	3367	3551	1583	1681	2000	1615	1601	2000
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			1				160			59		
Link Speed (mph)			40			40			30			30
Link Distance (ft)			880			1894			530			571
Travel Time (s)			15.0			32.3			12.0			13.0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	2%	5%	14%	4%	7%	2%	13%	0%	0%	1%	0%
Adj. Flow (vph)	3	133	892	8	31	799	160	18	1	8	116	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	900	0	31	799	160	18	1	8	116	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors		1	2		1	2	1	1	2	1	1	2
Detector Template		Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)		20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6		20	6	20	20	6	20	20	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA
Protected Phases	5!	5	2		1	6	3	7	4	1!	3	8

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	72
Future Volume (vph)	72
Ideal Flow (vphpl)	1900
Storage Length (ft)	165
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1553
Right Turn on Red	Yes
Satd. Flow (RTOR)	82
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.88
Heavy Vehicles (%)	4%
Adj. Flow (vph)	82
Shared Lane Traffic (%)	
Lane Group Flow (vph)	82
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pm+ov
Protected Phases	5!



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Permitted Phases							6	4		4	8	
Detector Phase	5	5	2		1	6	3	7	4	1	3	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	24.5	9.5	9.5	24.5	9.5	9.5	24.5
Total Split (s)	20.0	20.0	45.0		20.0	45.0	25.0	25.0	30.0	20.0	25.0	30.0
Total Split (%)	16.7%	16.7%	37.5%		16.7%	37.5%	20.8%	20.8%	25.0%	16.7%	20.8%	25.0%
Maximum Green (s)	15.5	15.5	39.0		15.5	39.0	21.5	21.5	24.0	15.5	21.5	24.0
Yellow Time (s)	3.5	3.5	4.5		3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.5	0.0	0.0	1.5	1.0	0.0	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0		4.5	6.0	3.5	3.5	6.0	4.5	3.5	6.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Don't Walk (s)			11.0			11.0			11.0			11.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		14.4	87.1		6.6	75.2	95.2	8.5	5.6	9.0	16.4	9.3
Actuated g/C Ratio		0.12	0.73		0.06	0.63	0.79	0.07	0.05	0.08	0.14	0.08
v/c Ratio		0.64	0.36		0.17	0.36	0.12	0.16	0.01	0.05	0.48	0.13
Control Delay (s/veh)		63.5	8.5		55.7	13.2	1.1	48.6	55.0	0.4	52.4	51.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		63.5	8.5		55.7	13.2	1.1	48.6	55.0	0.4	52.4	51.9
LOS		E	A		E	B	A	D	D	A	D	D
Approach Delay (s/veh)			15.7			12.6			34.5			35.5
Approach LOS			B			B			C			D
90th %ile Green (s)	19.8	19.8	69.4		7.9	57.5	16.8	8.3	5.9	7.9	16.8	14.4
90th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
70th %ile Green (s)	16.7	16.7	77.8		7.1	68.2	21.1	7.7	0.0	7.1	21.1	7.4
70th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Hold	Gap	Skip	Gap	Hold	Gap
50th %ile Green (s)	14.4	14.4	86.4		6.5	78.5	13.1	0.0	0.0	6.5	13.1	10.6
50th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Skip	Skip	Gap	Gap	Hold
30th %ile Green (s)	12.2	12.2	99.5		0.0	82.8	11.0	0.0	0.0	0.0	11.0	8.5
30th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Skip	Skip	Skip	Gap	Hold
10th %ile Green (s)	9.0	9.0	102.5		0.0	89.0	8.0	0.0	0.0	0.0	8.0	5.5
10th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Skip	Skip	Skip	Gap	Hold
Queue Length 50th (ft)		102	123		11	133	0	14	1	0	87	15
Queue Length 95th (ft)		158	239		27	259	20	30	7	0	124	38
Internal Link Dist (ft)			800			1814			450			491
Turn Bay Length (ft)		275			400		200	295		150	160	
Base Capacity (vph)		244	2491		434	2225	1385	306	400	290	339	400
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.36		0.07	0.36	0.12	0.06	0.00	0.03	0.34	0.05

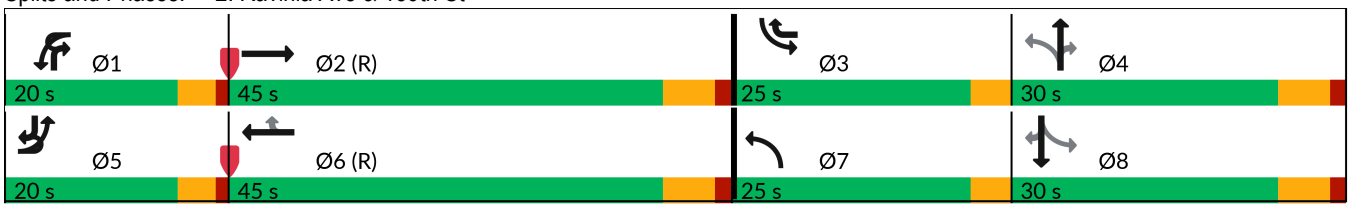
Intersection Summary

Lane Group	SBR
Permitted Phases	8
Detector Phase	5
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	20.0
Total Split (%)	16.7%
Maximum Green (s)	15.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Don't Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	29.7
Actuated g/C Ratio	0.25
v/c Ratio	0.18
Control Delay (s/veh)	7.4
Queue Delay	0.0
Total Delay (s/veh)	7.4
LOS	A
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.8
90th %ile Term Code	Gap
70th %ile Green (s)	16.7
70th %ile Term Code	Gap
50th %ile Green (s)	14.4
50th %ile Term Code	Gap
30th %ile Green (s)	12.2
30th %ile Term Code	Gap
10th %ile Green (s)	9.0
10th %ile Term Code	Gap
Queue Length 50th (ft)	0
Queue Length 95th (ft)	33
Internal Link Dist (ft)	
Turn Bay Length (ft)	165
Base Capacity (vph)	472
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.17

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 16.5		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	863	34	0	792	0	48
Future Vol, veh/h	863	34	0	792	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	0	0	7	0	8
Mvmt Flow	970	38	0	890	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	504
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.38
Pot Cap-1 Maneuver	-	-	0	-	0	498
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	498
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	13.11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	498	-	-	-
HCM Lane V/C Ratio	0.108	-	-	-
HCM Ctrl Dly (s/v)	13.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	0	0	6	5	46
Future Vol, veh/h	19	0	0	6	5	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	10	0	0	17	20	2
Mvmt Flow	26	0	0	8	7	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	42	34	69	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	4	-	-	-	-	-
Critical Hdwy	7	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	941	1037	1545	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	941	1037	1545	-	-	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.93	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	941	-	-
HCM Lane V/C Ratio	-	-	0.027	-	-
HCM Ctrl Dly (s/v)	0	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	0	1	0	5
Future Vol, veh/h	5	1	0	1	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	20	0	0	0	0	20
Mvmt Flow	7	1	0	1	0	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	4	3	7	0	-	0
Stage 1	3	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	7.2	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	967	1086	1627	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	967	1086	1627	-	-	-
Mov Cap-2 Maneuver	967	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	972	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.68	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1627	-	985	-	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Ctrl Dly (s/v)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	19	0	3	0	0	14	4	25	1420	10	2	41	1010	31
Future Vol, veh/h	19	0	3	0	0	14	4	25	1420	10	2	41	1010	31
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	6	0	0	2	9	3
Mvmt Flow	20	0	3	0	0	15	4	27	1511	11	2	44	1074	33

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	1848	2765	554	2099	2777	761	808	1107	0	0	1111	1521	0	0
Stage 1	1182	1182	-	1578	1578	-	-	-	-	-	-	-	-	-
Stage 2	666	1583	-	521	1199	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	81	20	412	56	19	302	570	353	-	-	388	217	-	-
Stage 1	151	266	-	79	171	-	-	-	-	-	-	-	-	-
Stage 2	382	170	-	467	261	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	56	14	412	41	14	302	372	372	-	-	222	222	-	-
Mov Cap-2 Maneuver	97	72	-	64	82	-	-	-	-	-	-	-	-	-
Stage 1	120	211	-	73	157	-	-	-	-	-	-	-	-	-
Stage 2	333	156	-	368	207	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	46.67	17.52	0.31	1.01
HCM LOS	E	C		

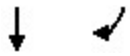
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	372	-	-	97	-	412	-	302	222	-	-
HCM Lane V/C Ratio	0.083	-	-	0.209	-	0.008	-	0.049	0.206	-	-
HCM Ctrl Dly (s/v)	15.5	-	-	51.9	0	13.8	0	17.5	25.4	-	-
HCM Lane LOS	C	-	-	F	A	B	A	C	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	-	0	-	0.2	0.8	-	-

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	6	171	903	15	8	284	938	178	115	70	240	181
Future Volume (vph)	6	171	903	15	8	284	938	178	115	70	240	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	295		150	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			95			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.998					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1788	3529	0	0	3468	3689	1599	1770	2000	1615	1787
Flt Permitted		0.950				0.950			0.681			0.507
Satd. Flow (perm)	0	1788	3529	0	0	3468	3689	1599	1269	2000	1615	954
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					173			209	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			530		
Travel Time (s)			15.0				32.3			12.0		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	2%	7%	0%	1%	3%	1%	2%	0%	0%	1%
Adj. Flow (vph)	6	174	921	15	8	290	957	182	117	71	245	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	936	0	0	298	957	182	117	71	245	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	117	170
Future Volume (vph)	117	170
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		173
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	119	173
Shared Lane Traffic (%)		
Lane Group Flow (vph)	119	173
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		18.3	66.5			16.6	64.8	90.2	23.0	10.0	30.1	32.9
Actuated g/C Ratio		0.14	0.51			0.13	0.50	0.69	0.18	0.08	0.23	0.25
v/c Ratio		0.72	0.52			0.68	0.52	0.16	0.43	0.46	0.46	0.51
Control Delay (s/veh)		68.9	24.2			61.7	25.5	2.0	43.3	66.5	10.2	44.1
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		68.9	24.2			61.7	25.5	2.0	43.3	66.5	10.2	44.1
LOS		E	C			E	C	A	D	E	B	D
Approach Delay (s/veh)			31.4				30.0			28.4		
Approach LOS			C				C			C		
90th %ile Green (s)	24.6	24.6	52.3		21.5	21.5	49.2	22.5	16.0	13.7	21.5	22.5
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Max	Gap	Gap	Gap	Max
70th %ile Green (s)	20.9	20.9	60.8		18.2	18.2	58.1	19.5	13.9	11.5	18.2	19.5
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	18.3	18.3	66.4		16.4	16.4	64.5	17.2	12.3	10.0	16.4	17.2
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	15.7	15.7	72.1		14.6	14.6	71.0	14.8	10.7	8.5	14.6	14.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	11.8	11.8	81.0		12.1	12.1	81.3	22.9	8.6	0.0	12.1	22.9
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Hold	Gap	Skip	Gap	Hold
Queue Length 50th (ft)		147	267			125	281	2	79	58	23	130
Queue Length 95th (ft)		216	407			167	430	33	121	107	86	183
Internal Link Dist (ft)			800				1814			450		
Turn Bay Length (ft)		275				400		200	295		150	160
Base Capacity (vph)		304	1806			573	1839	1197	399	492	587	386
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.59	0.52			0.52	0.52	0.15	0.29	0.14	0.42	0.48

Intersection Summary



Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	14.6	38.9
Actuated g/C Ratio	0.11	0.30
v/c Ratio	0.53	0.29
Control Delay (s/veh)	62.1	5.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	62.1	5.1
LOS	E	A
Approach Delay (s/veh)	34.4	
Approach LOS	C	
90th %ile Green (s)	20.2	24.6
90th %ile Term Code	Hold	Gap
70th %ile Green (s)	17.1	20.9
70th %ile Term Code	Hold	Gap
50th %ile Green (s)	14.9	18.3
50th %ile Term Code	Hold	Gap
30th %ile Green (s)	12.6	15.7
30th %ile Term Code	Hold	Gap
10th %ile Green (s)	8.3	11.8
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	96	0
Queue Length 95th (ft)	153	46
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	641
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.27

Intersection Summary

Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 30.9		Intersection LOS: C	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	938	138	0	1223	0	157
Future Vol, veh/h	938	138	0	1223	0	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	3	0	1
Mvmt Flow	977	144	0	1274	0	164

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	560
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	474
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	474
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	16.54
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	474	-	-	-
HCM Lane V/C Ratio	0.345	-	-	-
HCM Ctrl Dly (s/v)	16.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.5	-	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	333	1	1	83	74	330
Future Vol, veh/h	333	1	1	83	74	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	2	3	0
Mvmt Flow	354	1	1	88	79	351

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	301	215	430	0	-	0
Stage 1	254	-	-	-	-	-
Stage 2	46	-	-	-	-	-
Critical Hdwy	6.82	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	670	796	1140	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	669	796	1140	-	-	-
Mov Cap-2 Maneuver	669	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	973	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1140	-	669	-	-
HCM Lane V/C Ratio	0.001	-	0.531	-	-
HCM Ctrl Dly (s/v)	8.2	-	16.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	3.1	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	83	1	1	1	1	69
Future Vol, veh/h	83	1	1	1	1	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	0	0	0	0	3
Mvmt Flow	99	1	1	1	1	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	45	42	83	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.84	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	959	1027	1526	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	959	1027	1526	-	-	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	1019	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.19	3.68	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	959	-	-
HCM Lane V/C Ratio	0.001	-	0.104	-	-
HCM Ctrl Dly (s/v)	7.4	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	33	0	15	7	0	49	2	39	1728	23	6	59	1830	67
Future Vol, veh/h	33	0	15	7	0	49	2	39	1728	23	6	59	1830	67
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	3	0	0	0	2	0
Mvmt Flow	34	0	16	7	0	51	2	41	1800	24	6	61	1906	70

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2882	3986	988	2795	4009	912	1443	1976	0	0	1331	1824	0	0
Stage 1	2077	2077	-	1897	1897	-	-	-	-	-	-	-	-	-
Stage 2	805	1909	-	898	2111	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.1	-	-
Pot Cap-1 Maneuver	~ 18	3	214	20	3	241	254	132	-	-	293	157	-	-
Stage 1	35	97	-	47	119	-	-	-	-	-	-	-	-	-
Stage 2	314	117	-	276	93	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 6	1	214	8	1	241	135	135	-	-	162	162	-	-
Mov Cap-2 Maneuver	~ 17	10	-	25	9	-	-	-	-	-	-	-	-	-
Stage 1	~ 20	56	-	32	81	-	-	-	-	-	-	-	-	-
Stage 2	169	80	-	149	54	-	-	-	-	-	-	-	-	-

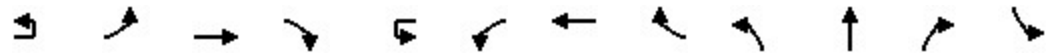
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 672.81	46.31	1	1.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	135	-	-	17	-	214	25	241	162	-	-
HCM Lane V/C Ratio	0.317	-	-	2.063	-	0.073	0.295	0.212	0.418	-	-
HCM Ctrl Dly (s/v)	43.7	-	-	-$ 968.1	0	23.1	202.8	24	42.4	-	-
HCM Lane LOS	E	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	1.3	-	-	4.9	-	0.2	0.9	0.8	1.9	-	-

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

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	19	157	849	13	2	405	786	173	137	88	281	111
Future Volume (vph)	19	157	849	13	2	405	786	173	137	88	281	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	295		150	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			95			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.998					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1789	3533	0	0	3467	3725	1599	1805	1980	1615	1752
Flt Permitted		0.950				0.950			0.405			0.696
Satd. Flow (perm)	0	1789	3533	0	0	3467	3725	1599	770	1980	1615	1284
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					184			294	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			530		
Travel Time (s)			15.0				32.3			12.0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	1%	2%	1%	0%	1%	0%	3%
Adj. Flow (vph)	20	167	903	14	2	431	836	184	146	94	299	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	917	0	0	433	836	184	146	94	299	118
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	148	139
Future Volume (vph)	148	139
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		148
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.94	0.94
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	157	148
Shared Lane Traffic (%)		
Lane Group Flow (vph)	157	148
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		18.7	58.3			22.0	61.5	80.0	34.0	17.3	45.2	30.5
Actuated g/C Ratio		0.14	0.45			0.17	0.47	0.62	0.26	0.13	0.35	0.23
v/c Ratio		0.73	0.58			0.74	0.47	0.17	0.46	0.36	0.40	0.34
Control Delay (s/veh)		68.9	30.8			59.0	26.6	2.4	40.5	53.9	4.4	37.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		68.9	30.8			59.0	26.6	2.4	40.5	53.9	4.4	37.7
LOS		E	C			E	C	A	D	D	A	D
Approach Delay (s/veh)			37.3				33.2			22.8		
Approach LOS			D				C			C		
90th %ile Green (s)	25.1	25.1	42.3		27.9	27.9	45.1	16.4	18.8	23.4	27.9	16.4
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
70th %ile Green (s)	21.4	21.4	51.9		24.2	24.2	54.7	14.2	16.1	19.7	24.2	14.2
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
50th %ile Green (s)	18.8	18.8	58.0		22.2	22.2	61.4	12.6	14.3	17.2	22.2	12.6
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
30th %ile Green (s)	16.1	16.1	65.0		19.3	19.3	68.2	10.8	12.4	14.9	19.3	10.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
10th %ile Green (s)	12.2	12.2	74.3		16.2	16.2	78.3	8.3	9.4	11.2	16.2	8.3
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
Queue Length 50th (ft)		153	298			180	246	0	97	73	3	78
Queue Length 95th (ft)		223	452			225	382	36	140	122	55	117
Internal Link Dist (ft)			800				1814			450		
Turn Bay Length (ft)		275				400		200	295		150	160
Base Capacity (vph)		305	1585			625	1763	1164	390	487	769	434
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.61	0.58			0.69	0.47	0.16	0.37	0.19	0.39	0.27

Intersection Summary

Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	15.5	40.3
Actuated g/C Ratio	0.12	0.31
v/c Ratio	0.66	0.25
Control Delay (s/veh)	67.3	5.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	67.3	5.0
LOS	E	A
Approach Delay (s/veh)	37.3	
Approach LOS	D	
90th %ile Green (s)	21.0	25.1
90th %ile Term Code	Gap	Gap
70th %ile Green (s)	17.8	21.4
70th %ile Term Code	Gap	Gap
50th %ile Green (s)	15.5	18.8
50th %ile Term Code	Gap	Gap
30th %ile Green (s)	13.3	16.1
30th %ile Term Code	Gap	Gap
10th %ile Green (s)	10.1	12.2
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	128	0
Queue Length 95th (ft)	194	42
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	636
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.23

Intersection Summary

Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 33.4		Intersection LOS: C	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	815	142	0	1062	0	222
Future Vol, veh/h	815	142	0	1062	0	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	1	0	2	0	1
Mvmt Flow	896	156	0	1167	0	244

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	526
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	499
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	499
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	18.91
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	499	-	-	-
HCM Lane V/C Ratio	0.489	-	-	-
HCM Ctrl Dly (s/v)	18.9	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	2.6	-	-	-

Intersection	
Int Delay, s/veh	12.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	389	1	0	114	123	432
Future Vol, veh/h	389	1	0	114	123	432
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	65	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	437	1	0	128	138	485

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	312	624	0	-	0
Stage 1	381	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	547	690	967	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	547	690	967	-	-	-
Mov Cap-2 Maneuver	547	-	-	-	-	-
Stage 1	666	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	32.97	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	967	-	547	-	-
HCM Lane V/C Ratio	-	-	0.801	-	-
HCM Ctrl Dly (s/v)	0	-	33	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	7.7	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	109	1	0	2	1	122
Future Vol, veh/h	109	1	0	2	1	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	110	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	136	1	0	3	1	153

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	79	77	154	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	921	975	1439	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	1027	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	975	1439	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	1027	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.59	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1439	-	921	-	-
HCM Lane V/C Ratio	-	-	0.149	-	-
HCM Ctrl Dly (s/v)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	16	0	15	8	0	34	7	26	1800	17	13	39	1551	29
Future Vol, veh/h	16	0	15	8	0	34	7	26	1800	17	13	39	1551	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	1	6	0	2	1	0
Mvmt Flow	16	0	15	8	0	35	7	27	1837	17	13	40	1583	30

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2506	3625	806	2652	3631	927	1177	1612	0	0	1353	1854	0	0
Stage 1	1704	1704	-	1913	1913	-	-	-	-	-	-	-	-	-
Stage 2	802	1921	-	739	1718	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	31	5	282	25	5	235	357	200	-	-	285	148	-	-
Stage 1	65	149	-	46	117	-	-	-	-	-	-	-	-	-
Stage 2	316	116	-	345	146	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 15	3	282	14	3	235	219	219	-	-	164	164	-	-
Mov Cap-2 Maneuver	36	29	-	32	37	-	-	-	-	-	-	-	-	-
Stage 1	44	101	-	39	99	-	-	-	-	-	-	-	-	-
Stage 2	228	98	-	221	99	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	97.12	47.19	0.44	1.18
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	219	-	-	36	-	282	32	235	164	-	-
HCM Lane V/C Ratio	0.154	-	-	0.454	-	0.054	0.252	0.148	0.323	-	-
HCM Ctrl Dly (s/v)	24.4	-	-	170.8	0	18.5	150.2	22.9	37.1	-	-
HCM Lane LOS	C	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.5	-	0.2	0.8	0.5	1.3	-	-

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

APPENDIX F

CAPACITY ANALYSIS WORKSHEETS
2025 FUTURE WITH PROJECT: GAS RELOCATION

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	117	737	32	27	703	141	16	2	55	102	18
Future Volume (vph)	3	117	737	32	27	703	141	16	2	55	102	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	2000
Storage Length (ft)		275		0	400		200	115		135	160	
Storage Lanes		1		0	2		1	1		0	1	
Taper Length (ft)		150			290			65			100	
Lane Util. Factor	0.95	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	3405	0	3367	3551	1583	1597	2000	1615	1787	2000
Flt Permitted		0.950			0.950						0.851	
Satd. Flow (perm)	0	1770	3405	0	3367	3551	1583	1681	2000	1615	1601	2000
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			4				160			63		
Link Speed (mph)			40			40			30			30
Link Distance (ft)			880			1894			375			571
Travel Time (s)			15.0			32.3			8.5			13.0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	2%	5%	14%	4%	7%	2%	13%	0%	0%	1%	0%
Adj. Flow (vph)	3	133	838	36	31	799	160	18	2	63	116	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	874	0	31	799	160	18	2	63	116	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors		1	2		1	2	1	1	2	1	1	2
Detector Template		Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)		20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6		20	6	20	20	6	20	20	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA
Protected Phases	5!	5	2		1	6	3	7	4	1!	3	8

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	72
Future Volume (vph)	72
Ideal Flow (vphpl)	1900
Storage Length (ft)	165
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1553
Right Turn on Red	Yes
Satd. Flow (RTOR)	82
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.88
Heavy Vehicles (%)	4%
Adj. Flow (vph)	82
Shared Lane Traffic (%)	
Lane Group Flow (vph)	82
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pm+ov
Protected Phases	5!

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Permitted Phases							6	4		4	8	
Detector Phase	5	5	2		1	6	3	7	4	1	3	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	24.5	9.5	9.5	24.5	9.5	9.5	24.5
Total Split (s)	20.0	20.0	45.0		20.0	45.0	25.0	25.0	30.0	20.0	25.0	30.0
Total Split (%)	16.7%	16.7%	37.5%		16.7%	37.5%	20.8%	20.8%	25.0%	16.7%	20.8%	25.0%
Maximum Green (s)	15.5	15.5	39.0		15.5	39.0	21.5	21.5	24.0	15.5	21.5	24.0
Yellow Time (s)	3.5	3.5	4.5		3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.5	0.0	0.0	1.5	1.0	0.0	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0		4.5	6.0	3.5	3.5	6.0	4.5	3.5	6.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Don't Walk (s)			11.0			11.0			11.0			11.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		14.4	84.9		6.6	75.1	95.1	8.6	5.7	9.1	16.4	9.3
Actuated g/C Ratio		0.12	0.71		0.06	0.63	0.79	0.07	0.05	0.08	0.14	0.08
v/c Ratio		0.64	0.36		0.17	0.36	0.12	0.16	0.02	0.35	0.48	0.13
Control Delay (s/veh)		63.5	9.0		55.7	13.3	1.1	48.4	55.0	16.9	52.3	51.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		63.5	9.0		55.7	13.3	1.1	48.4	55.0	16.9	52.3	51.8
LOS		E	A		E	B	A	D	D	B	D	D
Approach Delay (s/veh)			16.4			12.7			24.6			35.3
Approach LOS			B			B			C			D
90th %ile Green (s)	19.8	19.8	69.1		7.9	57.2	16.8	8.3	6.2	7.9	16.8	14.7
90th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
70th %ile Green (s)	16.7	16.7	77.7		7.2	68.2	21.1	7.7	0.0	7.2	21.1	7.4
70th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Hold	Gap	Skip	Gap	Hold	Gap
50th %ile Green (s)	14.4	14.4	86.4		6.5	78.5	13.1	0.0	0.0	6.5	13.1	10.6
50th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Skip	Skip	Gap	Gap	Hold
30th %ile Green (s)	12.2	12.2	89.0		6.0	82.8	11.0	0.0	0.0	6.0	11.0	8.5
30th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Skip	Skip	Gap	Gap	Hold
10th %ile Green (s)	9.0	9.0	102.5		0.0	89.0	8.0	0.0	0.0	0.0	8.0	5.5
10th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Skip	Skip	Skip	Gap	Hold
Queue Length 50th (ft)		102	118		11	133	0	14	2	0	87	15
Queue Length 95th (ft)		158	232		27	261	20	30	10	38	123	38
Internal Link Dist (ft)			800			1814			295			491
Turn Bay Length (ft)		275			400		200	115		135	160	
Base Capacity (vph)		244	2411		434	2223	1385	307	400	295	340	400
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.36		0.07	0.36	0.12	0.06	0.01	0.21	0.34	0.05

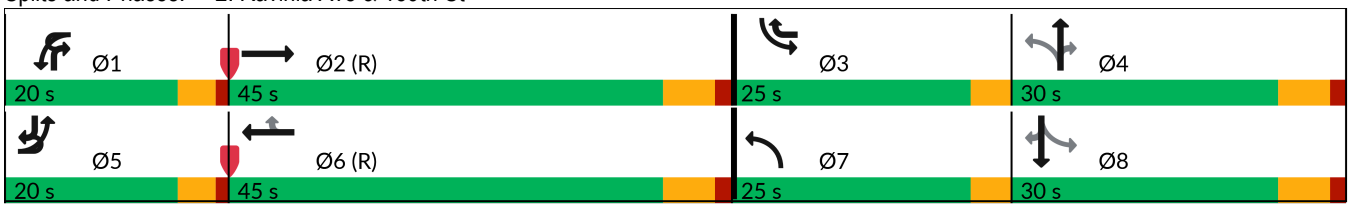
Intersection Summary

Lane Group	SBR
Permitted Phases	8
Detector Phase	5
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	20.0
Total Split (%)	16.7%
Maximum Green (s)	15.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Don't Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	29.8
Actuated g/C Ratio	0.25
v/c Ratio	0.18
Control Delay (s/veh)	7.4
Queue Delay	0.0
Total Delay (s/veh)	7.4
LOS	A
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.8
90th %ile Term Code	Gap
70th %ile Green (s)	16.7
70th %ile Term Code	Gap
50th %ile Green (s)	14.4
50th %ile Term Code	Gap
30th %ile Green (s)	12.2
30th %ile Term Code	Gap
10th %ile Green (s)	9.0
10th %ile Term Code	Gap
Queue Length 50th (ft)	0
Queue Length 95th (ft)	33
Internal Link Dist (ft)	
Turn Bay Length (ft)	165
Base Capacity (vph)	473
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.17

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 16.9		Intersection LOS: B	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St



Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	895	2	0	792	0	0
Future Vol, veh/h	895	2	0	792	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	0	0	7	0	8
Mvmt Flow	1006	2	0	890	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	504
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.38
Pot Cap-1 Maneuver	-	-	0	-	0	498
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	498
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	5
Future Vol, veh/h	0	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	20	0	0	0	0	20
Mvmt Flow	0	0	0	0	0	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	0	7	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	-	1627	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	-	1627	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1627	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	19	0	3	0	0	14	4	25	1420	10	2	41	1010	31
Future Vol, veh/h	19	0	3	0	0	14	4	25	1420	10	2	41	1010	31
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	6	0	0	2	9	3
Mvmt Flow	20	0	3	0	0	15	4	27	1511	11	2	44	1074	33

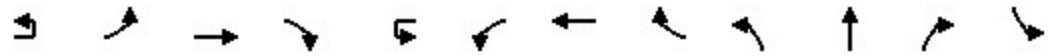
Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	1848	2765	554	2099	2777	761	808	1107	0	0	1111	1521	0	0
Stage 1	1182	1182	-	1578	1578	-	-	-	-	-	-	-	-	-
Stage 2	666	1583	-	521	1199	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	81	20	412	56	19	302	570	353	-	-	388	217	-	-
Stage 1	151	266	-	79	171	-	-	-	-	-	-	-	-	-
Stage 2	382	170	-	467	261	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	56	14	412	41	14	302	372	372	-	-	222	222	-	-
Mov Cap-2 Maneuver	97	72	-	64	82	-	-	-	-	-	-	-	-	-
Stage 1	120	211	-	73	157	-	-	-	-	-	-	-	-	-
Stage 2	333	156	-	368	207	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	46.67	17.52	0.31	1.01
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	372	-	-	97	-	412	-	302	222	-	-
HCM Lane V/C Ratio	0.083	-	-	0.209	-	0.008	-	0.049	0.206	-	-
HCM Ctrl Dly (s/v)	15.5	-	-	51.9	0	13.8	0	17.5	25.4	-	-
HCM Lane LOS	C	-	-	F	A	B	A	C	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	-	0	-	0.2	0.8	-	-

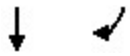
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	6	161	831	51	8	284	938	178	126	82	287	181
Future Volume (vph)	6	161	831	51	8	284	938	178	126	82	287	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	115		135	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			65			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.991					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1788	3497	0	0	3468	3689	1599	1770	2000	1615	1787
Flt Permitted		0.950				0.950			0.681			0.531
Satd. Flow (perm)	0	1788	3497	0	0	3468	3689	1599	1269	2000	1615	999
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			5					173			215	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			375		
Travel Time (s)			15.0				32.3			8.5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	2%	7%	0%	1%	3%	1%	2%	0%	0%	1%
Adj. Flow (vph)	6	164	848	52	8	290	957	182	129	84	293	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	900	0	0	298	957	182	129	84	293	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	117	170
Future Volume (vph)	117	170
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		173
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	119	173
Shared Lane Traffic (%)		
Lane Group Flow (vph)	119	173
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		17.5	65.6			16.6	64.6	87.6	26.2	10.8	33.4	33.7
Actuated g/C Ratio		0.13	0.50			0.13	0.50	0.67	0.20	0.08	0.26	0.26
v/c Ratio		0.71	0.51			0.68	0.52	0.16	0.42	0.51	0.51	0.51
Control Delay (s/veh)		69.0	24.4			61.7	25.5	2.1	41.4	66.9	13.8	43.5
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		69.0	24.4			61.7	25.5	2.1	41.4	66.9	13.8	43.5
LOS		E	C			E	C	A	D	E	B	D
Approach Delay (s/veh)			31.5				30.1			29.6		
Approach LOS			C				C			C		
90th %ile Green (s)	23.7	23.7	51.3		21.5	21.5	49.1	22.4	16.9	14.8	21.5	22.4
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
70th %ile Green (s)	20.1	20.1	60.1		18.2	18.2	58.2	19.3	14.6	12.4	18.2	19.3
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	17.6	17.6	65.7		16.4	16.4	64.5	17.1	13.0	10.8	16.4	17.1
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	15.0	15.0	71.4		14.6	14.6	71.0	14.8	11.3	9.2	14.6	14.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	11.3	11.3	79.6		12.1	12.1	80.4	11.4	8.6	6.9	12.1	11.4
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Gap	Gap	Gap
Queue Length 50th (ft)		139	256			125	281	2	87	69	52	129
Queue Length 95th (ft)		207	393			167	431	33	129	120	125	181
Internal Link Dist (ft)			800				1814			295		
Turn Bay Length (ft)		275				400		200	115		135	160
Base Capacity (vph)		301	1767			573	1834	1194	409	492	627	396
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.51			0.52	0.52	0.15	0.32	0.17	0.47	0.47

Intersection Summary



Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	14.9	38.5
Actuated g/C Ratio	0.11	0.30
v/c Ratio	0.52	0.29
Control Delay (s/veh)	61.4	5.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	61.4	5.2
LOS	E	A
Approach Delay (s/veh)	34.1	
Approach LOS	C	
90th %ile Green (s)	20.3	23.7
90th %ile Term Code	Hold	Gap
70th %ile Green (s)	17.1	20.1
70th %ile Term Code	Hold	Gap
50th %ile Green (s)	14.9	17.6
50th %ile Term Code	Hold	Gap
30th %ile Green (s)	12.7	15.0
30th %ile Term Code	Hold	Gap
10th %ile Green (s)	9.7	11.3
10th %ile Term Code	Hold	Gap
Queue Length 50th (ft)	96	0
Queue Length 95th (ft)	153	46
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	643
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.27

Intersection Summary

Area Type:	Other	
Cycle Length: 130		
Actuated Cycle Length: 130		
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green		
Natural Cycle: 75		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.71		
Intersection Signal Delay (s/veh): 31.0		Intersection LOS: C
Intersection Capacity Utilization 76.6%		ICU Level of Service D
Analysis Period (min) 15		
! Phase conflict between lane groups.		

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	974	85	0	1233	0	85
Future Vol, veh/h	974	85	0	1233	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	3	0	1
Mvmt Flow	1015	89	0	1284	0	89

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	552
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	480
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	480
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	14.18
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	480	-	-	-
HCM Lane V/C Ratio	0.184	-	-	-
HCM Ctrl Dly (s/v)	14.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	29
Future Vol, veh/h	0	0	0	0	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	0	0	0	0	3
Mvmt Flow	0	0	0	0	0	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	0	35	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	-	1590	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	-	1590	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1590	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	33	0	15	7	0	49	2	39	1728	23	6	59	1830	67
Future Vol, veh/h	33	0	15	7	0	49	2	39	1728	23	6	59	1830	67
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	3	0	0	0	2	0
Mvmt Flow	34	0	16	7	0	51	2	41	1800	24	6	61	1906	70

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2882	3986	988	2795	4009	912	1443	1976	0	0	1331	1824	0	0
Stage 1	2077	2077	-	1897	1897	-	-	-	-	-	-	-	-	-
Stage 2	805	1909	-	898	2111	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.1	-	-
Pot Cap-1 Maneuver	~ 18	3	214	20	3	241	254	132	-	-	293	157	-	-
Stage 1	35	97	-	47	119	-	-	-	-	-	-	-	-	-
Stage 2	314	117	-	276	93	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 6	1	214	8	1	241	135	135	-	-	162	162	-	-
Mov Cap-2 Maneuver	~ 17	10	-	25	9	-	-	-	-	-	-	-	-	-
Stage 1	~ 20	56	-	32	81	-	-	-	-	-	-	-	-	-
Stage 2	169	80	-	149	54	-	-	-	-	-	-	-	-	-

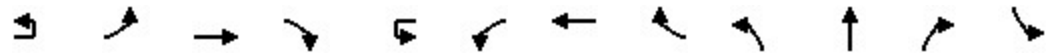
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 672.81	46.31	1	1.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	135	-	-	17	-	214	25	241	162	-	-
HCM Lane V/C Ratio	0.317	-	-	2.063	-	0.073	0.295	0.212	0.418	-	-
HCM Ctrl Dly (s/v)	43.7	-	-	-$ 968.1	0	23.1	202.8	24	42.4	-	-
HCM Lane LOS	E	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	1.3	-	-	4.9	-	0.2	0.9	0.8	1.9	-	-

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

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	19	143	747	50	2	405	786	173	151	102	348	111
Future Volume (vph)	19	143	747	50	2	405	786	173	151	102	348	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	115		135	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			65			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.991					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1789	3512	0	0	3467	3725	1599	1805	1980	1615	1752
Flt Permitted		0.950				0.950			0.383			0.687
Satd. Flow (perm)	0	1789	3512	0	0	3467	3725	1599	728	1980	1615	1267
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			5					184			298	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1894			375		
Travel Time (s)			15.0				32.3			8.5		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	1%	2%	1%	0%	1%	0%	3%
Adj. Flow (vph)	20	152	795	53	2	431	836	184	161	109	370	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	848	0	0	433	836	184	161	109	370	118
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	148	139
Future Volume (vph)	148	139
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		148
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.94	0.94
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	157	148
Shared Lane Traffic (%)		
Lane Group Flow (vph)	157	148
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		17.7	57.4			22.0	61.7	80.1	35.8	18.3	46.2	30.4
Actuated g/C Ratio		0.14	0.44			0.17	0.47	0.62	0.28	0.14	0.36	0.23
v/c Ratio		0.71	0.55			0.74	0.47	0.17	0.50	0.39	0.48	0.35
Control Delay (s/veh)		69.1	30.5			59.0	26.5	2.4	40.6	53.8	7.9	37.1
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		69.1	30.5			59.0	26.5	2.4	40.6	53.8	7.9	37.1
LOS		E	C			E	C	A	D	D	A	D
Approach Delay (s/veh)			37.0				33.1			24.0		
Approach LOS			D				C			C		
90th %ile Green (s)	23.8	23.8	41.2		27.9	27.9	45.3	16.2	19.9	24.7	27.9	16.2
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
70th %ile Green (s)	20.2	20.2	50.9		24.2	24.2	54.9	14.1	17.1	20.8	24.2	14.1
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
50th %ile Green (s)	17.7	17.7	57.1		22.2	22.2	61.6	12.5	15.2	18.2	22.2	12.5
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
30th %ile Green (s)	15.2	15.2	64.2		19.3	19.3	68.3	10.8	13.2	15.7	19.3	10.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
10th %ile Green (s)	11.4	11.4	73.6		16.2	16.2	78.4	8.3	10.1	11.9	16.2	8.3
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
Queue Length 50th (ft)		141	271			180	245	0	107	85	41	77
Queue Length 95th (ft)		209	415			225	381	36	151	136	102	115
Internal Link Dist (ft)			800				1814			295		
Turn Bay Length (ft)		275				400		200	115		135	160
Base Capacity (vph)		301	1553			625	1768	1165	391	487	781	439
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.57	0.55			0.69	0.47	0.16	0.41	0.22	0.47	0.27

Intersection Summary

Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	15.5	39.2
Actuated g/C Ratio	0.12	0.30
v/c Ratio	0.66	0.25
Control Delay (s/veh)	67.3	5.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	67.3	5.2
LOS	E	A
Approach Delay (s/veh)	37.2	
Approach LOS	D	
90th %ile Green (s)	21.0	23.8
90th %ile Term Code	Gap	Gap
70th %ile Green (s)	17.8	20.2
70th %ile Term Code	Gap	Gap
50th %ile Green (s)	15.5	17.7
50th %ile Term Code	Gap	Gap
30th %ile Green (s)	13.3	15.2
30th %ile Term Code	Gap	Gap
10th %ile Green (s)	10.1	11.4
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	128	0
Queue Length 95th (ft)	194	43
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	633
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.23

Intersection Summary

Area Type:	Other	
Cycle Length: 130		
Actuated Cycle Length: 130		
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green		
Natural Cycle: 80		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.74		
Intersection Signal Delay (s/veh): 33.1		Intersection LOS: C
Intersection Capacity Utilization 77.4%		ICU Level of Service D
Analysis Period (min) 15		
! Phase conflict between lane groups.		

Splits and Phases: 2: Ravinia Ave & 159th St

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	852	106	0	1076	0	120
Future Vol, veh/h	852	106	0	1076	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	1	0	2	0	1
Mvmt Flow	936	116	0	1182	0	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	526
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	499
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	499
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	14.79
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	499	-	-	-
HCM Lane V/C Ratio	0.264	-	-	-
HCM Ctrl Dly (s/v)	14.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.1	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	40
Future Vol, veh/h	0	0	0	0	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	0	50	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	-	1570	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	-	1570	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	16	0	15	8	0	34	7	26	1800	17	13	39	1551	29
Future Vol, veh/h	16	0	15	8	0	34	7	26	1800	17	13	39	1551	29
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	70	-	-	0	-	-	-	190	-	-	-	270	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	1	6	0	2	1	0
Mvmt Flow	16	0	15	8	0	35	7	27	1837	17	13	40	1583	30

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	2506	3625	806	2652	3631	927	1177	1612	0	0	1353	1854	0	0
Stage 1	1704	1704	-	1913	1913	-	-	-	-	-	-	-	-	-
Stage 2	802	1921	-	739	1718	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.1	5.6	5.3	-	-	5.6	5.34	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.9	2.3	3.1	-	-	2.3	3.12	-	-
Pot Cap-1 Maneuver	31	5	282	25	5	235	357	200	-	-	285	148	-	-
Stage 1	65	149	-	46	117	-	-	-	-	-	-	-	-	-
Stage 2	316	116	-	345	146	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	~ 15	3	282	14	3	235	219	219	-	-	164	164	-	-
Mov Cap-2 Maneuver	36	29	-	32	37	-	-	-	-	-	-	-	-	-
Stage 1	44	101	-	39	99	-	-	-	-	-	-	-	-	-
Stage 2	228	98	-	221	99	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	97.12	47.19	0.44	1.18
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	219	-	-	36	-	282	32	235	164	-	-
HCM Lane V/C Ratio	0.154	-	-	0.454	-	0.054	0.252	0.148	0.323	-	-
HCM Ctrl Dly (s/v)	24.4	-	-	170.8	0	18.5	150.2	22.9	37.1	-	-
HCM Lane LOS	C	-	-	F	A	C	F	C	E	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.5	-	0.2	0.8	0.5	1.3	-	-

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

MOVEMENT SUMMARY

Site: [1] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	1	0.0	1	0.0	0.003	2.9	LOS A	0.0	0.3	0.20	0.06	0.20	16.3
8	T1	All MCs	1	0.0	1	0.0	0.003	2.9	LOS A	0.0	0.3	0.20	0.06	0.20	25.0
18	R2	All MCs	1	0.0	1	0.0	0.003	2.9	LOS A	0.0	0.3	0.20	0.06	0.20	20.7
Approach			3	0.0	3	0.0	0.003	2.9	LOS A	0.0	0.3	0.20	0.06	0.20	20.8
East: North Costco Dwy															
1	L2	All MCs	1	0.0	1	0.0	0.061	2.9	LOS A	0.3	6.8	0.03	0.00	0.03	21.3
6	T1	All MCs	1	0.0	1	0.0	0.061	2.9	LOS A	0.3	6.8	0.03	0.00	0.03	16.2
16	R2	All MCs	79	3.0	79	3.0	0.061	3.0	LOS A	0.3	6.8	0.03	0.00	0.03	24.9
Approach			82	2.9	82	2.9	0.061	3.0	LOS A	0.3	6.8	0.03	0.00	0.03	24.8
North: Ravinia Ave															
7	L2	All MCs	80	3.0	80	3.0	0.068	3.1	LOS A	0.3	7.6	0.03	0.00	0.03	20.6
4	T1	All MCs	5	3.0	5	3.0	0.068	3.1	LOS A	0.3	7.6	0.03	0.00	0.03	22.5
14	R2	All MCs	5	0.0	5	0.0	0.068	2.9	LOS A	0.3	7.6	0.03	0.00	0.03	20.7
Approach			91	2.8	91	2.8	0.068	3.0	LOS A	0.3	7.6	0.03	0.00	0.03	20.7
West: North Costco Dwy															
5	L2	All MCs	1	3.0	1	3.0	0.003	3.0	LOS A	0.0	0.3	0.21	0.06	0.21	23.4
2	T1	All MCs	1	3.0	1	3.0	0.003	3.0	LOS A	0.0	0.3	0.21	0.06	0.21	20.0
12	R2	All MCs	1	0.0	1	0.0	0.003	2.8	LOS A	0.0	0.3	0.21	0.06	0.21	21.2
Approach			3	2.0	3	2.0	0.003	2.9	LOS A	0.0	0.3	0.21	0.06	0.21	21.7
All Vehicles			179	2.8	179	2.8	0.068	3.0	LOS A	0.3	7.6	0.04	0.01	0.04	22.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

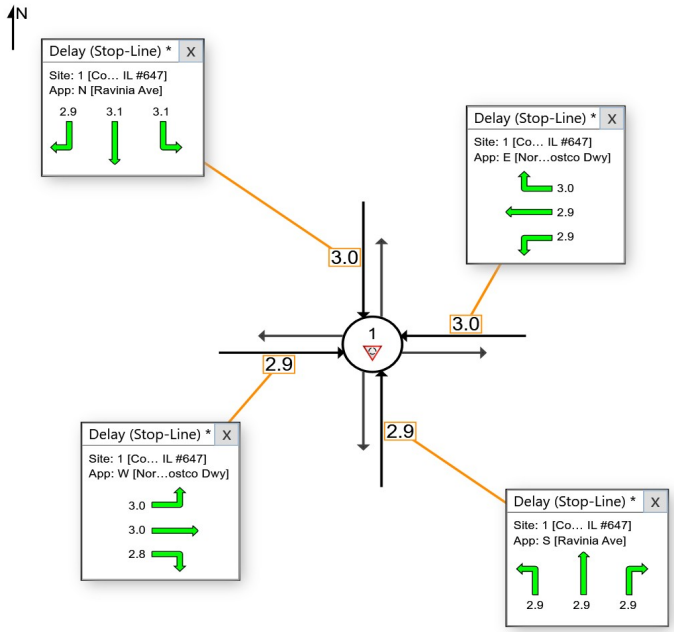
Site: [1] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

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Project: N:\2004\04016\04016.08PE\Calcs&Data\TME\Sidra\3a. 2025 FwP AM.sipx

MOVEMENT SUMMARY

Site: [2] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	1	0.0	1	0.0	0.004	4.3	LOS A	0.0	0.4	0.49	0.30	0.49	15.4
8	T1	All MCs	1	0.0	1	0.0	0.004	4.3	LOS A	0.0	0.4	0.49	0.30	0.49	23.6
18	R2	All MCs	1	0.0	1	0.0	0.004	4.3	LOS A	0.0	0.4	0.49	0.30	0.49	19.4
Approach			3	0.0	3	0.0	0.004	4.3	LOS A	0.0	0.4	0.49	0.30	0.49	19.5
East: North Costco Dwy															
1	L2	All MCs	1	0.0	1	0.0	0.294	6.3	LOS A	1.5	37.2	0.50	0.33	0.50	17.9
6	T1	All MCs	35	0.0	35	0.0	0.294	6.3	LOS A	1.5	37.2	0.50	0.33	0.50	13.5
16	R2	All MCs	254	3.0	254	3.0	0.294	6.6	LOS A	1.5	37.2	0.50	0.33	0.50	21.4
Approach			290	2.6	290	2.6	0.294	6.6	LOS A	1.5	37.2	0.50	0.33	0.50	20.5
North: Ravinia Ave															
7	L2	All MCs	159	3.0	159	3.0	0.172	4.1	LOS A	0.8	21.4	0.15	0.04	0.15	20.3
4	T1	All MCs	32	3.0	32	3.0	0.172	4.1	LOS A	0.8	21.4	0.15	0.04	0.15	22.2
14	R2	All MCs	33	0.0	33	0.0	0.172	3.9	LOS A	0.8	21.4	0.15	0.04	0.15	20.4
Approach			223	2.6	223	2.6	0.172	4.1	LOS A	0.8	21.4	0.15	0.04	0.15	20.6
West: North Costco Dwy															
5	L2	All MCs	285	3.0	285	3.0	0.288	6.0	LOS A	1.5	38.0	0.42	0.24	0.42	19.4
2	T1	All MCs	28	3.0	28	3.0	0.288	6.0	LOS A	1.5	38.0	0.42	0.24	0.42	15.9
12	R2	All MCs	1	0.0	1	0.0	0.288	5.7	LOS A	1.5	38.0	0.42	0.24	0.42	17.1
Approach			314	3.0	314	3.0	0.288	6.0	LOS A	1.5	38.0	0.42	0.24	0.42	19.1
All Vehicles			830	2.7	830	2.7	0.294	5.7	LOS A	1.5	38.0	0.37	0.22	0.37	20.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

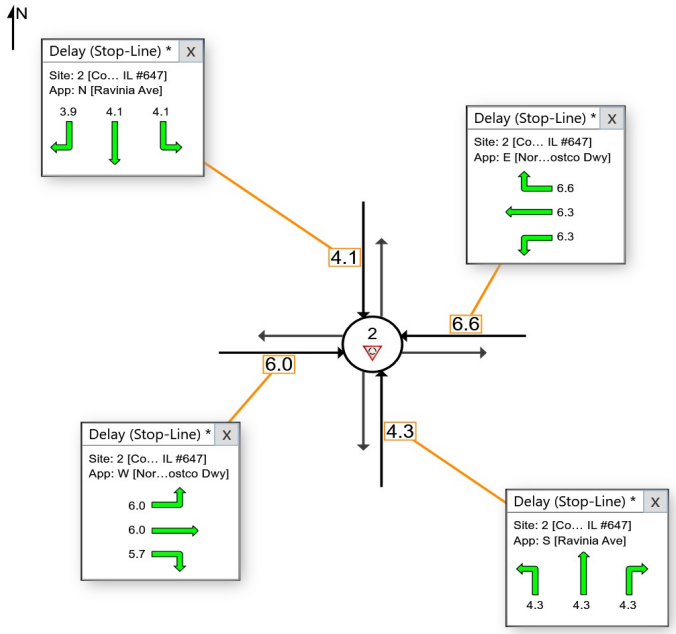
Site: [2] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

MOVEMENT SUMMARY

Site: [3] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
Sat MD Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.4	0.54	0.35	0.54	15.1
8	T1	All MCs	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.4	0.54	0.35	0.54	23.2
18	R2	All MCs	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.4	0.54	0.35	0.54	19.0
Approach			3	0.0	3	0.0	0.004	4.8	LOS A	0.0	0.4	0.54	0.35	0.54	19.2
East: North Costco Dwy															
1	L2	All MCs	1	0.0	1	0.0	0.388	7.8	LOS A	2.0	52.2	0.58	0.41	0.58	16.6
6	T1	All MCs	46	0.0	46	0.0	0.388	7.8	LOS A	2.0	52.2	0.58	0.41	0.58	12.6
16	R2	All MCs	315	3.0	315	3.0	0.388	8.2	LOS A	2.0	52.2	0.58	0.41	0.58	20.1
Approach			362	2.6	362	2.6	0.388	8.2	LOS A	2.0	52.2	0.58	0.41	0.58	19.2
North: Ravinia Ave															
7	L2	All MCs	199	3.0	199	3.0	0.224	4.6	LOS A	1.2	29.6	0.18	0.06	0.18	20.0
4	T1	All MCs	43	3.0	43	3.0	0.224	4.6	LOS A	1.2	29.6	0.18	0.06	0.18	21.9
14	R2	All MCs	46	0.0	46	0.0	0.224	4.4	LOS A	1.2	29.6	0.18	0.06	0.18	20.1
Approach			288	2.5	288	2.5	0.224	4.6	LOS A	1.2	29.6	0.18	0.06	0.18	20.3
West: North Costco Dwy															
5	L2	All MCs	338	3.0	338	3.0	0.361	7.2	LOS A	2.0	50.1	0.50	0.31	0.50	18.6
2	T1	All MCs	34	3.0	34	3.0	0.361	7.2	LOS A	2.0	50.1	0.50	0.31	0.50	15.1
12	R2	All MCs	1	0.0	1	0.0	0.361	6.9	LOS A	2.0	50.1	0.50	0.31	0.50	16.4
Approach			373	3.0	373	3.0	0.361	7.2	LOS A	2.0	50.1	0.50	0.31	0.50	18.4
All Vehicles			1026	2.7	1026	2.7	0.388	6.8	LOS A	2.0	52.2	0.44	0.28	0.44	19.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

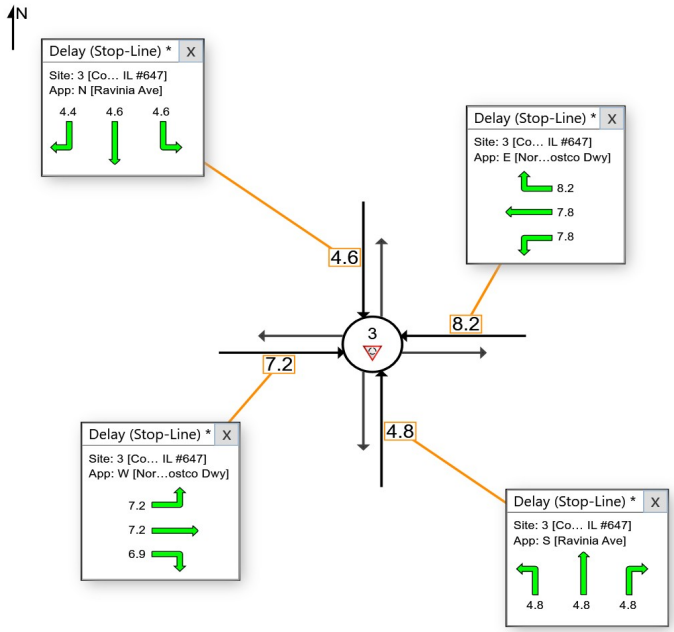
Site: [3] Costco Wholesale, Orland Park, IL #647 (2025 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2025 Future Reconfiguration Traffic Volumes
North Costco Dwy & Ravinia Ave
Sat MD Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

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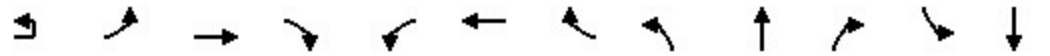
Project: N:\2004\04016\04016.08PE\Calcs&Data\TME\Sidra\3a. 2025 FwP AM.sipx

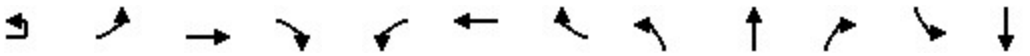
APPENDIX G

CAPACITY ANALYSIS WORKSHEETS
2050 FUTURE WITH RAVINIA EXTENSION



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	116	894	101	26	803	107	109	91	36	97	48
Future Volume (vph)	3	116	894	101	26	803	107	109	91	36	97	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	2000
Storage Length (ft)		275		0	400		200	115		135	160	
Storage Lanes		1		0	2		1	1		0	1	
Taper Length (ft)		150			290			65			100	
Lane Util. Factor	0.95	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.985				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	3357	0	3367	3551	1583	1597	2000	1615	1787	2000
Flt Permitted		0.950			0.950			0.514			0.690	
Satd. Flow (perm)	0	1770	3357	0	3367	3551	1583	864	2000	1615	1298	2000
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			11				122			59		
Link Speed (mph)			40			40			30			30
Link Distance (ft)			880			1880			375			571
Travel Time (s)			15.0			32.0			8.5			13.0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	2%	5%	14%	4%	7%	2%	13%	0%	0%	1%	0%
Adj. Flow (vph)	3	132	1016	115	30	913	122	124	103	41	110	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	1131	0	30	913	122	124	103	41	110	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors		1	2		1	2	1	1	2	1	1	2
Detector Template		Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)		20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6		20	6	20	20	6	20	20	6
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA
Protected Phases	5!	5	2		1	6	3	7	4	1!	3	8

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	72
Future Volume (vph)	72
Ideal Flow (vphpl)	1900
Storage Length (ft)	165
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1553
Right Turn on Red	Yes
Satd. Flow (RTOR)	82
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.88
Heavy Vehicles (%)	4%
Adj. Flow (vph)	82
Shared Lane Traffic (%)	
Lane Group Flow (vph)	82
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pm+ov
Protected Phases	5!



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Permitted Phases							6	4		4	8	
Detector Phase	5	5	2		1	6	3	7	4	1	3	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	24.5	9.5	9.5	24.5	9.5	9.5	24.5
Total Split (s)	20.0	20.0	45.0		20.0	45.0	25.0	25.0	30.0	20.0	25.0	30.0
Total Split (%)	16.7%	16.7%	37.5%		16.7%	37.5%	20.8%	20.8%	25.0%	16.7%	20.8%	25.0%
Maximum Green (s)	15.5	15.5	39.0		15.5	39.0	21.5	21.5	24.0	15.5	21.5	24.0
Yellow Time (s)	3.5	3.5	4.5		3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.5	0.0	0.0	1.5	1.0	0.0	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0		4.5	6.0	3.5	3.5	6.0	4.5	3.5	6.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Don't Walk (s)			11.0			11.0			11.0			11.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		14.4	72.4		6.6	62.6	80.1	27.6	11.5	24.1	22.3	9.8
Actuated g/C Ratio		0.12	0.60		0.06	0.52	0.67	0.23	0.10	0.20	0.19	0.08
v/c Ratio		0.64	0.56		0.16	0.49	0.11	0.42	0.54	0.11	0.38	0.34
Control Delay (s/veh)		63.5	17.1		55.7	21.4	2.0	40.5	61.5	5.1	40.0	56.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		63.5	17.1		55.7	21.4	2.0	40.5	61.5	5.1	40.0	56.5
LOS		E	B		E	C	A	D	E	A	D	E
Approach Delay (s/veh)			22.0			20.1			43.1			32.8
Approach LOS			C			C			D			C
90th %ile Green (s)	19.7	19.7	61.2		7.8	49.3	15.3	17.5	15.7	7.8	15.3	13.5
90th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
70th %ile Green (s)	16.5	16.5	66.6		7.1	57.2	13.1	14.9	13.2	7.1	13.1	11.4
70th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
50th %ile Green (s)	14.4	14.4	70.4		6.5	62.5	11.6	13.1	11.5	6.5	11.6	10.0
50th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
30th %ile Green (s)	12.2	12.2	74.3		5.9	68.0	10.0	11.2	9.8	5.9	10.0	8.6
30th %ile Term Code	Gap	Gap	Coord		Gap	Coord	Gap	Gap	Gap	Gap	Gap	Hold
10th %ile Green (s)	9.0	9.0	89.4		0.0	75.9	7.8	21.1	7.3	0.0	7.8	0.0
10th %ile Term Code	Gap	Gap	Coord		Skip	Coord	Gap	Hold	Gap	Skip	Gap	Skip
Queue Length 50th (ft)		101	268		11	231	0	79	77	0	69	41
Queue Length 95th (ft)		157	386		27	349	23	120	128	17	107	79
Internal Link Dist (ft)			800			1800			295			491
Turn Bay Length (ft)		275			400		200	115		135	160	
Base Capacity (vph)		243	2029		434	1851	1218	341	400	486	402	400
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.56		0.07	0.49	0.10	0.36	0.26	0.08	0.27	0.14

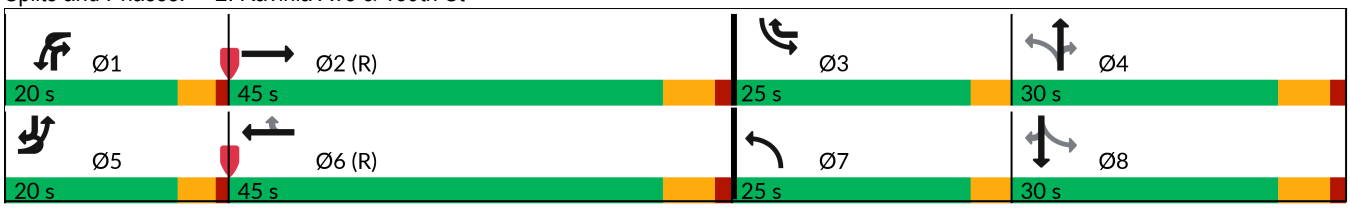
Intersection Summary

Lane Group	SBR
Permitted Phases	8
Detector Phase	5
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	9.5
Total Split (s)	20.0
Total Split (%)	16.7%
Maximum Green (s)	15.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Don't Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	27.9
Actuated g/C Ratio	0.23
v/c Ratio	0.19
Control Delay (s/veh)	7.4
Queue Delay	0.0
Total Delay (s/veh)	7.4
LOS	A
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.7
90th %ile Term Code	Gap
70th %ile Green (s)	16.5
70th %ile Term Code	Gap
50th %ile Green (s)	14.4
50th %ile Term Code	Gap
30th %ile Green (s)	12.2
30th %ile Term Code	Gap
10th %ile Green (s)	9.0
10th %ile Term Code	Gap
Queue Length 50th (ft)	0
Queue Length 95th (ft)	34
Internal Link Dist (ft)	
Turn Bay Length (ft)	165
Base Capacity (vph)	450
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.18

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 24.2		Intersection LOS: C	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: Ravinia Ave & 159th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	121	6	99	0	4	10	4	256	1524	10	2	41
Future Volume (vph)	121	6	99	0	4	10	4	256	1524	10	2	41
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		70	0		0		190		0		270
Storage Lanes	1		0	1		0		2		0		1
Taper Length (ft)	80			25				190				160
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.97	0.91	0.91	0.91	1.00
Frt			0.850		0.890				0.999			
Flt Protected	0.950							0.950				0.950
Satd. Flow (prot)	1805	2000	1615	1900	1691	0	0	3502	4890	0	0	1771
Flt Permitted	0.635							0.950				0.950
Satd. Flow (perm)	1206	2000	1615	1900	1691	0	0	3502	4890	0	0	1771
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)			141		11				1			
Link Speed (mph)		30			30				40			
Link Distance (ft)		368			428				508			
Travel Time (s)		8.4			9.7				8.7			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	129	6	105	0	4	11	4	272	1621	11	2	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	6	105	0	15	0	0	276	1632	0	0	46
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		12			12				24			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	2	1	1	2			1	2			1
Detector Template	Left	Thru	Right	Left	Thru			Left	Thru			Left
Leading Detector (ft)	20	100	20	20	100			20	100			20
Trailing Detector (ft)	0	0	0	0	0			0	0			0
Detector 1 Position(ft)	0	0	0	0	0			0	0			0
Detector 1 Size(ft)	20	6	20	20	6			20	6			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 2 Position(ft)		94			94				94			
Detector 2 Size(ft)		6			6				6			
Detector 2 Type		Cl+Ex			Cl+Ex				Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0				0.0			
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1151	99
Future Volume (vph)	1151	99
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	0.91	0.91
Frt	0.988	
Flt Protected		
Satd. Flow (prot)	4722	0
Flt Permitted		
Satd. Flow (perm)	4722	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	13	
Link Speed (mph)	40	
Link Distance (ft)	1443	
Travel Time (s)	24.6	
Peak Hour Factor	0.94	0.94
Heavy Vehicles (%)	9%	3%
Adj. Flow (vph)	1224	105
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1329	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (mph)		9
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (ft)	100	
Trailing Detector (ft)	0	
Detector 1 Position(ft)	0	
Detector 1 Size(ft)	6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	5	2		1	1
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0		9.5	9.5	24.0		9.5	9.5
Total Split (s)	12.6	27.1	27.1	9.5	24.0		34.0	34.0	70.0		13.4	13.4
Total Split (%)	10.5%	22.6%	22.6%	7.9%	20.0%		28.3%	28.3%	58.3%		11.2%	11.2%
Maximum Green (s)	9.1	21.1	21.1	6.0	18.0		29.5	29.5	64.0		8.9	8.9
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	3.5	4.0		3.5	3.5
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0	2.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0			4.5	6.0			4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0				7.0			
Flash Don't Walk (s)		11.0	11.0		11.0				11.0			
Pedestrian Calls (#/hr)		0	0		0				0			
Act Effct Green (s)	14.2	11.7	11.7		6.2			14.8	85.2			8.5
Actuated g/C Ratio	0.12	0.10	0.10		0.05			0.12	0.71			0.07
v/c Ratio	0.69	0.03	0.37		0.15			0.64	0.47			0.37
Control Delay (s/veh)	67.6	44.2	6.6		34.3			56.7	9.7			60.5
Queue Delay	0.0	0.0	0.0		0.0			0.0	0.0			0.0
Total Delay (s/veh)	67.6	44.2	6.6		34.3			56.7	9.7			60.5
LOS	E	D	A		C			E	A			E
Approach Delay (s/veh)		40.3			34.3				16.5			
Approach LOS		D			C				B			
90th %ile Green (s)	9.1	20.2	20.2	0.0	7.6		18.8	18.8	71.6		11.7	11.7
90th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
70th %ile Green (s)	9.1	19.1	19.1	0.0	6.5		16.4	16.4	74.6		9.8	9.8
70th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
50th %ile Green (s)	9.1	6.6	6.6	0.0	0.0		14.8	14.8	88.4		8.5	8.5
50th %ile Term Code	Max	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Gap	Gap
30th %ile Green (s)	9.1	6.6	6.6	0.0	0.0		13.2	13.2	89.7		7.2	7.2
30th %ile Term Code	Max	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Gap	Gap
10th %ile Green (s)	8.6	6.1	6.1	0.0	0.0		10.8	10.8	101.9		0.0	0.0
10th %ile Term Code	Gap	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Skip	Skip
Queue Length 50th (ft)	101	5	0		3			106	159			35
Queue Length 95th (ft)	149	16	24		26			146	306			72
Internal Link Dist (ft)		288			348				428			
Turn Bay Length (ft)	70		70					190				270
Base Capacity (vph)	189	351	400		263			860	3473			142
Starvation Cap Reductn	0	0	0		0			0	0			0
Spillback Cap Reductn	0	0	0		0			0	0			0
Storage Cap Reductn	0	0	0		0			0	0			0
Reduced v/c Ratio	0.68	0.02	0.26		0.06			0.32	0.47			0.32

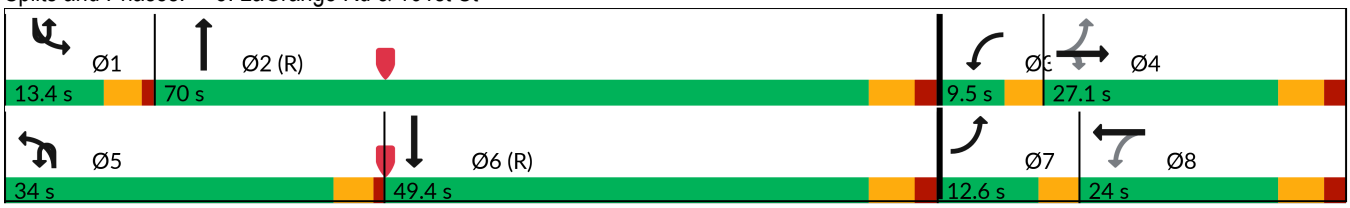
Intersection Summary

Lane Group	SBT	SBR
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	24.0	
Total Split (s)	49.4	
Total Split (%)	41.2%	
Maximum Green (s)	43.4	
Yellow Time (s)	4.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	77.0	
Actuated g/C Ratio	0.64	
v/c Ratio	0.44	
Control Delay (s/veh)	12.4	
Queue Delay	0.0	
Total Delay (s/veh)	12.4	
LOS	B	
Approach Delay (s/veh)	14.0	
Approach LOS	B	
90th %ile Green (s)	64.5	
90th %ile Term Code	Coord	
70th %ile Green (s)	68.0	
70th %ile Term Code	Coord	
50th %ile Green (s)	82.1	
50th %ile Term Code	Coord	
30th %ile Green (s)	83.7	
30th %ile Term Code	Coord	
10th %ile Green (s)	86.6	
10th %ile Term Code	Coord	
Queue Length 50th (ft)	148	
Queue Length 95th (ft)	271	
Internal Link Dist (ft)	1363	
Turn Bay Length (ft)		
Base Capacity (vph)	3033	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.44	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 17.2		Intersection LOS: B	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: LaGrange Rd & 161st St



Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1128	2	0	993	0	0
Future Vol, veh/h	1128	2	0	993	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	0	0	7	0	8
Mvmt Flow	1267	2	0	1116	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	635
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.38
Pot Cap-1 Maneuver	-	-	0	-	0	407
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	407
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

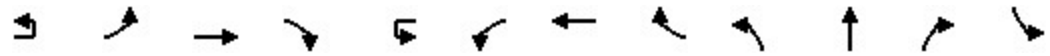
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	171	103	5
Future Vol, veh/h	0	0	0	171	103	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	20	0	0	0	0	20
Mvmt Flow	0	0	0	228	137	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	137	144	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	916	1451	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	916	1451	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

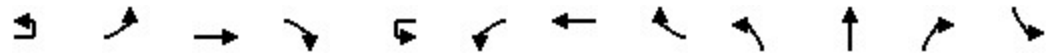
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1451	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	6	161	1011	131	8	249	1077	138	233	178	244	174
Future Volume (vph)	6	161	1011	131	8	249	1077	138	233	178	244	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	115		135	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			65			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.983					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1788	3460	0	0	3468	3689	1599	1770	2000	1615	1787
Flt Permitted		0.950				0.950			0.365			0.517
Satd. Flow (perm)	0	1788	3460	0	0	3468	3689	1599	680	2000	1615	973
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			10					117			214	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1880			380		
Travel Time (s)			15.0				32.0			8.6		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	2%	7%	0%	1%	3%	1%	2%	0%	0%	1%
Adj. Flow (vph)	6	164	1032	134	8	254	1099	141	238	182	249	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	1166	0	0	262	1099	141	238	182	249	178
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	156	170
Future Volume (vph)	156	170
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		143
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	159	173
Shared Lane Traffic (%)		
Lane Group Flow (vph)	159	173
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		17.5	60.0			15.3	57.8	79.4	40.4	19.1	40.4	33.8
Actuated g/C Ratio		0.13	0.46			0.12	0.44	0.61	0.31	0.15	0.31	0.26
v/c Ratio		0.71	0.73			0.64	0.67	0.14	0.64	0.62	0.38	0.51
Control Delay (s/veh)		69.0	33.3			61.9	33.4	4.0	42.6	60.9	7.6	38.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		69.0	33.3			61.9	33.4	4.0	42.6	60.9	7.6	38.2
LOS		E	C			E	C	A	D	E	A	D
Approach Delay (s/veh)			37.8				35.6			34.6		
Approach LOS			D				D			C		
90th %ile Green (s)	23.7	23.7	46.3		20.0	20.0	42.6	20.0	22.5	23.7	20.0	20.0
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Max	Hold	Gap	Gap
70th %ile Green (s)	20.1	20.1	53.5		16.7	16.7	50.1	17.6	21.9	22.2	16.7	17.6
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
50th %ile Green (s)	17.6	17.6	59.6		15.1	15.1	57.1	15.8	19.6	19.5	15.1	15.8
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
30th %ile Green (s)	15.0	15.0	65.9		13.4	13.4	64.3	13.8	17.3	16.9	13.4	13.8
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
10th %ile Green (s)	11.3	11.3	74.9		11.1	11.1	74.7	10.8	13.8	13.2	11.1	10.8
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
Queue Length 50th (ft)		139	410			110	383	8	158	145	21	114
Queue Length 95th (ft)		207	#640			150	#592	42	213	217	76	160
Internal Link Dist (ft)			800				1800			300		
Turn Bay Length (ft)		275				400		200	115		135	160
Base Capacity (vph)		301	1603			573	1638	1100	400	492	716	434
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.56	0.73			0.46	0.67	0.13	0.60	0.37	0.35	0.41

Intersection Summary

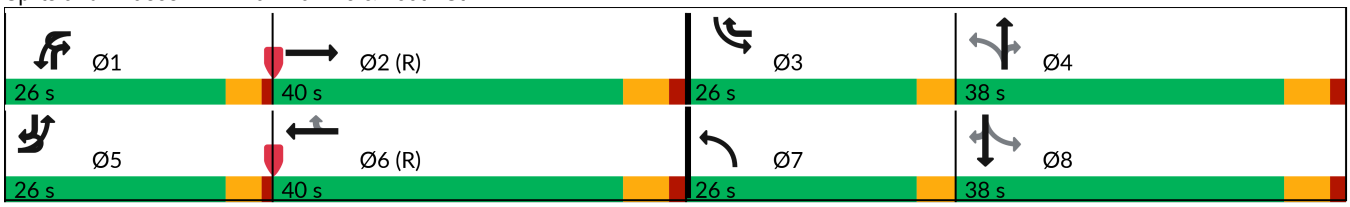
Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	32.0	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	1.5	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	15.7	39.2
Actuated g/C Ratio	0.12	0.30
v/c Ratio	0.66	0.30
Control Delay (s/veh)	67.3	8.3
Queue Delay	0.0	0.0
Total Delay (s/veh)	67.3	8.3
LOS	E	A
Approach Delay (s/veh)	37.1	
Approach LOS	D	
90th %ile Green (s)	21.2	23.7
90th %ile Term Code	Gap	Gap
70th %ile Green (s)	17.9	20.1
70th %ile Term Code	Gap	Gap
50th %ile Green (s)	15.7	17.6
50th %ile Term Code	Gap	Gap
30th %ile Green (s)	13.4	15.0
30th %ile Term Code	Gap	Gap
10th %ile Green (s)	10.2	11.3
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	130	18
Queue Length 95th (ft)	196	63
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	492	631
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.27

Intersection Summary

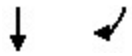
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 36.4		Intersection LOS: D	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 2: Ravinia Ave & 159th St



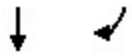
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	212	10	170	7	15	34	2	390	1772	23	6	59
Future Volume (vph)	212	10	170	7	15	34	2	390	1772	23	6	59
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		70	0		0		190		0		270
Storage Lanes	1		0	1		0		2		0		1
Taper Length (ft)	80			25				190				160
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.97	0.91	0.91	0.91	1.00
Frt			0.850		0.897				0.998			
Flt Protected	0.950			0.950				0.950				0.950
Satd. Flow (prot)	1805	2000	1615	1805	1704	0	0	3502	5028	0	0	1805
Flt Permitted	0.502			0.751				0.950				0.950
Satd. Flow (perm)	954	2000	1615	1427	1704	0	0	3502	5028	0	0	1805
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)			177		35				2			
Link Speed (mph)		30			30				40			
Link Distance (ft)		368			428				508			
Travel Time (s)		8.4			9.7				8.7			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	221	10	177	7	16	35	2	406	1846	24	6	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	10	177	7	51	0	0	408	1870	0	0	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		12			12				24			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	2	1	1	2			1	2			1
Detector Template	Left	Thru	Right	Left	Thru			Left	Thru			Left
Leading Detector (ft)	20	100	20	20	100			20	100			20
Trailing Detector (ft)	0	0	0	0	0			0	0			0
Detector 1 Position(ft)	0	0	0	0	0			0	0			0
Detector 1 Size(ft)	20	6	20	20	6			20	6			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 2 Position(ft)		94			94				94			
Detector 2 Size(ft)		6			6				6			
Detector 2 Type		Cl+Ex			Cl+Ex				Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0				0.0			
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2072	162
Future Volume (vph)	2072	162
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	0.91	0.91
Frt	0.989	
Flt Protected		
Satd. Flow (prot)	5037	0
Flt Permitted		
Satd. Flow (perm)	5037	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	10	
Link Speed (mph)	40	
Link Distance (ft)	1443	
Travel Time (s)	24.6	
Peak Hour Factor	0.96	0.96
Heavy Vehicles (%)	2%	0%
Adj. Flow (vph)	2158	169
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2327	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (mph)		9
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (ft)	100	
Trailing Detector (ft)	0	
Detector 1 Position(ft)	0	
Detector 1 Size(ft)	6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	5	2		1	1
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0		9.5	9.5	24.0		9.5	9.5
Total Split (s)	17.0	30.0	30.0	11.0	24.0		39.0	39.0	92.5		16.5	16.5
Total Split (%)	11.3%	20.0%	20.0%	7.3%	16.0%		26.0%	26.0%	61.7%		11.0%	11.0%
Maximum Green (s)	13.5	24.0	24.0	7.5	18.0		34.5	34.5	86.5		12.0	12.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	3.5	4.0		3.5	3.5
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0	2.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0			4.5	6.0			4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0				7.0			
Flash Don't Walk (s)		11.0	11.0		11.0				11.0			
Pedestrian Calls (#/hr)		0	0		0				0			
Act Effct Green (s)	24.6	20.0	20.0	14.4	7.4			22.8	102.7			10.9
Actuated g/C Ratio	0.16	0.13	0.13	0.10	0.05			0.15	0.68			0.07
v/c Ratio	0.95	0.04	0.48	0.05	0.44			0.77	0.54			0.51
Control Delay (s/veh)	106.4	56.4	12.4	50.3	40.7			70.9	14.2			79.9
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay (s/veh)	106.4	56.4	12.4	50.3	40.7			70.9	14.2			79.9
LOS	F	E	B	D	D			E	B			E
Approach Delay (s/veh)		64.4			41.9				24.4			
Approach LOS		E			D				C			
90th %ile Green (s)	13.5	17.2	17.2	7.1	10.8		28.1	28.1	90.7		15.0	15.0
90th %ile Term Code	Max	Hold	Hold	Gap	Gap		Gap	Gap	Coord		Gap	Gap
70th %ile Green (s)	13.5	25.5	25.5	0.0	8.5		25.0	25.0	95.4		12.6	12.6
70th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
50th %ile Green (s)	13.5	23.9	23.9	0.0	6.9		22.8	22.8	98.7		10.9	10.9
50th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
30th %ile Green (s)	13.5	22.5	22.5	0.0	5.5		20.6	20.6	101.8		9.2	9.2
30th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
10th %ile Green (s)	13.5	11.0	11.0	0.0	0.0		17.4	17.4	127.0		0.0	0.0
10th %ile Term Code	Max	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Skip	Skip
Queue Length 50th (ft)	206	8	0	6	15			200	342			64
Queue Length 95th (ft)	#337	29	74	20	61			250	448			115
Internal Link Dist (ft)		288			348				428			
Turn Bay Length (ft)	70		70					190				270
Base Capacity (vph)	233	324	410	169	235			805	3443			153
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	0.95	0.03	0.43	0.04	0.22			0.51	0.54			0.44

Intersection Summary



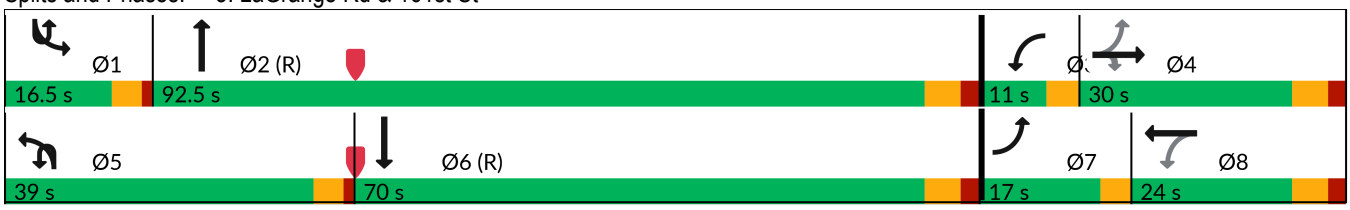
Lane Group	SBT	SBR
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	24.0	
Total Split (s)	70.0	
Total Split (%)	46.7%	
Maximum Green (s)	64.0	
Yellow Time (s)	4.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	88.6	
Actuated g/C Ratio	0.59	
v/c Ratio	0.78	
Control Delay (s/veh)	27.2	
Queue Delay	0.0	
Total Delay (s/veh)	27.2	
LOS	C	
Approach Delay (s/veh)	28.7	
Approach LOS	C	
90th %ile Green (s)	77.6	
90th %ile Term Code	Coord	
70th %ile Green (s)	83.0	
70th %ile Term Code	Coord	
50th %ile Green (s)	86.8	
50th %ile Term Code	Coord	
30th %ile Green (s)	90.4	
30th %ile Term Code	Coord	
10th %ile Green (s)	105.1	
10th %ile Term Code	Coord	
Queue Length 50th (ft)	626	
Queue Length 95th (ft)	798	
Internal Link Dist (ft)	1363	
Turn Bay Length (ft)		
Base Capacity (vph)	2978	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	

Intersection Summary

Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 29.8		Intersection LOS: C	
Intersection Capacity Utilization 87.0%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: LaGrange Rd & 161st St



Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1203	85	0	1519	0	85
Future Vol, veh/h	1203	85	0	1519	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	3	0	1
Mvmt Flow	1253	89	0	1582	0	89

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	671
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	401
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	401
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	16.49
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	401	-	-	-
HCM Lane V/C Ratio	0.221	-	-	-
HCM Ctrl Dly (s/v)	16.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	32	214	148	29
Future Vol, veh/h	0	22	32	214	148	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	0	0	0	0	3
Mvmt Flow	0	26	38	255	176	35

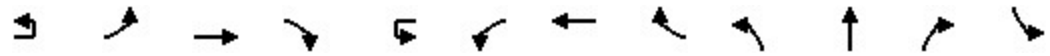
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	176	211	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	872	1372	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	872	1372	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.26	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1372	-	872	-	-
HCM Lane V/C Ratio	0.028	-	0.03	-	-
HCM Ctrl Dly (s/v)	7.7	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	19	143	930	125	2	349	900	131	270	202	296	107
Future Volume (vph)	19	143	930	125	2	349	900	131	270	202	296	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900
Storage Length (ft)		275		0		400		200	115		135	160
Storage Lanes		1		0		2		1	1		0	1
Taper Length (ft)		150				290			65			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.982					0.850			0.850	
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1789	3484	0	0	3467	3725	1599	1805	1980	1615	1752
Flt Permitted		0.950				0.950			0.329			0.624
Satd. Flow (perm)	0	1789	3484	0	0	3467	3725	1599	625	1980	1615	1151
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			11					132			289	
Link Speed (mph)			40				40			30		
Link Distance (ft)			880				1880			375		
Travel Time (s)			15.0				32.0			8.5		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	1%	2%	1%	0%	1%	0%	3%
Adj. Flow (vph)	20	152	989	133	2	371	957	139	287	215	315	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	1122	0	0	373	957	139	287	215	315	114
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			24				24			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Number of Detectors		1	2			1	2	1	1	2	1	1
Detector Template		Left	Thru			Left	Thru	Right	Left	Thru	Right	Left
Leading Detector (ft)		20	100			20	100	20	20	100	20	20
Trailing Detector (ft)		0	0			0	0	0	0	0	0	0
Detector 1 Position(ft)		0	0			0	0	0	0	0	0	0
Detector 1 Size(ft)		20	6			20	6	20	20	6	20	20
Detector 1 Type		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94				94			94		
Detector 2 Size(ft)			6				6			6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Prot	Prot	NA		Prot	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt
Protected Phases	5!	5	2		1!	1	6	3	7	4	1!	3

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	183	139
Future Volume (vph)	183	139
Ideal Flow (vphpl)	2000	1900
Storage Length (ft)		165
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	2000	1599
Flt Permitted		
Satd. Flow (perm)	2000	1599
Right Turn on Red		Yes
Satd. Flow (RTOR)		110
Link Speed (mph)	30	
Link Distance (ft)	571	
Travel Time (s)	13.0	
Peak Hour Factor	0.94	0.94
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	195	148
Shared Lane Traffic (%)		
Lane Group Flow (vph)	195	148
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.94	1.00
Turning Speed (mph)		9
Number of Detectors	2	1
Detector Template	Thru	Right
Leading Detector (ft)	100	20
Trailing Detector (ft)	0	0
Detector 1 Position(ft)	0	0
Detector 1 Size(ft)	6	20
Detector 1 Type	Cl+Ex	Cl+Ex
Detector 1 Channel		
Detector 1 Extend (s)	0.0	0.0
Detector 1 Queue (s)	0.0	0.0
Detector 1 Delay (s)	0.0	0.0
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	pm+ov
Protected Phases	8	5!



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Permitted Phases								6	4		4	8
Detector Phase	5	5	2		1	1	6	3	7	4	1	3
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	24.5		9.5	9.5	24.5	9.5	9.5	24.5	9.5	9.5
Total Split (s)	26.0	26.0	40.0		26.0	26.0	40.0	26.0	26.0	38.0	26.0	26.0
Total Split (%)	20.0%	20.0%	30.8%		20.0%	20.0%	30.8%	20.0%	20.0%	29.2%	20.0%	20.0%
Maximum Green (s)	21.5	21.5	34.0		21.5	21.5	34.0	22.5	22.5	32.0	21.5	22.5
Yellow Time (s)	3.5	3.5	4.5		3.5	3.5	4.5	3.5	3.5	4.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.5		1.0	1.0	1.5	0.0	0.0	1.5	1.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	6.0			4.5	6.0	3.5	3.5	6.0	4.5	3.5
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	None	C-Max	None	None	None	None	None
Walk Time (s)			7.0				7.0			7.0		
Flash Don't Walk (s)			11.0				11.0			11.0		
Pedestrian Calls (#/hr)			0				0			0		
Act Effct Green (s)		17.7	51.2			19.5	53.0	70.5	45.3	27.9	53.3	32.5
Actuated g/C Ratio		0.14	0.39			0.15	0.41	0.54	0.35	0.21	0.41	0.25
v/c Ratio		0.71	0.81			0.72	0.63	0.15	0.71	0.51	0.38	0.34
Control Delay (s/veh)		69.1	42.1			60.5	35.2	4.0	41.8	48.8	4.5	31.4
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		69.1	42.1			60.5	35.2	4.0	41.8	48.8	4.5	31.4
LOS		E	D			E	D	A	D	D	A	C
Approach Delay (s/veh)			45.7				38.6			29.2		
Approach LOS			D				D			C		
90th %ile Green (s)	23.8	23.8	38.4		24.6	24.6	39.2	14.8	22.5	32.2	24.6	14.8
90th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Max	Hold	Gap	Gap
70th %ile Green (s)	20.2	20.2	44.6		21.9	21.9	46.3	12.9	22.5	30.6	21.9	12.9
70th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Max	Hold	Gap	Gap
50th %ile Green (s)	17.7	17.7	49.8		19.2	19.2	51.3	11.6	22.5	29.4	19.2	11.6
50th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Max	Hold	Gap	Gap
30th %ile Green (s)	15.2	15.2	56.4		17.2	17.2	58.4	10.2	20.4	26.2	17.2	10.2
30th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
10th %ile Green (s)	11.4	11.4	66.8		14.4	14.4	69.8	7.9	16.4	20.9	14.4	7.9
10th %ile Term Code	Gap	Gap	Coord		Gap	Gap	Coord	Gap	Gap	Hold	Gap	Gap
Queue Length 50th (ft)		141	444			156	342	3	182	159	13	65
Queue Length 95th (ft)		209	#693			201	485	40	246	233	62	102
Internal Link Dist (ft)			800				1800			295		
Turn Bay Length (ft)		275				400		200	115		135	160
Base Capacity (vph)		301	1378			592	1518	1051	422	488	860	484
Starvation Cap Reductn		0	0			0	0	0	0	0	0	0
Spillback Cap Reductn		0	0			0	0	0	0	0	0	0
Storage Cap Reductn		0	0			0	0	0	0	0	0	0
Reduced v/c Ratio		0.57	0.81			0.63	0.63	0.13	0.68	0.44	0.37	0.24

Intersection Summary

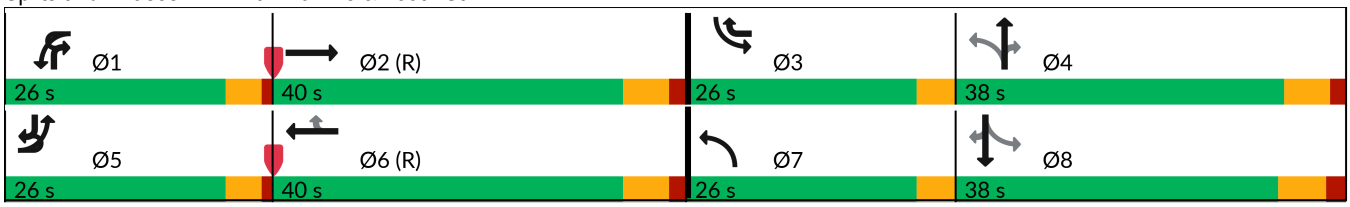
Lane Group	SBT	SBR
Permitted Phases		8
Detector Phase	8	5
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	24.5	9.5
Total Split (s)	38.0	26.0
Total Split (%)	29.2%	20.0%
Maximum Green (s)	31.5	21.5
Yellow Time (s)	4.5	3.5
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.5	4.5
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	18.0	42.1
Actuated g/C Ratio	0.14	0.32
v/c Ratio	0.71	0.25
Control Delay (s/veh)	66.9	9.3
Queue Delay	0.0	0.0
Total Delay (s/veh)	66.9	9.3
LOS	E	A
Approach Delay (s/veh)	39.4	
Approach LOS	D	
90th %ile Green (s)	24.0	23.8
90th %ile Term Code	Gap	Gap
70th %ile Green (s)	20.5	20.2
70th %ile Term Code	Gap	Gap
50th %ile Green (s)	18.0	17.7
50th %ile Term Code	Gap	Gap
30th %ile Green (s)	15.5	15.2
30th %ile Term Code	Gap	Gap
10th %ile Green (s)	11.9	11.4
10th %ile Term Code	Gap	Gap
Queue Length 50th (ft)	159	22
Queue Length 95th (ft)	230	62
Internal Link Dist (ft)	491	
Turn Bay Length (ft)		165
Base Capacity (vph)	484	641
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.40	0.23

Intersection Summary

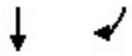
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 39.1		Intersection LOS: D	
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 2: Ravinia Ave & 159th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	220	5	184	8	10	24	7	425	1826	17	13	39
Future Volume (vph)	220	5	184	8	10	24	7	425	1826	17	13	39
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		70	0		0		190		0		270
Storage Lanes	1		0	1		0		2		0		1
Taper Length (ft)	80			25				190				160
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.97	0.91	0.91	0.91	1.00
Frt			0.850		0.894				0.999			
Flt Protected	0.950			0.950				0.950				0.950
Satd. Flow (prot)	1805	2000	1615	1805	1699	0	0	3502	5128	0	0	1778
Flt Permitted	0.471			0.800				0.950				0.950
Satd. Flow (perm)	895	2000	1615	1520	1699	0	0	3502	5128	0	0	1778
Right Turn on Red			Yes			Yes				Yes		
Satd. Flow (RTOR)			188		24				1			
Link Speed (mph)		30			30				40			
Link Distance (ft)		368			428				508			
Travel Time (s)		8.4			9.7				8.7			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	0%	2%
Adj. Flow (vph)	224	5	188	8	10	24	7	434	1863	17	13	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	5	188	8	34	0	0	441	1880	0	0	53
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		12			12				24			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Number of Detectors	1	2	1	1	2			1	2			1
Detector Template	Left	Thru	Right	Left	Thru			Left	Thru			Left
Leading Detector (ft)	20	100	20	20	100			20	100			20
Trailing Detector (ft)	0	0	0	0	0			0	0			0
Detector 1 Position(ft)	0	0	0	0	0			0	0			0
Detector 1 Size(ft)	20	6	20	20	6			20	6			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Detector 2 Position(ft)		94			94				94			
Detector 2 Size(ft)		6			6				6			
Detector 2 Type		Cl+Ex			Cl+Ex				Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0				0.0			
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1755	122
Future Volume (vph)	1755	122
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	0.91	0.91
Frt	0.990	
Flt Protected		
Satd. Flow (prot)	5088	0
Flt Permitted		
Satd. Flow (perm)	5088	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	9	
Link Speed (mph)	40	
Link Distance (ft)	1443	
Travel Time (s)	24.6	
Peak Hour Factor	0.98	0.98
Heavy Vehicles (%)	1%	0%
Adj. Flow (vph)	1791	124
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1915	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (mph)		9
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (ft)	100	
Trailing Detector (ft)	0	
Detector 1 Position(ft)	0	
Detector 1 Size(ft)	6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(ft)	94	
Detector 2 Size(ft)	6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	5	2		1	1
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0		9.5	9.5	24.0		9.5	9.5
Total Split (s)	17.0	27.8	27.8	14.0	24.8		38.2	38.2	74.3		13.9	13.9
Total Split (%)	13.1%	21.4%	21.4%	10.8%	19.1%		29.4%	29.4%	57.2%		10.7%	10.7%
Maximum Green (s)	13.5	21.8	21.8	10.5	18.8		33.7	33.7	68.3		9.4	9.4
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	3.5	4.0		3.5	3.5
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		1.0	1.0	2.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0			4.5	6.0			4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	None
Walk Time (s)		7.0	7.0		7.0				7.0			
Flash Don't Walk (s)		11.0	11.0		11.0				11.0			
Pedestrian Calls (#/hr)		0	0		0				0			
Act Effct Green (s)	21.7	17.1	17.1	12.1	6.8			21.7	87.2			9.2
Actuated g/C Ratio	0.17	0.13	0.13	0.09	0.05			0.17	0.67			0.07
v/c Ratio	0.92	0.02	0.50	0.05	0.31			0.76	0.55			0.42
Control Delay (s/veh)	91.4	47.6	11.8	41.8	35.4			60.1	13.7			67.2
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay (s/veh)	91.4	47.6	11.8	41.8	35.4			60.1	13.7			67.2
LOS	F	D	B	D	D			E	B			E
Approach Delay (s/veh)		55.0			36.6				22.5			
Approach LOS		E			D				C			
90th %ile Green (s)	13.5	15.7	15.7	7.0	9.2		26.9	26.9	74.6		12.7	12.7
90th %ile Term Code	Max	Hold	Hold	Gap	Gap		Gap	Gap	Coord		Gap	Gap
70th %ile Green (s)	13.5	24.4	24.4	0.0	7.4		23.8	23.8	78.4		10.7	10.7
70th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
50th %ile Green (s)	13.5	23.2	23.2	0.0	6.2		21.7	21.7	81.1		9.2	9.2
50th %ile Term Code	Max	Hold	Hold	Skip	Gap		Gap	Gap	Coord		Gap	Gap
30th %ile Green (s)	13.5	11.0	11.0	0.0	0.0		19.6	19.6	94.7		7.8	7.8
30th %ile Term Code	Max	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Gap	Gap
10th %ile Green (s)	13.5	11.0	11.0	0.0	0.0		16.4	16.4	107.0		0.0	0.0
10th %ile Term Code	Max	Hold	Hold	Skip	Skip		Gap	Gap	Coord		Skip	Skip
Queue Length 50th (ft)	175	4	0	6	8			184	323			44
Queue Length 95th (ft)	#284	17	71	20	43			232	421			85
Internal Link Dist (ft)		288			348				428			
Turn Bay Length (ft)	70		70					190				270
Base Capacity (vph)	243	347	436	216	266			907	3438			141
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	0.92	0.01	0.43	0.04	0.13			0.49	0.55			0.38

Intersection Summary

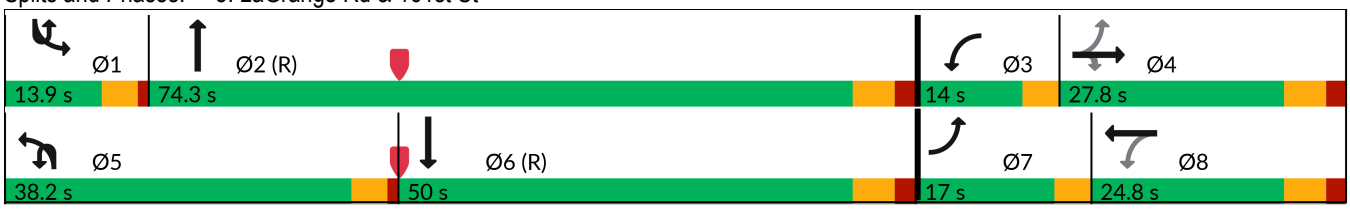
Lane Group	SBT	SBR
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	24.0	
Total Split (s)	50.0	
Total Split (%)	38.5%	
Maximum Green (s)	44.0	
Yellow Time (s)	4.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Walk Time (s)	7.0	
Flash Don't Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	72.7	
Actuated g/C Ratio	0.56	
v/c Ratio	0.67	
Control Delay (s/veh)	23.4	
Queue Delay	0.0	
Total Delay (s/veh)	23.4	
LOS	C	
Approach Delay (s/veh)	24.6	
Approach LOS	C	
90th %ile Green (s)	60.4	
90th %ile Term Code	Coord	
70th %ile Green (s)	65.3	
70th %ile Term Code	Coord	
50th %ile Green (s)	68.6	
50th %ile Term Code	Coord	
30th %ile Green (s)	82.9	
30th %ile Term Code	Coord	
10th %ile Green (s)	86.1	
10th %ile Term Code	Coord	
Queue Length 50th (ft)	430	
Queue Length 95th (ft)	560	
Internal Link Dist (ft)	1363	
Turn Bay Length (ft)		
Base Capacity (vph)	2847	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.67	

Intersection Summary

Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay (s/veh): 26.3		Intersection LOS: C	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: LaGrange Rd & 161st St



Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1067	106	0	1344	0	120
Future Vol, veh/h	1067	106	0	1344	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	1	0	2	0	1
Mvmt Flow	1173	116	0	1477	0	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	645
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	-	-	0	-	0	418
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	418
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	17.55
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	418	-	-	-
HCM Lane V/C Ratio	0.316	-	-	-
HCM Ctrl Dly (s/v)	17.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	45	235	140	40
Future Vol, veh/h	0	27	45	235	140	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	110	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	34	56	294	175	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	175	225	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	4.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	0	874	1356	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	874	1356	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.29	1.25	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1356	-	874	-	-
HCM Lane V/C Ratio	0.041	-	0.039	-	-
HCM Ctrl Dly (s/v)	7.8	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

MOVEMENT SUMMARY

Site: [4] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	1	0.0	1	0.0	0.148	4.0	LOS A	0.7	17.7	0.23	0.09	0.23	16.7
8	T1	All MCs	182	0.0	182	0.0	0.148	4.0	LOS A	0.7	17.7	0.23	0.09	0.23	25.7
18	R2	All MCs	4	0.0	4	0.0	0.148	4.0	LOS A	0.7	17.7	0.23	0.09	0.23	21.4
Approach			187	0.0	187	0.0	0.148	4.0	LOS A	0.7	17.7	0.23	0.09	0.23	25.5
East: North Costco Dwy															
1	L2	All MCs	9	0.0	9	0.0	0.073	3.7	LOS A	0.3	7.8	0.33	0.19	0.33	20.0
6	T1	All MCs	1	0.0	1	0.0	0.073	3.7	LOS A	0.3	7.8	0.33	0.19	0.33	15.3
16	R2	All MCs	71	3.0	71	3.0	0.073	3.9	LOS A	0.3	7.8	0.33	0.19	0.33	23.5
Approach			80	2.6	80	2.6	0.073	3.9	LOS A	0.3	7.8	0.33	0.19	0.33	23.1
North: Ravinia Ave															
7	L2	All MCs	75	3.0	75	3.0	0.142	3.6	LOS A	0.7	17.3	0.07	0.01	0.07	21.8
4	T1	All MCs	109	3.0	109	3.0	0.142	3.6	LOS A	0.7	17.3	0.07	0.01	0.07	23.9
14	R2	All MCs	5	0.0	5	0.0	0.142	3.4	LOS A	0.7	17.3	0.07	0.01	0.07	22.0
Approach			189	2.9	189	2.9	0.142	3.6	LOS A	0.7	17.3	0.07	0.01	0.07	23.0
West: North Costco Dwy															
5	L2	All MCs	5	3.0	5	3.0	0.007	3.4	LOS A	0.0	0.7	0.32	0.15	0.32	21.8
2	T1	All MCs	1	3.0	1	3.0	0.007	3.4	LOS A	0.0	0.7	0.32	0.15	0.32	18.3
12	R2	All MCs	1	0.0	1	0.0	0.007	3.2	LOS A	0.0	0.7	0.32	0.15	0.32	19.5
Approach			8	2.6	8	2.6	0.007	3.3	LOS A	0.0	0.7	0.32	0.15	0.32	21.1
All Vehicles			464	1.7	464	1.7	0.148	3.8	LOS A	0.7	17.7	0.18	0.08	0.18	24.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

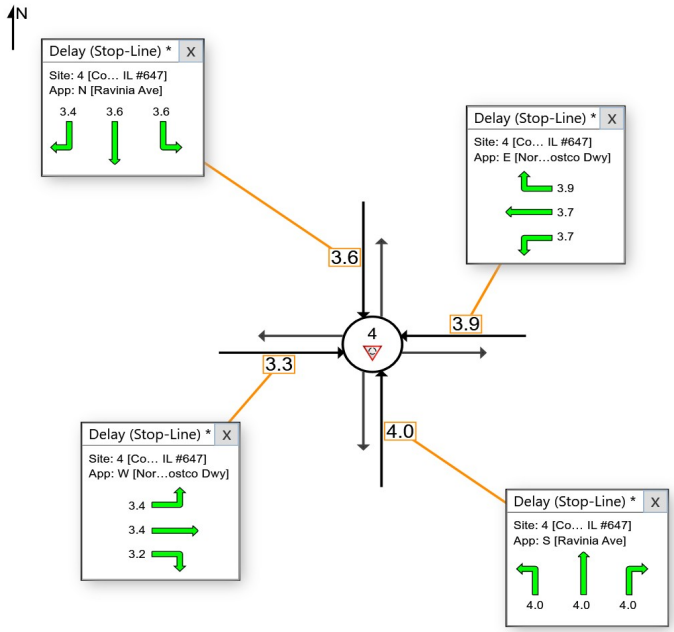
Site: [4] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

Organisation: V3 COMPANIES LTD. | Licence: NETWORK / 1PC | Processed: Wednesday, June 25, 2025 11:07:41 AM
Project: N:\2004\04016\04016.08PE\Calcs&Data\TME\Sidra\3a. 2025 FwP AM.sipx

MOVEMENT SUMMARY

Site: [5] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	3	0.0	3	0.0	0.273	6.8	LOS A	1.3	32.0	0.57	0.43	0.57	14.7
8	T1	All MCs	221	3.0	221	3.0	0.273	7.2	LOS A	1.3	32.0	0.57	0.43	0.57	22.6
18	R2	All MCs	9	0.0	9	0.0	0.273	6.8	LOS A	1.3	32.0	0.57	0.43	0.57	18.4
Approach			233	2.8	233	2.8	0.273	7.1	LOS A	1.3	32.0	0.57	0.43	0.57	22.3
East: North Costco Dwy															
1	L2	All MCs	12	0.0	12	0.0	0.361	8.3	LOS A	1.7	44.3	0.63	0.50	0.63	16.2
6	T1	All MCs	38	0.0	38	0.0	0.361	8.3	LOS A	1.7	44.3	0.63	0.50	0.63	12.3
16	R2	All MCs	242	3.0	242	3.0	0.361	8.8	LOS A	1.7	44.3	0.63	0.50	0.63	19.6
Approach			292	2.5	292	2.5	0.361	8.7	LOS A	1.7	44.3	0.63	0.50	0.63	18.6
North: Ravinia Ave															
7	L2	All MCs	141	3.0	141	3.0	0.270	5.1	LOS A	1.5	37.5	0.21	0.07	0.21	20.6
4	T1	All MCs	170	3.0	170	3.0	0.270	5.1	LOS A	1.5	37.5	0.21	0.07	0.21	22.5
14	R2	All MCs	33	0.0	33	0.0	0.270	4.9	LOS A	1.5	37.5	0.21	0.07	0.21	20.7
Approach			343	2.7	343	2.7	0.270	5.0	LOS A	1.5	37.5	0.21	0.07	0.21	21.6
West: North Costco Dwy															
5	L2	All MCs	250	3.0	250	3.0	0.308	7.0	LOS A	1.5	38.9	0.53	0.37	0.53	18.8
2	T1	All MCs	32	3.0	32	3.0	0.308	7.0	LOS A	1.5	38.9	0.53	0.37	0.53	15.3
12	R2	All MCs	11	0.0	11	0.0	0.308	6.7	LOS A	1.5	38.9	0.53	0.37	0.53	16.6
Approach			292	2.9	292	2.9	0.308	7.0	LOS A	1.5	38.9	0.53	0.37	0.53	18.5
All Vehicles			1161	2.7	1161	2.7	0.361	6.9	LOS A	1.7	44.3	0.47	0.33	0.47	20.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

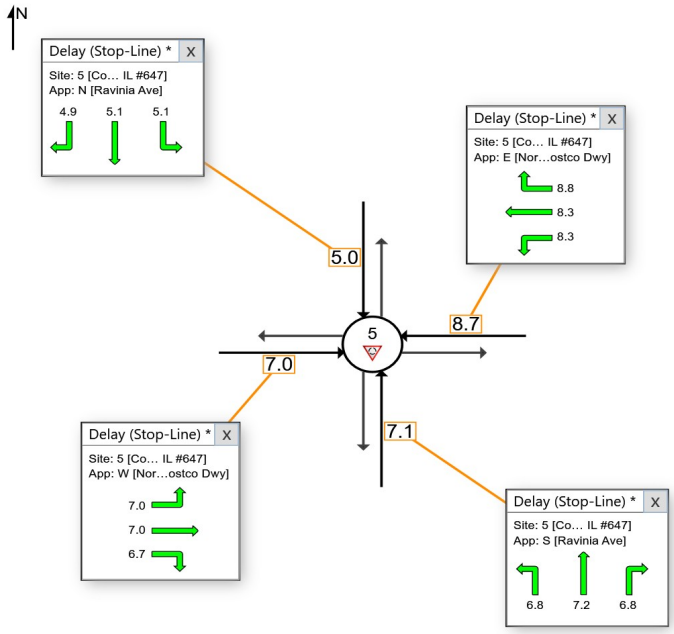
Site: [5] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F	NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

MOVEMENT SUMMARY

Site: [6] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
Sat MD Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Ravinia Ave															
3	L2	All MCs	4	0.0	4	0.0	0.332	8.2	LOS A	1.5	39.0	0.64	0.52	0.64	13.9
8	T1	All MCs	238	3.0	238	3.0	0.332	8.6	LOS A	1.5	39.0	0.64	0.52	0.64	21.4
18	R2	All MCs	13	0.0	13	0.0	0.332	8.2	LOS A	1.5	39.0	0.64	0.52	0.64	17.3
Approach			255	2.8	255	2.8	0.332	8.6	LOS A	1.5	39.0	0.64	0.52	0.64	21.1
East: North Costco Dwy															
1	L2	All MCs	15	0.0	15	0.0	0.484	11.1	LOS B	3.2	80.4	0.72	0.69	0.97	14.5
6	T1	All MCs	50	0.0	50	0.0	0.484	11.1	LOS B	3.2	80.4	0.72	0.69	0.97	11.0
16	R2	All MCs	300	3.0	300	3.0	0.484	11.6	LOS B	3.2	80.4	0.72	0.69	0.97	17.7
Approach			365	2.5	365	2.5	0.484	11.5	LOS B	3.2	80.4	0.72	0.69	0.97	16.8
North: Ravinia Ave															
7	L2	All MCs	182	3.0	182	3.0	0.316	5.6	LOS A	1.8	46.3	0.25	0.10	0.25	20.0
4	T1	All MCs	168	3.0	168	3.0	0.316	5.6	LOS A	1.8	46.3	0.25	0.10	0.25	21.9
14	R2	All MCs	46	0.0	46	0.0	0.316	5.4	LOS A	1.8	46.3	0.25	0.10	0.25	20.1
Approach			396	2.7	396	2.7	0.316	5.6	LOS A	1.8	46.3	0.25	0.10	0.25	20.9
West: North Costco Dwy															
5	L2	All MCs	297	3.0	297	3.0	0.383	8.3	LOS A	2.0	50.6	0.60	0.43	0.60	18.1
2	T1	All MCs	38	3.0	38	3.0	0.383	8.3	LOS A	2.0	50.6	0.60	0.43	0.60	14.5
12	R2	All MCs	12	0.0	12	0.0	0.383	7.9	LOS A	2.0	50.6	0.60	0.43	0.60	15.8
Approach			347	2.9	347	2.9	0.383	8.3	LOS A	2.0	50.6	0.60	0.43	0.60	17.7
All Vehicles			1363	2.7	1363	2.7	0.484	8.4	LOS A	3.2	80.4	0.54	0.42	0.60	19.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DELAY - AVERAGE (STOP-LINE)

Average stop-line delay per vehicle, or average pedestrian delay (seconds)

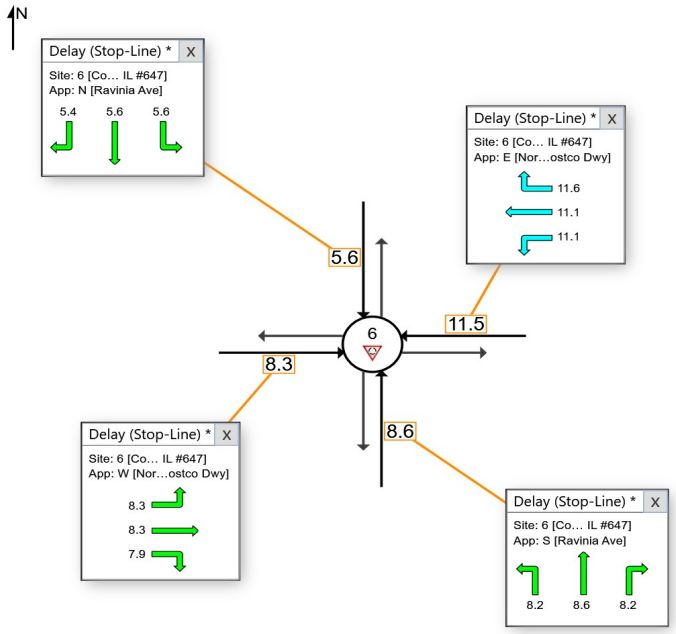
Site: [6] Costco Wholesale, Orland Park, IL #647 (2050 FwP)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2050 Future w/Ravinia Extension Traffic Volumes
North Costco Dwy & Ravinia Ave
Sat MD Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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

Close All Popups

All Movement Classes (*)



Colour code based on Level of Service

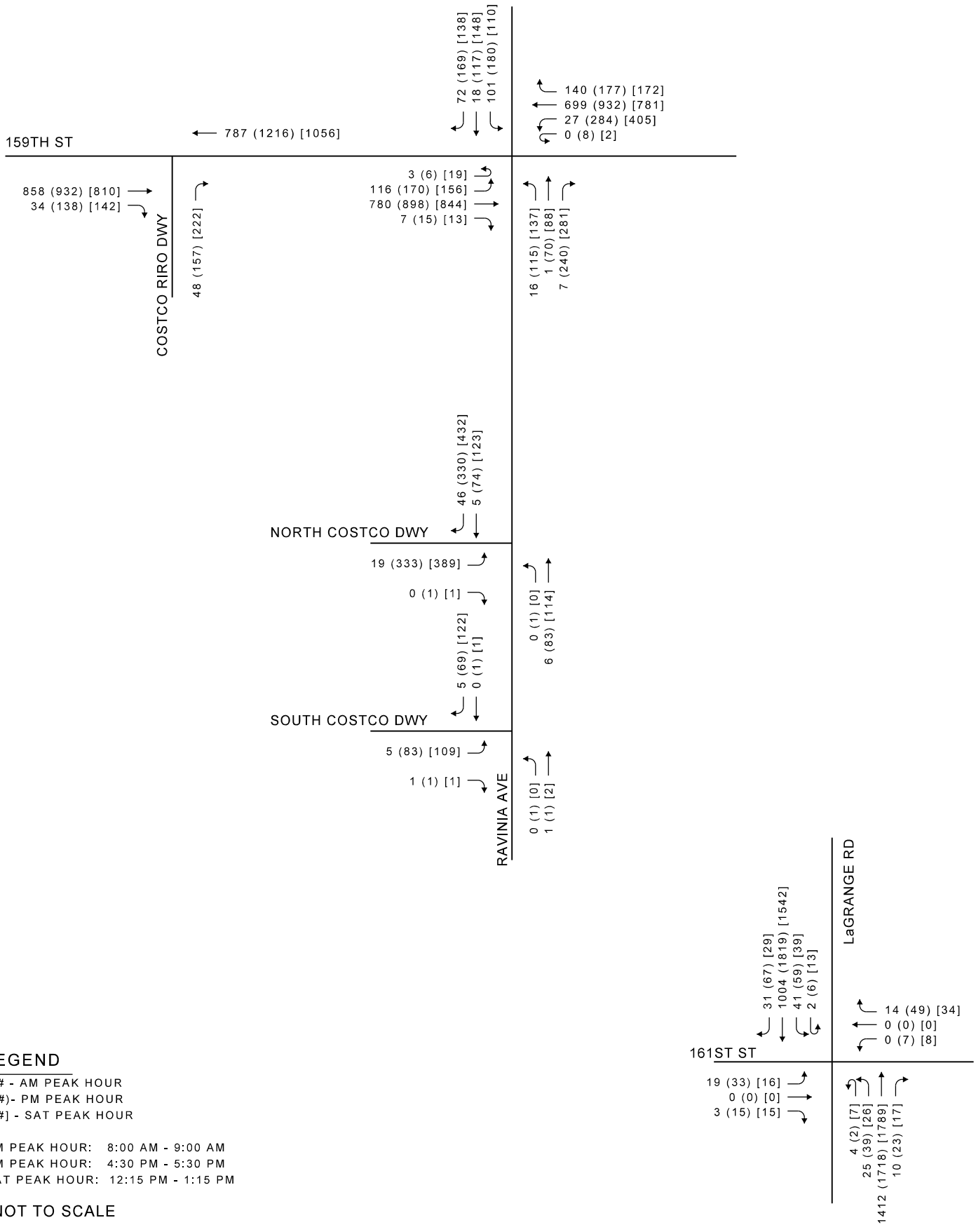
LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | NA

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Approach values are flow-weighted average values for vehicle movements (pedestrian delays not included).

APPENDIX H

DEVELOPMENT OF 2050 TRAFFIC VOLUMES



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

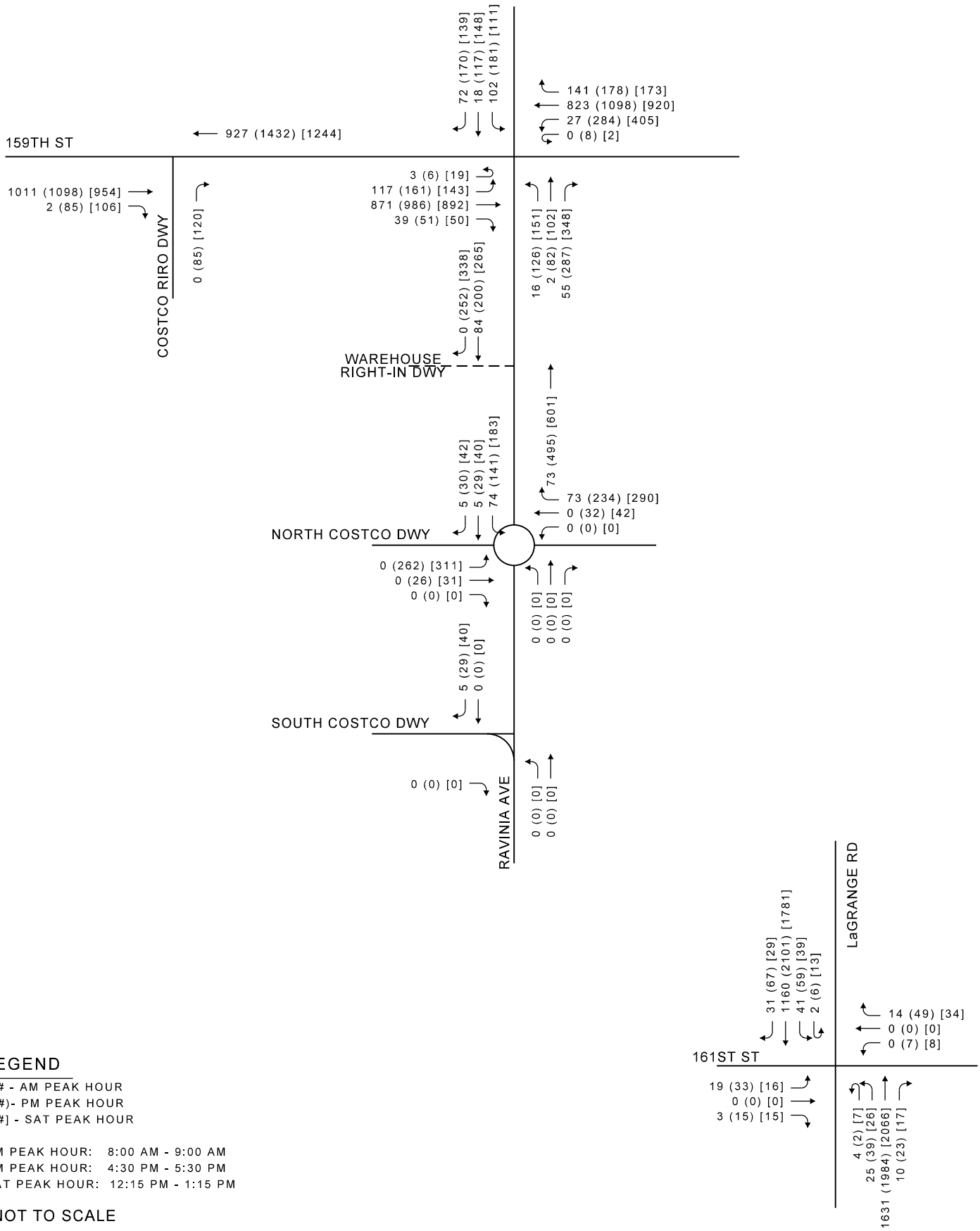
AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE
ORLAND PARK, IL #647

FIGURE 5
EXISTING TRAFFIC VOLUMES

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

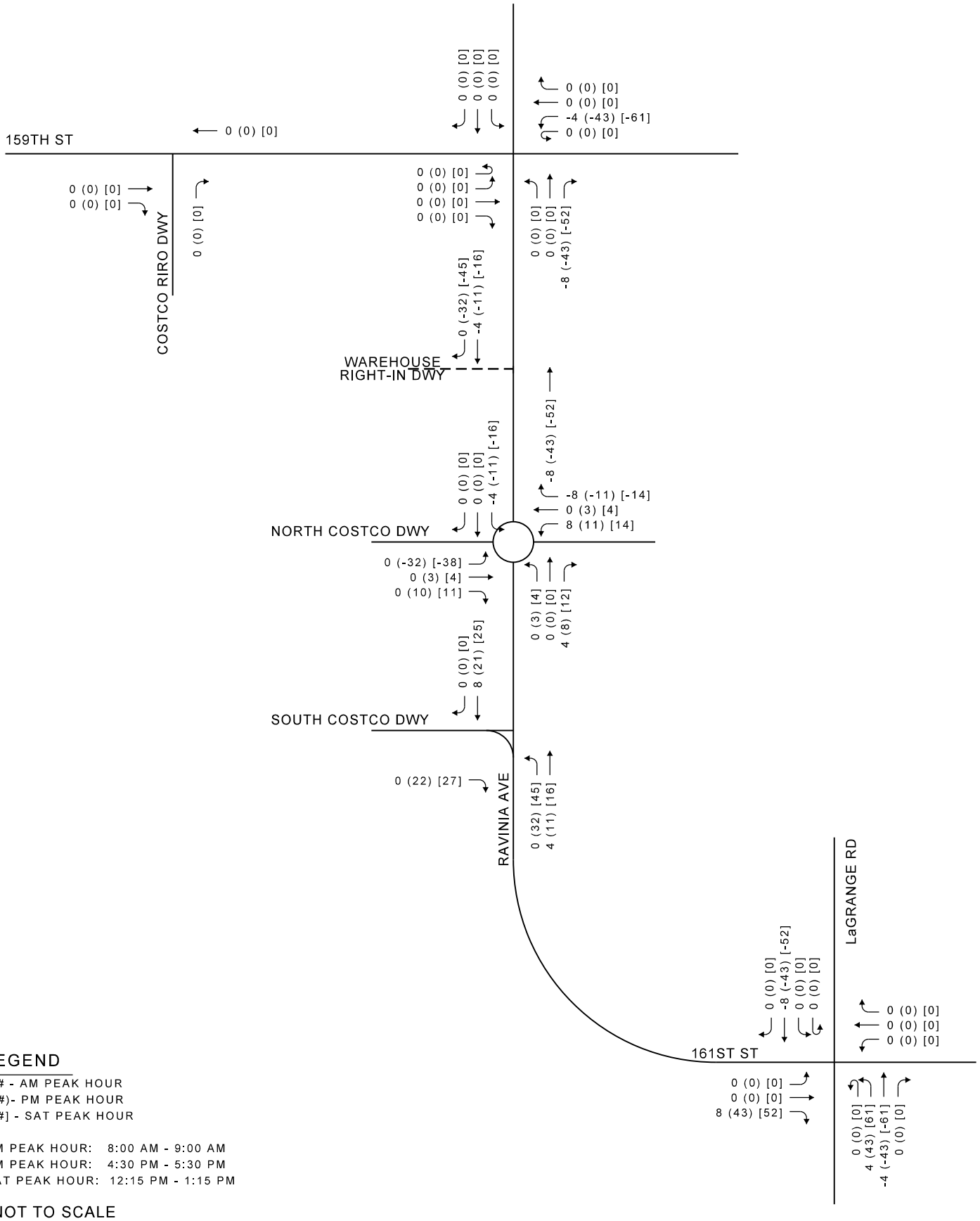
AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE
ORLAND PARK, IL #647

2050 BACKGROUND TRAFFIC VOLUMES

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

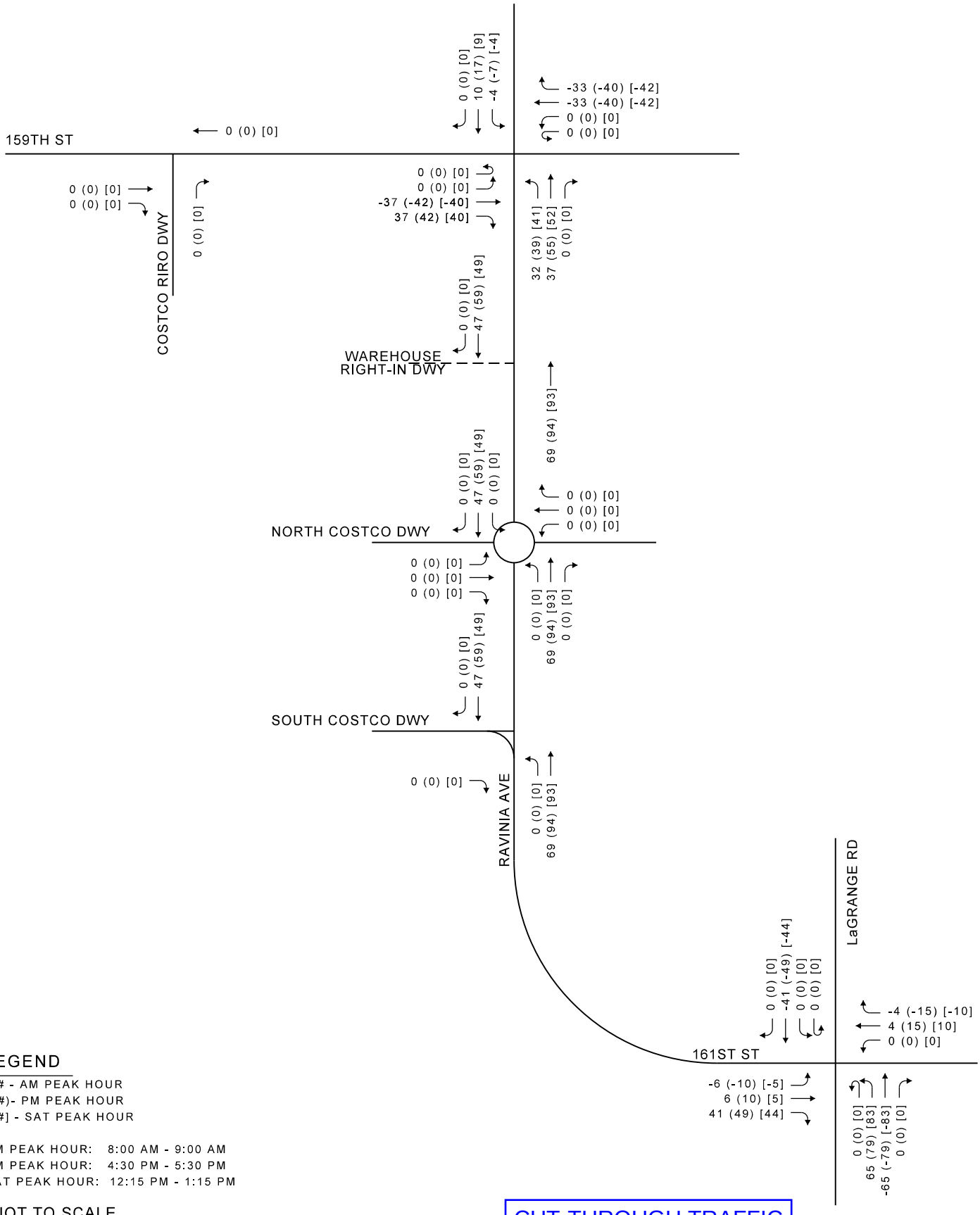
AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE ORLAND PARK, IL #647

COSTCO TRAFFIC VOLUMES WITH RAVINIA EXTENSION

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

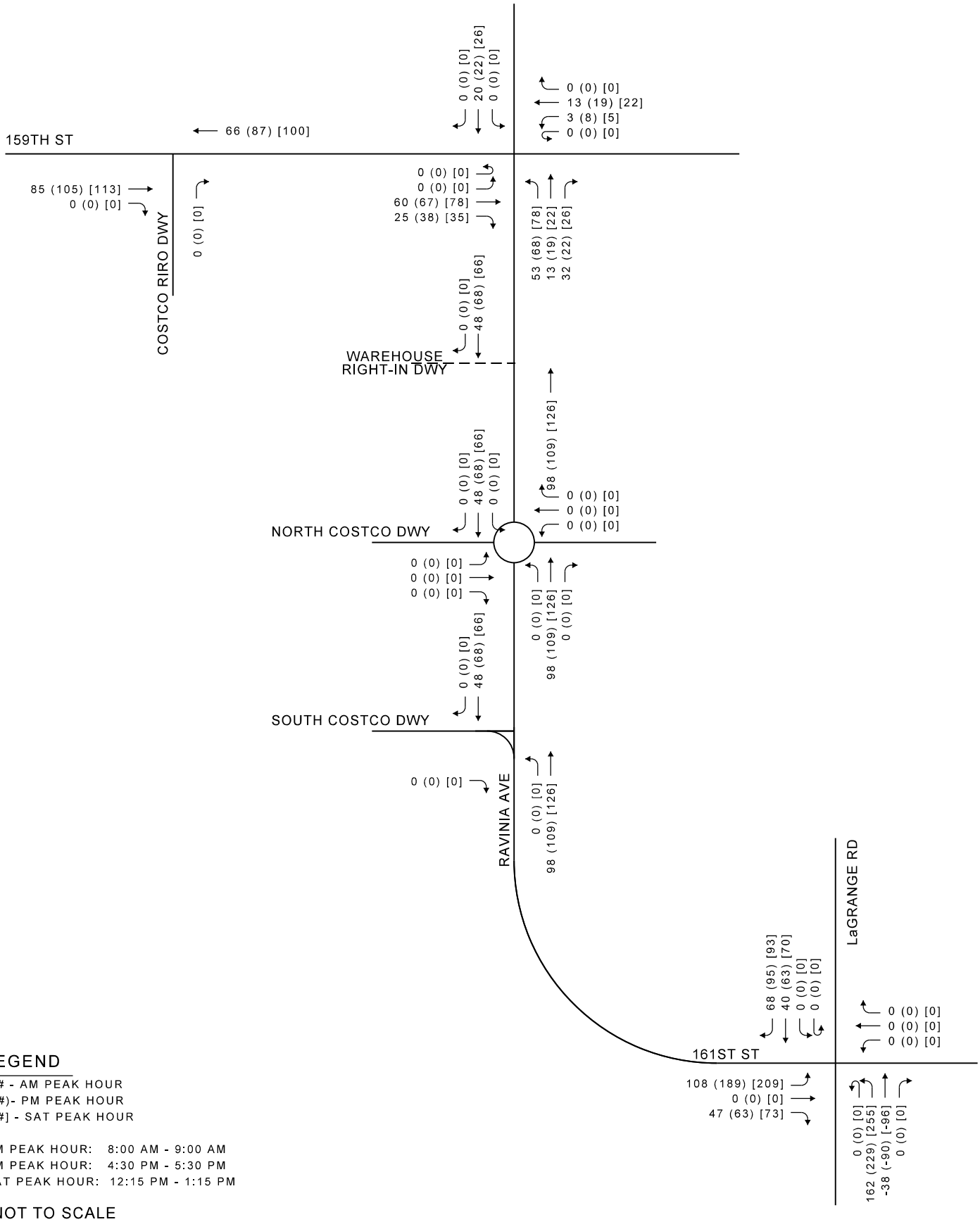
NOT TO SCALE

CUT-THROUGH TRAFFIC

COSTCO WHOLESALE
ORLAND PARK, IL #647

2050 REROUTED TRAFFIC VOLUMES WITH RAVINIA EXTENSION

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

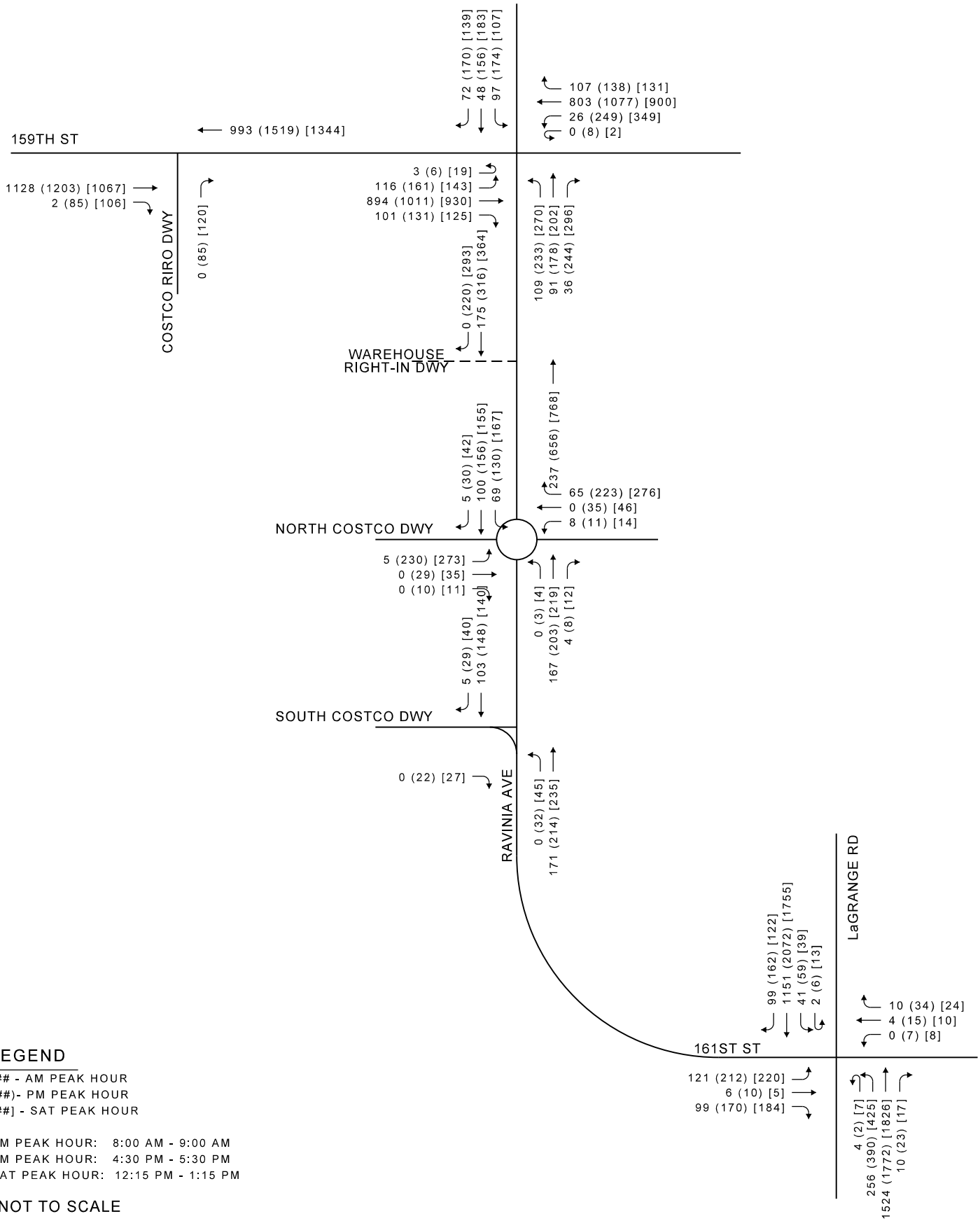
AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE
ORLAND PARK, IL #647

ADJACENT DEVELOPMENT TRAFFIC VOLUMES WITH RAVINIA EXTENSION

ORLAND PARK ILLINOIS



LEGEND

- AM PEAK HOUR
(##)- PM PEAK HOUR
[##] - SAT PEAK HOUR

AM PEAK HOUR: 8:00 AM - 9:00 AM
PM PEAK HOUR: 4:30 PM - 5:30 PM
SAT PEAK HOUR: 12:15 PM - 1:15 PM

NOT TO SCALE

COSTCO WHOLESALE
ORLAND PARK, IL #647

FIGURE 10
2050 FUTURE WITH PROJECT TRAFFIC VOLUMES

ORLAND PARK ILLINOIS