

Traffic and Parking Impact Study Proposed Haymarket Center

Itasca, Illinois



Prepared For:

Haymarket Center

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

July 1, 2019

Table of Contents

| | |
|---|----|
| I. Executive Summary..... | 1 |
| 1. Introduction..... | 3 |
| 2. Existing Conditions..... | 4 |
| Site Location..... | 4 |
| Existing Roadway System Characteristics..... | 4 |
| Traffic Signal Interconnect..... | 8 |
| Existing Traffic Volumes..... | 8 |
| Accident Data Analysis..... | 10 |
| 3. Traffic Characteristics of the Proposed Development..... | 11 |
| Proposed Site and Development Plan..... | 11 |
| Development Access..... | 11 |
| Directional Distribution of Development Traffic..... | 11 |
| Development Traffic Generation..... | 13 |
| 4. Projected Traffic Conditions..... | 14 |
| Development Traffic Assignment..... | 14 |
| Year 2026 Base (No-Build) Projected Traffic Conditions..... | 14 |
| Year 2026 Total Projected Traffic Conditions..... | 14 |
| 5. Traffic Analysis and Recommendations..... | 18 |
| 6. Discussion and Recommendations..... | 22 |
| 7. Parking Evaluation..... | 24 |
| 8. Conclusion..... | 25 |

Appendix

I. Executive Summary

Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) conducted a traffic impact and parking study for the proposed Haymarket Center development to be located at 860 West Irving Park Road in Itasca, Illinois. The site is located within the Spring Lakes Business Park and is generally bordered by Irving Park Road (IL 19) to the north, office/industrial to the south, Spring Lake Drive to the west, and Interstate 290 to the east. A Holiday Inn currently occupies the site and will be repurposed to accommodate the proposed development. The site includes approximately 361 parking spaces in a surface lot.

The development plans call for repurposing the existing 161-room hotel building for a health center with a range of medical and clinical services for individuals with substance use disorders and mental health conditions. It is anticipated that the facility will have between 200 to 230 clients on site and 160 full-time employees over three shifts. Clients are not allowed to have vehicles on site. The site will continue to be accessed via the full access drive off Spring Lake Drive opposite Maplewood Drive, in addition to the full access points serving the Spring Lakes Business Park, which includes the signalized intersection of Rohlwing Road (IL 53) at Spring Lake Drive, the unsignalized intersection of Spring Lake Drive at Irving Park Road, and the unsignalized intersection of Rohlwing Road at Hawthorn Drive.

Traffic capacity analyses were conducted for the following two conditions:

- *Year 2019 (Existing) Conditions.* This condition analyzes the existing weekday morning and weekday evening peak hours to establish a base condition.
- *Year 2026 Total (Buildout) Conditions.* This condition includes the projection of the existing traffic volumes increased by a compounded regional growth factor of three (3) percent and the traffic estimated to be generated by the buildout of the proposed development.

Based on the proposed development plan and the traffic capacity analyses for the full buildout of the development, the findings and recommendations of this study are outlined below.

- The proposed development will have a low traffic impact on the surrounding roadway network.
- The signalized access off IL 53 and the two unsignalized access points off both IL 53 and IL 19 that serve the Spring Lakes Business Park, which includes the proposed development, will continue to operate at acceptable levels of service during peak hours and no roadway or traffic control improvements are recommended at these intersections in conjunction with the proposed development.

- The existing full access drive off Spring Lake Drive opposite Maplewood Drive that serves the site will continue to be adequate to accommodate the projected traffic estimated to be generated by the proposed redevelopment.
- Based on surveys of an existing, similar facility, the existing approximate 361-space parking lot serving the site will be adequate to accommodate the peak parking demand of the proposed development, which will primarily consist of employees and visitors.

1. Introduction

A traffic impact and parking study was conducted for the proposed Haymarket Center development to be located at 860 West Irving Park Road in Itasca, Illinois. The site is located within the Spring Lakes Business Park and is generally bordered by Irving Park Road (IL 19) to the north, office/industrial to the south, Spring Lake Drive to the west, and Interstate 290 to the east. A Holiday Inn currently occupies the site and will be repurposed to accommodate the proposed development. The site includes approximately 361 parking spaces in a surface lot.

The development plans call for repurposing the existing 161-room hotel building for a health center with a range of medical and clinical services for individuals with substance use disorders and mental health conditions. It is anticipated that the facility will have between 200 to 230 clients on site and 160 full-time employees over three shifts. Clients are not allowed to have vehicles on site. The site will continue to be accessed via the full access drive off Spring Lake Drive opposite Maplewood Drive, in addition to the full access points serving the Spring Lakes Business Park, which includes the signalized intersection of Rohlwing Road (IL 53) at Spring Lake Drive, the unsignalized intersection of Spring Lake Drive at Irving Park Road, and the unsignalized intersection of Rohlwing Road at Hawthorn Drive.

The sections of this report present the following:

- Existing roadway conditions including vehicle, pedestrian, and bicycle traffic volumes for the weekday morning and weekday evening peak hours
- A description of the proposed development
- Vehicle trip generation for the proposed development
- Directional distribution of development-generated traffic
- Regional growth in traffic for Year 2026 no-build conditions
- Future transportation conditions including access to and from the development
- Parking evaluation

The purpose of this study is as follows:

- Determine the existing vehicular, pedestrian, and bicycle conditions in the study area to establish a base condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any roadway, traffic control, or access improvements that may be necessary to effectively accommodate and mitigate future conditions.
- Determine if the proposed parking supply is adequate to satisfy industry standards/peak parking demand.

2. Existing Conditions

Existing traffic and roadway conditions were documented based on field visits and traffic counts conducted by KLOA, Inc. The following provides a detailed description of the physical characteristics of the roadways including geometry and traffic control, adjacent land uses, and peak hour traffic flows along area roadways.

Site Location

The site is located within the Spring Lakes Business Park, which includes an array of office and light industrial land uses and is currently occupied by the approximate 161-room Holiday Inn, which will be repurposed to accommodate the proposed development.

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

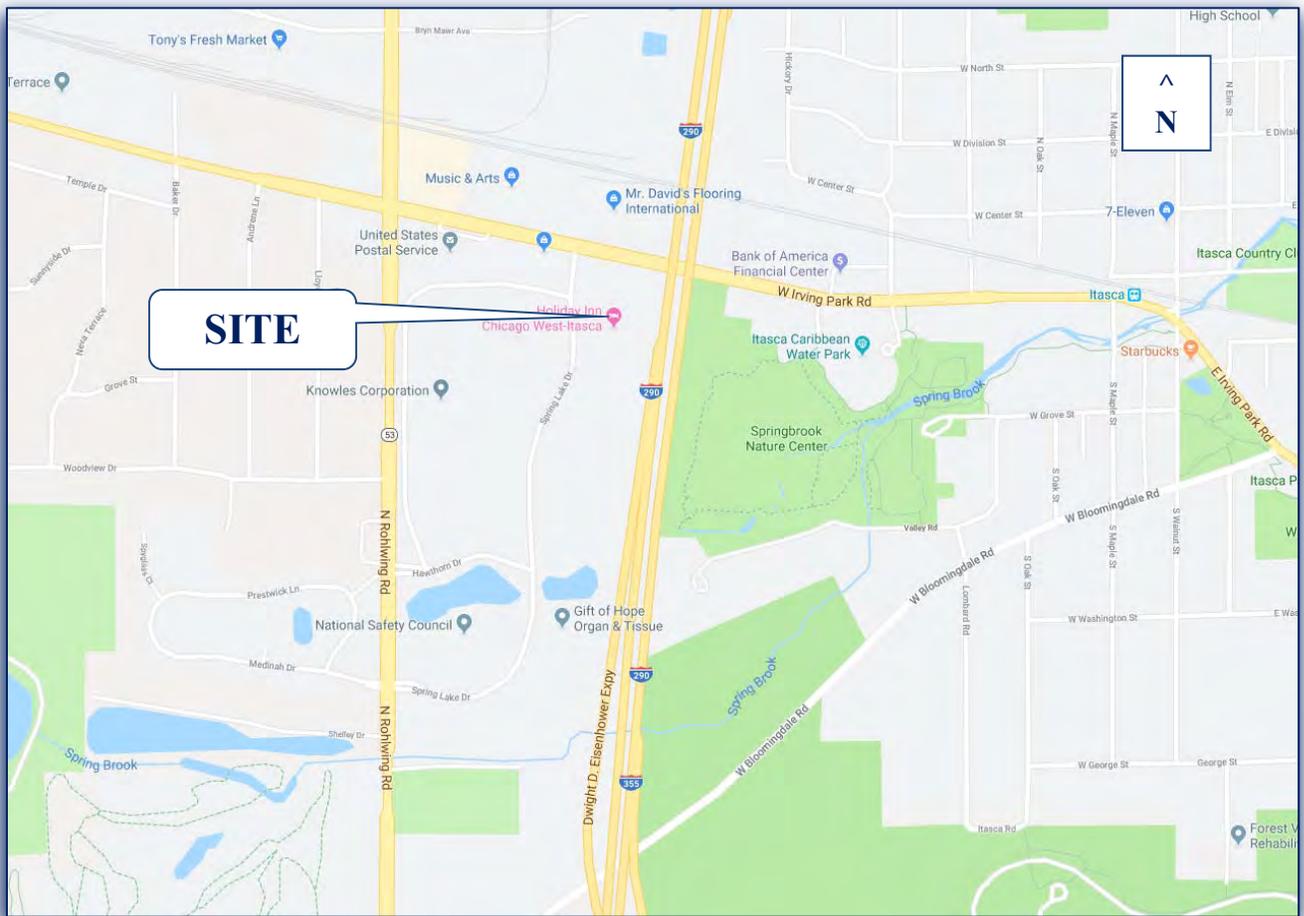
Existing Roadway System Characteristics

The characteristics of the existing roadways that surround the proposed development are illustrated in **Figure 3** and described below.

Irving Park Road (IL 19) is a major east-west arterial providing two through lanes in each direction and a center lane allowing left-turn lanes/movements from intersecting roadways in the vicinity of the site. The posted speed limit is 35 mph in the vicinity of Spring Lake Drive. Irving Park Road is served by PACE Bus Route #616. Irving Park Road (IL 19) is under the jurisdiction of the Illinois Department of Transportation (IDOT) and is not designated as a Strategic Regional Arterial (SRA) in the vicinity of the site (IL 19 is designated as a SRA from IL 83 to the west to US 41-Lake Shore Drive to the east). According to IDOT's website, the annual average daily traffic volume (AADT) is 16,000 vehicles.

Rohlwing Road (IL 53) is a north-south arterial providing two through lanes in each direction and a center lane allowing left-turn lanes/movements from intersecting roadways in the vicinity of the site. The posted speed limit is 40 mph in the vicinity of the site. Rohlwing Road is under the jurisdiction of IDOT and is not designated as a SRA. According to IDOT's website, the AADT volume is 17,900 vehicles.

Spring Lake Drive is a two-lane collector roadway that extends south from its unsignalized, intersection terminus with Irving Park Road to its signalized intersection terminus with Rohlwing Road providing access to individual land use sites within the Spring Lakes Business Park in addition to its intersections with Maplewood Drive and Hawthorn Drive. The posted speed limit is 25 mph in the vicinity of the site and parking is restricted on both sides of the roadway. Spring Lake Drive is served by PACCE Bus Route #616 and has numerous bus stops for both directions of travel, including at Maplewood Drive which is opposite the full access drive serving the site. Spring Lake Drive is under the jurisdiction of the Village of Itasca.



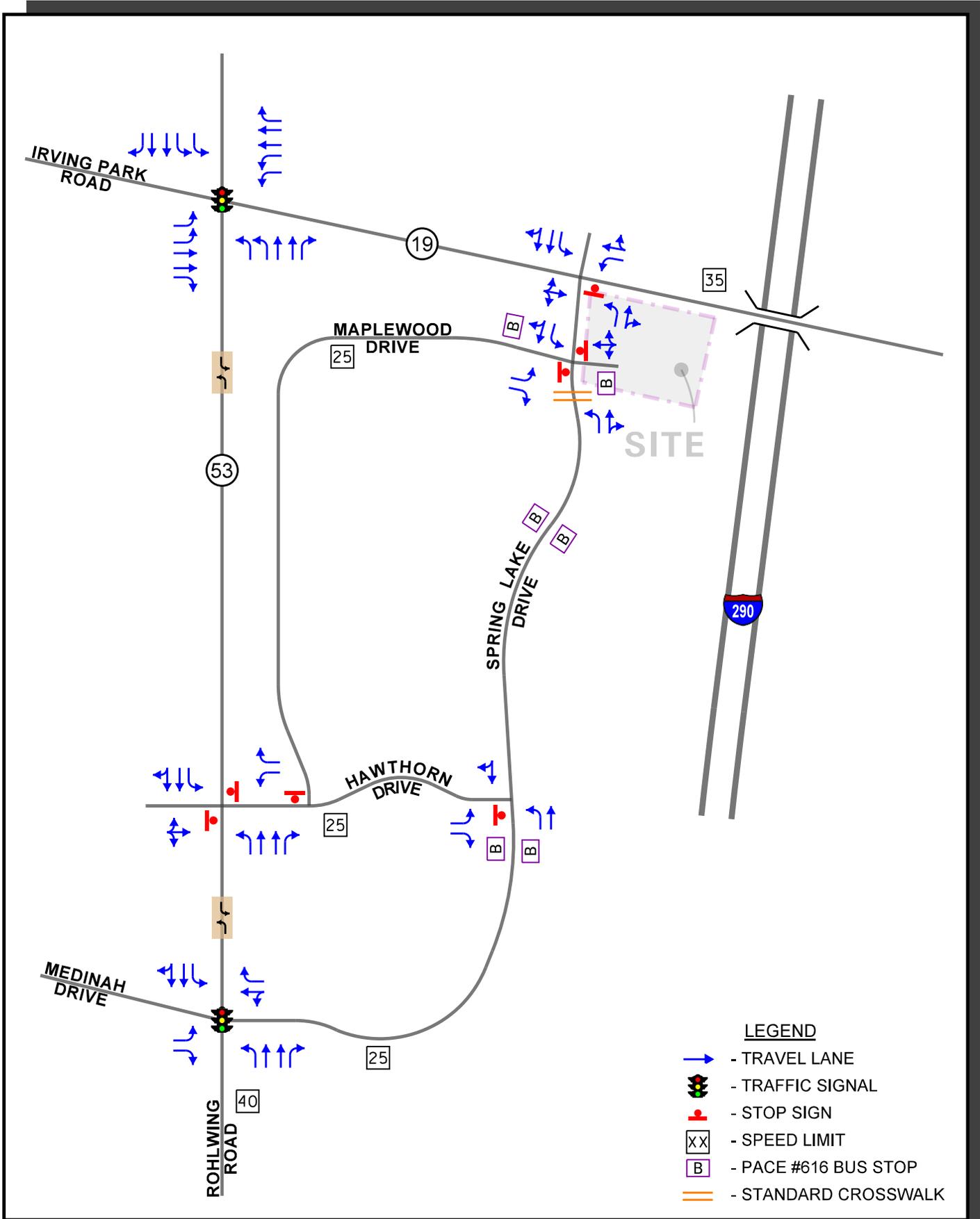
Site Location

Figure 1



Aerial Map

Figure 2



Haymarket Center
Itasca, Illinois

Existing Roadway Characteristics



Job No: 19-133

Figure: 3

Maplewood Drive is a two-lane roadway that T-intersects Spring Lake Drive from the west opposite the full access drive serving the site and extends west and south to its T-intersection with Hawthorn Drive. The posted speed limit is 25 mph and parking is restricted on both sides of the roadway. Maplewood Drive is under the jurisdiction of the Village of Itasca.

Hawthorn Drive is a two-lane roadway that T-intersects Rohlwing Road from the east and extends east to its T-intersection with Spring Lake Drive. The posted speed limit is 25 mph and parking is restricted on both sides of the roadway. Hawthorn Drive is under the jurisdiction of the Village of Itasca.

Traffic Signal Interconnect

The signalized intersection of Rohlwing Road (IL 53) and Spring Lake Drive/Medinah Drive is part of a nine-signal interconnect system network that extends from Rohlwing Road and Nordic Drive to the south to Rohlwing Road and Interstate 390 Westbound Frontage/Ramps to the north. The intersection of Rohlwing Road and Irving Park Road is the master controller of the network, which operates on a 100 second cycle length during the weekday morning peak hour and 110 second cycle length during the weekday evening peak hour.

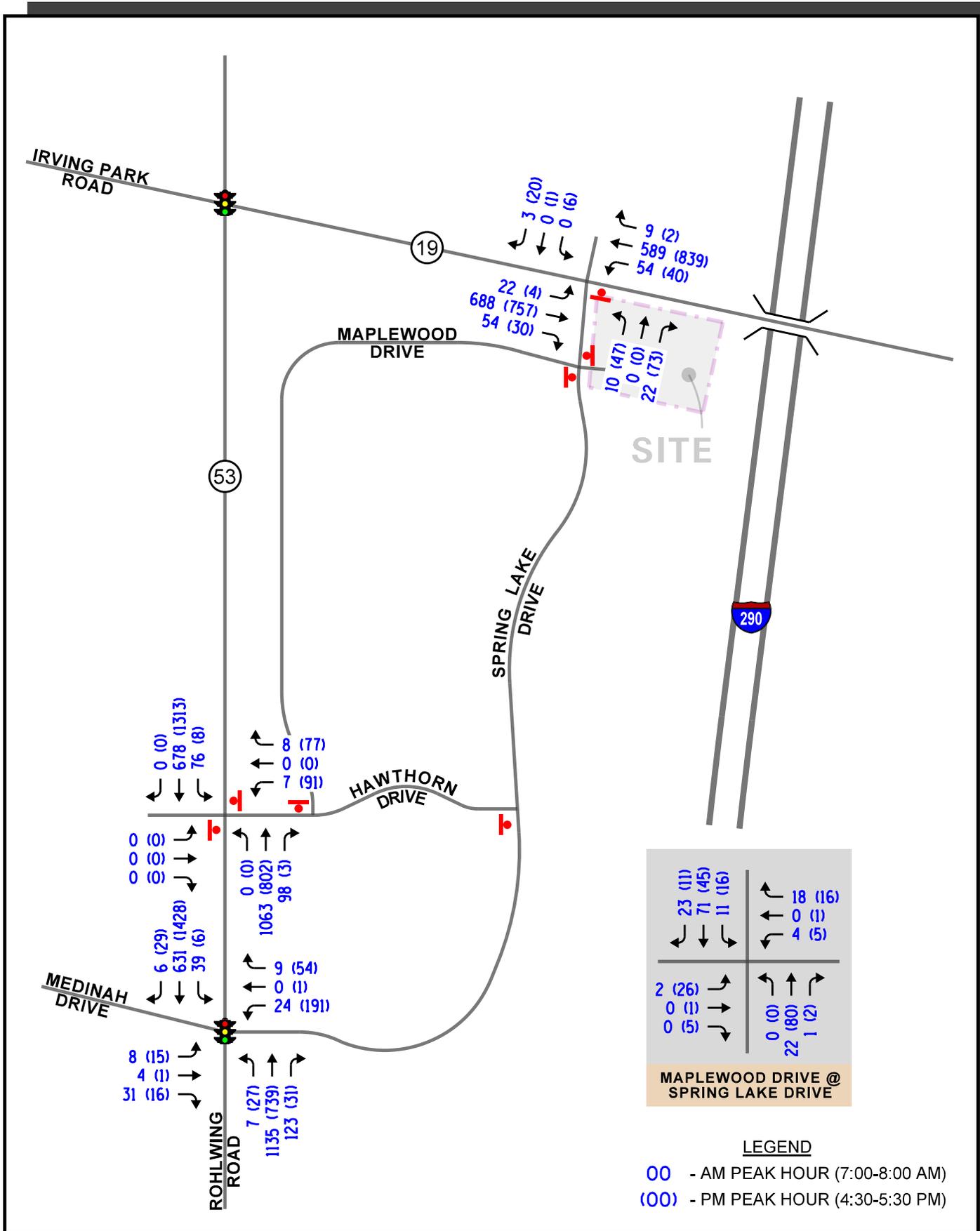
Existing Traffic Volumes

Vehicle, pedestrian, and bicycle movement traffic counts were conducted on Wednesday, May 29, 2019 during the morning (7:00 to 9:00 A.M.) and the evening (4:00 to 6:00 P.M.) peak periods at the following four (4) intersections:

1. Rohlwing Road (IL 53) and Spring Lake Drive/Medinah Drive (signalized)
2. Spring Lake Drive and Irving Park Road (IL 19)
3. Spring Lake Drive and Maplewood Drive/Site Access
4. Rohlwing Road and Hawthorn Drive

From the turning movement count data, it was determined that the weekday morning peak hour generally occurs between 7:00 and 8:00 A.M., and the weekday evening peak hour generally occurs between 4:30 and 5:30 P.M. These two respective peak hours will be used for the traffic capacity analyses and are presented later in this report. Pedestrian and bicycle activity was reported to be very low at the study intersections.

The existing peak hour vehicle traffic volumes are shown in **Figure 4**.



LEGEND

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

Haymarket Center
Itasca, Illinois

Existing Traffic Volumes



Job No: 19-133 Figure: 4

Accident Data Analysis

KLOA, Inc. obtained currently available crash data¹ from IDOT for a five-year period (Years 2013 through 2017) for the study area intersections, noted above. The crash data incidents are summarized by year and intersection in **Table 1**.

Table 1
ACCIDENT DATA SUMMARY

| Year | Intersection | | | |
|--------------------------|--------------------------|-----------------------|-----------------------------|---------------------------|
| | Rohlwing/ Spring Lake | Rohlwing/ Hawthorn | Spring Lake/ Irving Park | Spring Lake/ Maplewood |
| 2013 | 3 | 0 | 1 | 0 |
| 2014 | 1 | 0 | 0 | 0 |
| 2015 | 3 | 0 | 1 | 0 |
| 2016 | 0 | 0 | 0 | 0 |
| 2017 | <u>0</u> | <u>0</u> | <u>2</u> | <u>0</u> |
| Total | 7 | 0 | 4 | 0 |
| Average/ Year | <1 | <1 | <1 | <1 |

¹ IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. The author is responsible for any data analyses and conclusions drawn.

3. Traffic Characteristics of the Proposed Development

To evaluate the impact of the subject development on the area roadway system, it was necessary to quantify the number of vehicle trips the site will generate during the respective two peak hours and then determine the directions from which the proposed traffic will approach and depart the site.

Proposed Site and Development Plan

The development plans call for repurposing the existing 161-room hotel building for a health center with a range of medical and clinical services for individuals with substance use disorders and mental health conditions. It is anticipated that the facility will have between 200 to 230 clients on site and 160 full-time employees over three shifts. Clients are not allowed to have vehicles on site. The site will continue to be accessed via the full access drive off Spring Lake Drive opposite Maplewood Drive, in addition to the full access points serving the Spring Lakes Business Park. The site includes approximately 361 parking spaces in a surface lot.

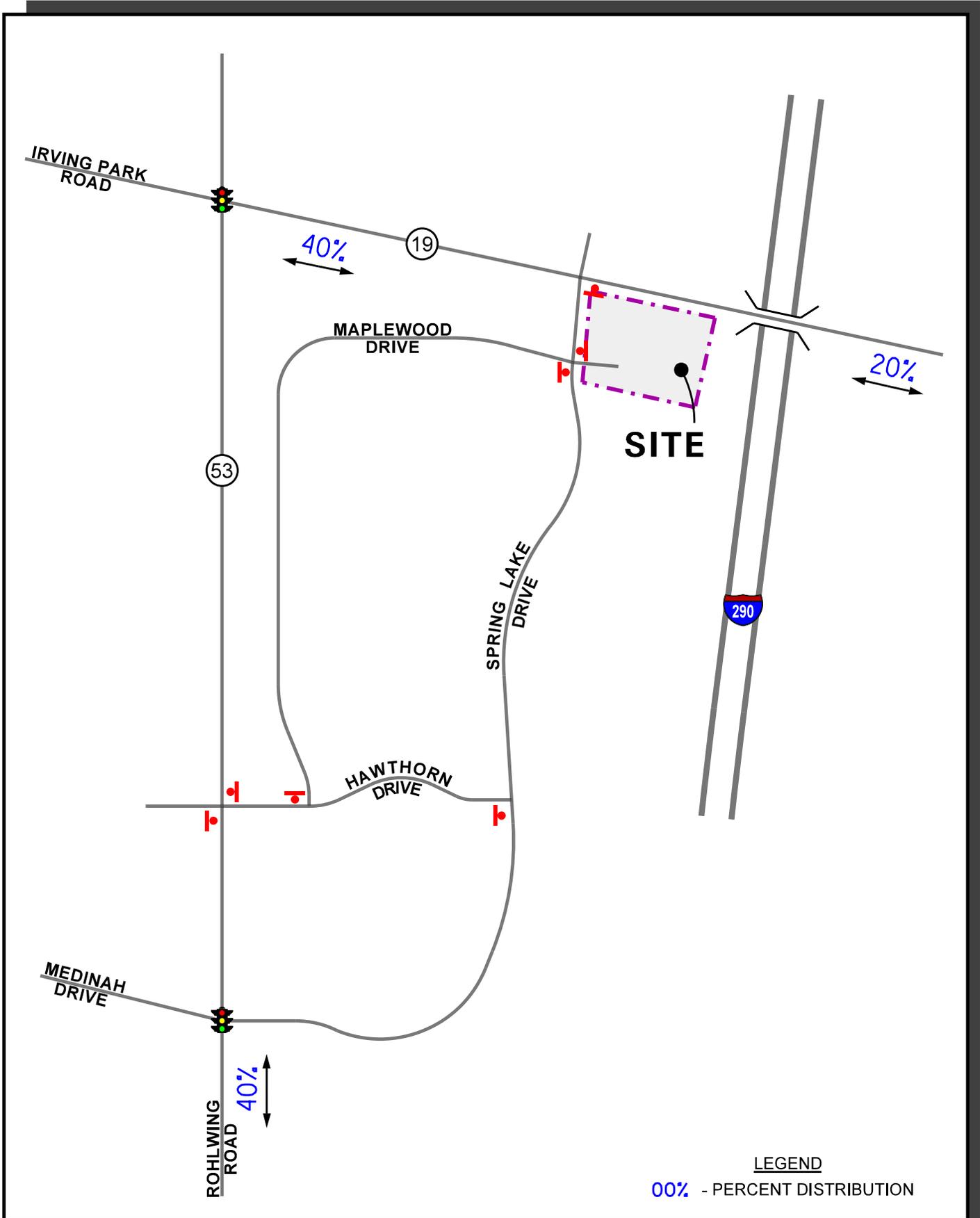
Development Access

Access to the development will continue to be accessed via the full access drive off Spring Lake Drive as described below.

Site Access and Spring Lake Drive. The existing, full access drive T-intersects Spring Lake Drive from the east, providing one lane inbound and one lane outbound under stop sign control. The west/fourth leg of the intersection is Maplewood Drive, which provides one acceptance lane and two lanes on the eastbound approach striped to provide a left-turn lane and a shared through/right-turn lane under stop sign control. Spring Lake Drive provides a left-turn lane and a shared through/right-turn lane on both the northbound and southbound approaches.

Directional Distribution of Development Traffic

The directional distribution of how traffic will approach and depart the site was estimated based on a combination of existing travel patterns of traffic traversing the study area, the location and types of access points serving the development, and the existing roadway characteristics and traffic controls surrounding the site. The established directional distribution for the proposed development is illustrated in **Figure 5**.



LEGEND

00% - PERCENT DISTRIBUTION

Haymarket Center
Itasca, Illinois

Estimated Directional Distribution



Job No: 19-133

Figure: 5

Development Traffic Generation

The estimate of vehicle traffic to be generated by the proposed development is based upon the proposed land use type and size. The vehicle trip generation for the overall development is typically calculated using data published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition. However, for the purposes of this study, traffic counts of an existing, similar facility in Woodridge, Illinois were conducted.

The existing Woodridge Interventions facility is located at 2221 West 64th Street in Woodridge, Illinois and has a capacity of 79 beds. Driveway counts were conducted at this facility during peak periods on Thursday, May 30, 2019. **Table 2** shows the total vehicle trips generated and the vehicle trip rate for the existing facility for the weekday morning and weekday evening peak hours, as well as the weekday daily volume. Using the established vehicle trip rates from the survey of the existing facility (Table 2), vehicle trip generation was estimated for the proposed 230-bed facility and is tabulated in **Table 3**.

Table 2
WOODRIDGE INTERVENTIONS GENERATED TRAFFIC VOLUMES

| Type/Size | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | | Weekday Daily (Two-Way) | |
|---------------------------|---------------------------|-------------|---------------------------|-------------|-------------------------|-------------|
| | In | Out | In | Out | In | Out |
| 79 Beds | 28 | 24 | 15 | 15 | 150 | 150 |
| <i>Vehicle Trip Rate:</i> | <i>0.53</i> | <i>0.13</i> | <i>0.19</i> | <i>0.19</i> | <i>1.90</i> | <i>1.90</i> |

Table 3
ESTIMATED DEVELOPMENT-GENERATED TRAFFIC VOLUMES

| Type/Size | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | | Weekday Daily (Two-Way) | |
|---------------------------|---------------------------|-------------|---------------------------|-------------|-------------------------|-------------|
| | In | Out | In | Out | In | Out |
| 230 Beds | 122 | 30 | 44 | 44 | 437 | 437 |
| <i>Vehicle Trip Rate:</i> | <i>0.53</i> | <i>0.13</i> | <i>0.19</i> | <i>0.19</i> | <i>1.90</i> | <i>1.90</i> |

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes increased by a regional growth rate and the traffic estimated to be generated by the proposed subject development.

Development Traffic Assignment

The peak hour traffic volumes projected to be generated by the proposed development (Table 3) were assigned to the area roadways based on the directional distribution established (Figure 5).

Figure 6 shows the assignment of the development-generated traffic volumes.

Year 2026 Base (No-Build) Projected Traffic Conditions

Year 2026 represents the buildout year plus five years of the proposed development plan. The Year 2026 base traffic volume projections include regional growth in traffic, as described below.

Regional Traffic Growth

To account for the increase in existing traffic related to regional growth in the area (i.e. not attributable to any particular planned development) for Year 2026 conditions, the existing peak hour traffic volumes were increased by a compounded growth percentage of three (3) percent. This increase percentage was based on Year 2050 population forecasts provided by the Chicago Metropolitan Agency for Planning (CMAP). A copy of the CMAP letter is included in the Appendix of this report.

Figure 7 shows the Year 2026 Base (No-Build) projected traffic volumes, which includes the removal of the site traffic generated by the existing hotel land use.

Year 2026 Total Projected Traffic Conditions

Figure 8 shows the Year 2026 Total Projected traffic volumes that include the Year 2026 Base (No-Build) traffic volumes (Figure 7) and the buildout of the proposed development (Figure 8).

IRVING PARK ROAD

19

49 (17)

24 (9)

MAPLEWOOD DRIVE

12 (17)

6 (9)

SITE

53

SPRING LAKE DRIVE

290

HAWTHORN DRIVE

3 (6)

9 (12)

3 (6)

14 (6)

35 (12)

MEDINAH DRIVE

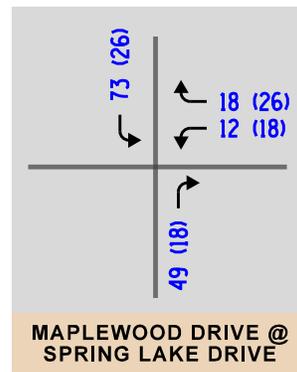
3 (6)

9 (12)

14 (6)

35 (12)

ROHLWING ROAD



LEGEND

00 - AM PEAK HOUR (7:00-8:00 AM)

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

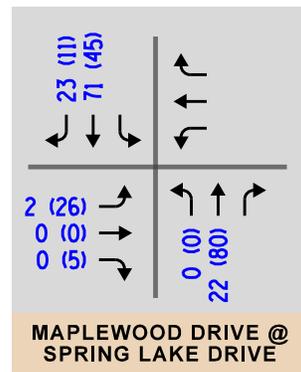
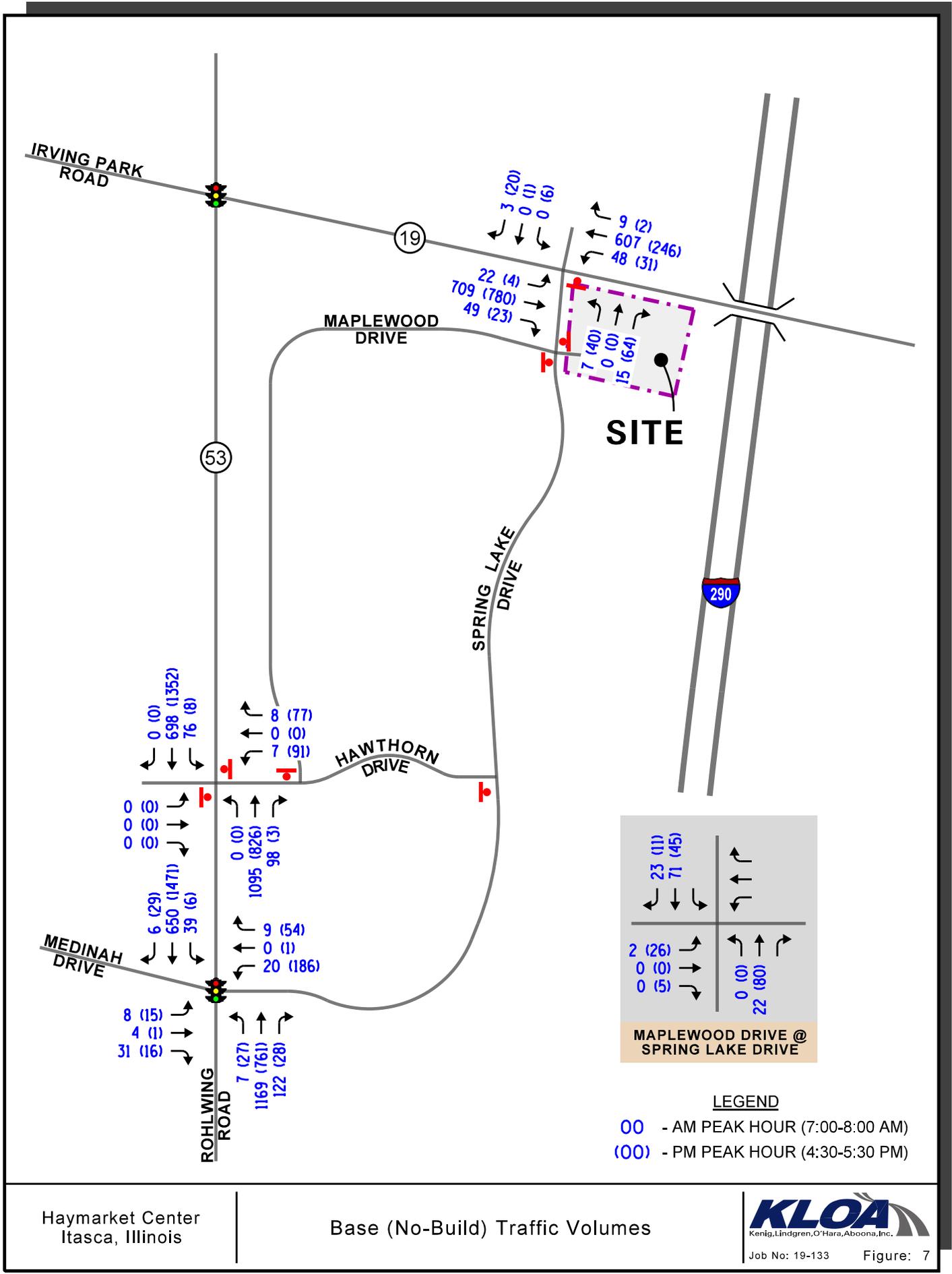
Haymarket Center
Itasca, Illinois

Estimated Site-Generated
Traffic Volumes

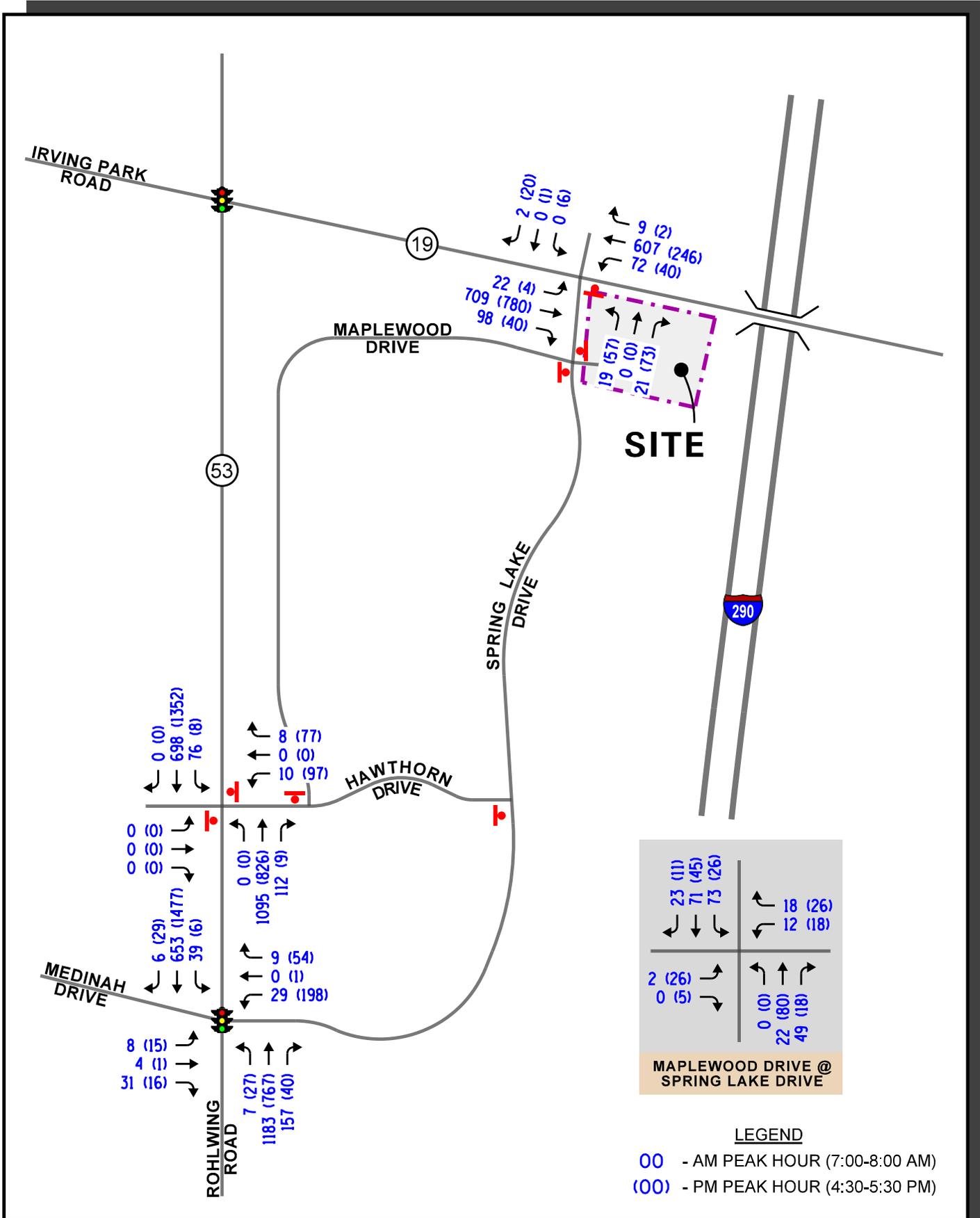


Job No: 19-133

Figure: 6



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



LEGEND

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

Haymarket Center
Itasca, Illinois

Total Projected Traffic Volumes



Job No: 19-133 Figure: 8

5. Traffic Analysis and Recommendations

Capacity analyses were performed for the key intersections included in the study area to determine the ability of the existing roadway system to accommodate existing and future traffic demands. Analyses were performed for the weekday morning and weekday evening peak hours for the existing (Year 2019) and total projected (Year 2026) conditions.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM), 2010* and using Synchro/SimTraffic analysis software.

The signalized intersection of Rohlwing Road (IL 53) and Spring Lake Drive/Medinah Drive was analyzed using the programmed cycle lengths (100 seconds for the weekday morning peak hour and 110 seconds for the weekday evening peak hour), offsets, and phasings to determine the average overall vehicle delay, volume-to-capacity ratios, and levels of service.

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

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

A summary of the traffic analysis results showing the level of service and delay (measured in seconds) for the signalized intersection for the existing (Year 2019) and future total (Year 2026) conditions is presented in **Table 4**. The unsignalized access intersections are presented in **Table 5** and **Table 6**. A discussion of each of the intersections follows.

Table 4

CAPACITY ANALYSIS RESULTS – ROHLWING ROAD (IL 53) AND SPRING LAKE DRIVE/MEDINAH DRIVE

| Peak Hour | Condition | Operating Conditions by Approach | | | | | | | | | | | | Overall |
|-----------------|-----------------------|----------------------------------|-----------|-----------|-----------|-----------|----------|------------|----------|----------|------------|-----------|-----------|----------|
| | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | |
| | | L | T | R | L | T | R | L | T | R | L | T | R | |
| Weekday Morning | Existing (Year 2019) | D 43.4 | C 20.6 | C 20.6 | D 48.8 | D 48.8 | A 0.7 | A 2.1 | A 6.3 | A 1.5 | A 2.5 | A 3.4 | A 3.4 | A – 5.9 |
| | | C – 25.0 | | | D – 35.8 | | | A – 5.8 | | | A – 3.3 | | | |
| | Projected (Year 2026) | D 42.8 | C 20.1 | C 20.1 | D 49.9 | D 49.9 | A 0.7 | A 2.3 | A 6.8 | A 1.7 | A 2.6 | A 3.6 | A 3.6 | A – 6.2 |
| | | C – 24.4 | | | D – 38.1 | | | A – 6.1 | | | A – 3.5 | | | |
| Weekday Evening | Existing (Year 2019) | D 36.7 | B 16.2 | B 16.2 | E 67.3 | E 67.3 | A 6.0 | A 6.4 | A 8.5 | A 0.1 | A 5.5 | B 15.8 | B 15.8 | B – 17.2 |
| | | C – 25.8 | | | D – 53.8 | | | A – 8.1 | | | B – 15.8 | | | |
| | Projected (Year 2026) | D 36.6 | B 16.2 | B 16.2 | E 68.4 | E 68.4 | A 6.0 | A 6.6 | A 8.8 | A 0.7 | A 5.5 | B 16.6 | B 16.6 | B – 17.8 |
| | | | | | | | | | | | | | | |

Table 5
 CAPACITY ANALYSIS RESULTS – UNSIGNALIZED INTERSECTIONS
 EXISTING (YEAR 2019) CONDITIONS

| Intersection | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | |
|--|---------------------------|-------|---------------------------|-------|
| | LOS | Delay | LOS | Delay |
| Spring Lake Drive and Irving Park Road (IL 19) | | | | |
| • Eastbound Left Turn | A | 9.0 | A | 9.7 |
| • Westbound Left Turn | B | 10.4 | A | 9.8 |
| • Northbound Left-Turn | C | 21.0 | C | 21.3 |
| • Northbound Right-Turn | B | 11.6 | B | 12.2 |
| • Southbound Approach | B | 10.5 | B | 14.6 |
| Rohlwing Road (IL 53) and Hawthorn Drive | | | | |
| • Westbound Left-Turn | C | 21.9 | C | 22.6 |
| • Westbound Right-Turn | B | 10.2 | B | 10.1 |
| • Southbound Left-Turn | B | 12.3 | A | 9.1 |
| Site Access/Maplewood Drive and Spring Lake Drive | | | | |
| • Eastbound Left-Turn | A | 9.8 | B | 10.4 |
| • Eastbound Through/Right-Turn | B | 10.1 | A | 9.0 |
| • Westbound Approach | A | 9.0 | A | 9.3 |
| • Northbound Left-Turn | A | 7.5 | A | 7.3 |
| • Southbound Left-Turn | A | 7.3 | A | 7.6 |
| LOS = Level of Service Delay is measured in seconds. | | | | |

Table 6
 CAPACITY ANALYSIS RESULTS – UNSIGNALIZED INTERSECTIONS
 FUTURE (YEAR 2026) CONDITIONS

| Intersection | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | |
|--|---------------------------|-------|---------------------------|-------|
| | LOS | Delay | LOS | Delay |
| Spring Lake Drive and Irving Park Road (IL 19) | | | | |
| • Eastbound Left Turn | A | 9.1 | A | 7.8 |
| • Westbound Left Turn | B | 11.0 | A | 10.0 |
| • Northbound Left-Turn | C | 23.8 | C | 20.1 |
| • Northbound Right-Turn | B | 12.0 | B | 12.5 |
| • Southbound Approach | B | 10.6 | B | 10.8 |
| Rohlwing Road (IL 53) and Hawthorn Drive | | | | |
| • Westbound Left-Turn | C | 22.7 | C | 24.0 |
| • Westbound Right-Turn | B | 10.1 | B | 10.1 |
| • Southbound Left-Turn | B | 12.7 | A | 9.2 |
| Site Access/Maplewood Drive and Spring Lake Drive | | | | |
| • Eastbound Left-Turn | B | 12.0 | B | 10.9 |
| • Eastbound Through/Right-Turn | B | 10.2 | A | 9.1 |
| • Westbound Approach | B | 10.2 | A | 9.9 |
| • Northbound Left-Turn | A | 7.5 | A | 7.3 |
| • Southbound Left-Turn | A | 7.6 | A | 7.6 |
| LOS = Level of Service Delay is measured in seconds. | | | | |

6. Discussion and Recommendations

The following is an evaluation of the analyzed intersections based on the projected traffic volumes and the capacity analyses performed.

Rohlwing Road (IL 53) and Spring Lake Drive/Medinah Drive

The signalized intersection of Rohlwing Road and Spring Lake Drive will continue to operate at overall acceptable levels of service under projected traffic conditions. Further, the queue analysis shows that the storage provided for the left-turn lanes and the right-turn lanes will continue to be adequate to accommodate the nominal increase in queuing. No roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Irving Park Road (IL 19) and Spring Lake Drive

Spring Lake Drive T-intersects Irving Park Road from the south providing one acceptance lane and two outbound lanes striped to provide a left-turn lane and a right-turn lane under stop sign control. The north/fourth leg of the unsignalized intersection is an access drive serving a commercial development. Irving Park Road provides a left-turn lane, a through lane, and a shared through/right-turn lane on both the eastbound and westbound approaches. The capacity analyses show that this unsignalized intersection will continue to operate at acceptable levels of service under projected traffic conditions. Further, the queue analysis shows that the northbound queuing on Spring Lake Drive will not extend to the Site Access Drive/Maplewood Drive intersection to the south, thereby not impeding traffic operations at this intersection. Also, the queue analysis shows that the provided westbound left-turn lane storage on Irving Park Road will continue to be adequate to accommodate projected queues. Therefore, no roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Spring Lake Drive and Site Access Drive/Maplewood Drive

The site access drive is the fourth/east leg of this intersection, providing one lane inbound and one lane outbound under stop sign control. Maplewood Drive is opposite the site access drive providing one acceptance lane and two lanes at the eastbound approach striped to provide a left-turn lane and a right-turn lane under stop sign control. Spring Lake Drive provides a left-turn lane and a shared through/right-turn lane on both the northbound and southbound approaches. The capacity analysis shows that this intersection will continue to operate at acceptable levels of service under projected traffic conditions. Further, the queue analysis shows that the southbound queuing on Spring Lake Drive will not extend beyond the provided storage. As such, no roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

Rohwing Road (IL 53) and Hawthorn Drive

This unsignalized intersection will continue operating at acceptable levels of service under projected traffic conditions. Hawthorn Drive provides two outbound lanes under stop sign control. Rohwing Road provides a southbound left-turn lane and a northbound right-turn lane. As such, no roadway or traffic control improvements are needed or recommended at this intersection in conjunction with the proposed development.

7. Parking Evaluation

The site currently provides approximately 361 parking spaces on a surface parking lot that surrounds the existing hotel building. As shown in the evaluation below, the existing parking spaces will be adequate in accommodating the peak parking demands based on surveys of an existing facility.

Parking Based on Existing Facility

In addition to conducting traffic counts at the Woodridge Interventions facility, parking occupancy counts were conducted throughout the day on May 30, 2019 and is included in the Appendix of this report. The peak parking demand of 69 parked vehicles occurred at 12:00 P.M., resulting in a parking rate of 0.87 spaces per bed (79 beds). As such, assuming the proposed development is at maximum occupancy of 230 beds, the peak parking demand will be 200 parking spaces. Therefore, the approximate 361 existing parking spaces are more than adequate to accommodate projected peak parking demands.

8. Conclusion

Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) conducted a traffic impact and parking study for the proposed Haymarket Center development to be located at 860 West Irving Park Road in Itasca, Illinois. A Holiday Inn currently occupies the site and will be repurposed to accommodate the proposed development. The site includes approximately 361 parking spaces in a surface lot. The development plans call for repurposing the existing 161-room hotel building for a health center with a range of medical and clinical services for individuals with substance use disorders and mental health conditions. It is anticipated that the facility will have between 200 to 230 clients on site and 160 full-time employees over three shifts. Clients are not allowed to have vehicles on site. The site will continue to be accessed via the full access drive off Spring Lake Drive opposite Maplewood Drive, in addition to the full access points serving the Spring Lakes Business Park, which includes the signalized intersection of Rohlwing Road (IL 53) at Spring Lake Drive, the unsignalized intersection of Spring Lake Drive at Irving Park Road, and the unsignalized intersection of Rohlwing Road at Hawthorn Drive.

Based on the proposed development plan and the traffic capacity analyses for the full buildout of the development, the findings and recommendations of this study are outlined below.

- The proposed development will have a low traffic impact on the surrounding roadway network.
- The signalized access off IL 53 and the two unsignalized access points off both IL 53 and IL 19 that serve the Spring Lakes Business Park, which includes the proposed development, will continue to operate at acceptable levels of service during peak hours and no roadway or traffic control improvements are recommended at these intersections in conjunction with the proposed development.
- The existing full access drive off Spring Lake Drive opposite Maplewood Drive that serves the site will continue to be adequate to accommodate the projected traffic estimated to be generated by the proposed redevelopment.
- Based on surveys of an existing, similar facility, the existing approximate 361-space parking lot serving the site will be adequate to accommodate the peak parking demand of the proposed development, which will primarily consist of employees and visitors.

Appendix

Traffic Count Summary Sheets
CMAP Traffic Projection Letter
Level of Service Criteria
Capacity Analysis – Existing Conditions
Capacity Analysis – Year 2026 Total Conditions

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Rohlwing Rd
 Site Code:
 Start Date: 05/29/2019
 Page No: 1

Turning Movement Data

| Start Time | Medinah Dr Eastbound | | | | Spring Lake Dr Westbound | | | | Rohlwing Rd Northbound | | | | Rohlwing Rd Southbound | | | | Int. Total | | | | | | | | | |
|----------------------|----------------------|------|-------|-------|--------------------------|------------|--------|------|------------------------|-------|------|------------|------------------------|------|------|-------|------------|------|------------|------|------|------|---|------|------|---|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | | Peds | App. Total | | | | | | | |
| 7:00 AM | 0 | 2 | 3 | 8 | 0 | 13 | 0 | 10 | 0 | 1 | 0 | 11 | 0 | 2 | 244 | 25 | 0 | 271 | 0 | 7 | 124 | 0 | 0 | 131 | 426 | |
| 7:15 AM | 0 | 2 | 0 | 10 | 0 | 12 | 0 | 6 | 0 | 2 | 1 | 8 | 0 | 1 | 255 | 36 | 0 | 292 | 0 | 8 | 188 | 4 | 0 | 200 | 512 | |
| 7:30 AM | 0 | 2 | 0 | 5 | 0 | 7 | 0 | 4 | 0 | 3 | 1 | 7 | 0 | 1 | 338 | 32 | 0 | 371 | 0 | 8 | 167 | 0 | 0 | 175 | 560 | |
| 7:45 AM | 0 | 2 | 1 | 8 | 0 | 11 | 0 | 4 | 0 | 3 | 0 | 7 | 0 | 3 | 298 | 30 | 0 | 331 | 0 | 16 | 152 | 2 | 0 | 170 | 519 | |
| Hourly Total | 0 | 8 | 4 | 31 | 0 | 43 | 0 | 24 | 0 | 9 | 2 | 33 | 0 | 7 | 1135 | 123 | 0 | 1285 | 0 | 39 | 631 | 6 | 0 | 676 | 2017 | |
| 8:00 AM | 0 | 2 | 0 | 5 | 0 | 7 | 0 | 6 | 0 | 1 | 2 | 7 | 0 | 3 | 265 | 52 | 0 | 320 | 0 | 10 | 143 | 3 | 0 | 156 | 480 | |
| 8:15 AM | 0 | 6 | 1 | 7 | 0 | 14 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 4 | 235 | 36 | 0 | 275 | 0 | 17 | 154 | 0 | 0 | 171 | 465 | |
| 8:30 AM | 0 | 6 | 1 | 5 | 0 | 12 | 0 | 12 | 0 | 1 | 0 | 13 | 0 | 3 | 251 | 34 | 0 | 288 | 0 | 9 | 146 | 2 | 0 | 157 | 470 | |
| 8:45 AM | 0 | 2 | 1 | 4 | 0 | 7 | 0 | 6 | 1 | 2 | 0 | 9 | 0 | 1 | 206 | 27 | 0 | 234 | 0 | 6 | 123 | 2 | 0 | 131 | 381 | |
| Hourly Total | 0 | 16 | 3 | 21 | 0 | 40 | 0 | 29 | 1 | 4 | 2 | 34 | 0 | 11 | 957 | 149 | 0 | 1117 | 0 | 42 | 566 | 7 | 0 | 615 | 1806 | |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 0 | 3 | 0 | 4 | 0 | 7 | 0 | 35 | 3 | 5 | 0 | 43 | 0 | 2 | 167 | 5 | 0 | 174 | 0 | 2 | 356 | 1 | 0 | 359 | 583 | |
| 4:15 PM | 0 | 3 | 0 | 9 | 0 | 12 | 0 | 30 | 0 | 12 | 0 | 42 | 0 | 6 | 186 | 4 | 0 | 196 | 0 | 1 | 321 | 8 | 0 | 330 | 580 | |
| 4:30 PM | 0 | 4 | 0 | 5 | 0 | 9 | 0 | 53 | 0 | 17 | 0 | 70 | 0 | 10 | 165 | 7 | 0 | 182 | 1 | 1 | 351 | 8 | 0 | 361 | 622 | |
| 4:45 PM | 0 | 3 | 0 | 8 | 0 | 11 | 0 | 43 | 0 | 13 | 0 | 56 | 0 | 6 | 180 | 7 | 0 | 193 | 0 | 0 | 387 | 8 | 0 | 395 | 655 | |
| Hourly Total | 0 | 13 | 0 | 26 | 0 | 39 | 0 | 161 | 3 | 47 | 0 | 211 | 0 | 24 | 698 | 23 | 0 | 745 | 1 | 4 | 1415 | 25 | 0 | 1445 | 2440 | |
| 5:00 PM | 0 | 5 | 0 | 1 | 0 | 6 | 0 | 56 | 0 | 17 | 0 | 73 | 0 | 5 | 174 | 6 | 0 | 185 | 0 | 2 | 347 | 7 | 0 | 356 | 620 | |
| 5:15 PM | 0 | 3 | 1 | 2 | 0 | 6 | 0 | 39 | 1 | 7 | 0 | 47 | 0 | 6 | 220 | 11 | 0 | 237 | 0 | 2 | 343 | 6 | 0 | 351 | 641 | |
| 5:30 PM | 0 | 3 | 0 | 8 | 0 | 11 | 0 | 23 | 0 | 5 | 0 | 28 | 0 | 6 | 166 | 10 | 0 | 182 | 0 | 0 | 295 | 7 | 0 | 302 | 523 | |
| 5:45 PM | 0 | 2 | 1 | 6 | 0 | 9 | 0 | 22 | 1 | 1 | 0 | 24 | 0 | 5 | 145 | 7 | 0 | 157 | 0 | 1 | 287 | 10 | 0 | 298 | 488 | |
| Hourly Total | 0 | 13 | 2 | 17 | 0 | 32 | 0 | 140 | 2 | 30 | 0 | 172 | 0 | 22 | 705 | 34 | 0 | 761 | 0 | 5 | 1272 | 30 | 0 | 1307 | 2272 | |
| Grand Total | 0 | 50 | 9 | 95 | 0 | 154 | 0 | 354 | 6 | 90 | 4 | 450 | 0 | 64 | 3495 | 329 | 0 | 3888 | 1 | 90 | 3884 | 68 | 0 | 4043 | 8535 | |
| Approach % | 0.0 | 32.5 | 5.8 | 61.7 | - | - | 0.0 | 78.7 | 1.3 | 20.0 | - | - | 0.0 | 1.6 | 89.9 | 8.5 | - | - | 0.0 | 2.2 | 96.1 | 1.7 | - | - | - | |
| Total % | 0.0 | 0.6 | 0.1 | 1.1 | - | 1.8 | 0.0 | 4.1 | 0.1 | 1.1 | - | 5.3 | 0.0 | 0.7 | 40.9 | 3.9 | - | 45.6 | 0.0 | 1.1 | 45.5 | 0.8 | - | 47.4 | - | |
| Lights | 0 | 49 | 9 | 90 | - | 148 | 0 | 346 | 5 | 84 | - | 435 | 0 | 61 | 3305 | 324 | - | 3690 | 1 | 85 | 3676 | 64 | - | 3826 | 8099 | |
| % Lights | - | 98.0 | 100.0 | 94.7 | - | 96.1 | - | 97.7 | 83.3 | 93.3 | - | 96.7 | - | 95.3 | 94.6 | 98.5 | - | 94.9 | 100.0 | 94.4 | 94.6 | 94.1 | - | 94.6 | 94.9 | |
| Buses | 0 | 1 | 0 | 2 | - | 3 | 0 | 0 | 0 | 3 | - | 3 | 0 | 0 | 7 | 1 | - | 8 | 0 | 4 | 9 | 2 | - | 15 | 29 | |
| % Buses | - | 2.0 | 0.0 | 2.1 | - | 1.9 | - | 0.0 | 0.0 | 3.3 | - | 0.7 | - | 0.0 | 0.2 | 0.3 | - | 0.2 | 0.0 | 4.4 | 0.2 | 2.9 | - | 0.4 | 0.3 | |
| Single-Unit Trucks | 0 | 0 | 0 | 2 | - | 2 | 0 | 7 | 1 | 1 | - | 9 | 0 | 1 | 93 | 3 | - | 97 | 0 | 1 | 102 | 2 | - | 105 | 213 | |
| % Single-Unit Trucks | - | 0.0 | 0.0 | 2.1 | - | 1.3 | - | 2.0 | 16.7 | 1.1 | - | 2.0 | - | 1.6 | 2.7 | 0.9 | - | 2.5 | 0.0 | 1.1 | 2.6 | 2.9 | - | 2.6 | 2.5 | |
| Articulated Trucks | 0 | 0 | 0 | 1 | - | 1 | 0 | 1 | 0 | 2 | - | 3 | 0 | 2 | 90 | 1 | - | 93 | 0 | 0 | 97 | 0 | - | 97 | 194 | |
| % Articulated Trucks | - | 0.0 | 0.0 | 1.1 | - | 0.6 | - | 0.3 | 0.0 | 2.2 | - | 0.7 | - | 3.1 | 2.6 | 0.3 | - | 2.4 | 0.0 | 0.0 | 2.5 | 0.0 | - | 2.4 | 2.3 | |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | |
| % Bicycles on Road | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | |
| Pedestrians | - | - | - | - | - | 4 | - | - | - | - | - | 4 | - | - | - | - | - | 4 | - | - | - | - | - | 4 | - | |



Konig, Lindgren, O'Hara, Aboona, Inc.
 Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Rohlwing Rd
 Site Code:
 Start Date: 05/29/2019
 Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Medinah Dr Eastbound | | | | | Spring Lake Dr Westbound | | | | | Rohlwing Rd Northbound | | | | | Rohlwing Rd Southbound | | | | | | | | |
|----------------------|----------------------|-------|-------|-------|------|--------------------------|--------|-------|-------|-------|------------------------|------------|--------|-------|-------|------------------------|------|------------|--------|-------|-------|-------|------|------------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total |
| 7:00 AM | 0 | 2 | 3 | 8 | 0 | 13 | 0 | 10 | 0 | 1 | 0 | 11 | 0 | 2 | 244 | 25 | 0 | 271 | 0 | 7 | 124 | 0 | 0 | 131 |
| 7:15 AM | 0 | 2 | 0 | 10 | 0 | 12 | 0 | 6 | 0 | 2 | 1 | 8 | 0 | 1 | 255 | 36 | 0 | 292 | 0 | 8 | 188 | 4 | 0 | 200 |
| 7:30 AM | 0 | 2 | 0 | 5 | 0 | 7 | 0 | 4 | 0 | 3 | 1 | 7 | 0 | 1 | 338 | 32 | 0 | 371 | 0 | 8 | 167 | 0 | 0 | 175 |
| 7:45 AM | 0 | 2 | 1 | 8 | 0 | 11 | 0 | 4 | 0 | 3 | 0 | 7 | 0 | 3 | 298 | 30 | 0 | 331 | 0 | 16 | 152 | 2 | 0 | 170 |
| Total | 0 | 8 | 4 | 31 | 0 | 43 | 0 | 24 | 0 | 9 | 2 | 33 | 0 | 7 | 1135 | 123 | 0 | 1265 | 0 | 39 | 631 | 6 | 0 | 676 |
| Approach % | 0.0 | 18.6 | 9.3 | 72.1 | - | - | 0.0 | 72.7 | 0.0 | 27.3 | - | - | 0.0 | 0.6 | 89.7 | 9.7 | - | - | 0.0 | 5.8 | 93.3 | 0.9 | - | - |
| Total % | 0.0 | 0.4 | 0.2 | 1.5 | - | 2.1 | 0.0 | 1.2 | 0.0 | 0.4 | - | 1.6 | 0.0 | 0.3 | 56.3 | 6.1 | - | 62.7 | 0.0 | 1.9 | 31.3 | 0.3 | - | 33.5 |
| PHF | 0.000 | 1.000 | 0.333 | 0.775 | - | 0.827 | 0.000 | 0.800 | 0.000 | 0.750 | - | 0.750 | 0.000 | 0.583 | 0.839 | 0.854 | - | 0.852 | 0.000 | 0.609 | 0.839 | 0.375 | - | 0.845 |
| Lights | 0 | 8 | 4 | 29 | - | 41 | 0 | 23 | 0 | 6 | - | 29 | 0 | 5 | 1082 | 121 | - | 1208 | 0 | 38 | 577 | 5 | - | 620 |
| % Lights | - | 100.0 | 100.0 | 93.5 | - | 95.3 | - | 95.6 | - | 66.7 | - | 87.9 | - | 71.4 | 95.3 | 98.4 | - | 95.5 | - | 97.4 | 91.4 | 83.3 | - | 91.7 |
| Buses | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 3 | 0 | - | 3 | 0 | 1 | 1 | 0 | - | 2 |
| % Buses | - | 0.0 | 0.0 | 3.2 | - | 2.3 | - | 0.0 | - | 11.1 | - | 3.0 | - | 0.0 | 0.3 | 0.0 | - | 0.2 | - | 2.6 | 0.2 | 0.0 | - | 0.3 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 1 | - | 2 | 0 | 0 | 22 | 2 | - | 24 | 0 | 0 | 25 | 1 | - | 26 |
| % Single-Unit Trucks | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 4.2 | - | 11.1 | - | 6.1 | - | 0.0 | 1.9 | 1.6 | - | 1.9 | - | 0.0 | 4.0 | 16.7 | - | 3.8 |
| Articulated Trucks | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 0 | 1 | - | 1 | 0 | 2 | 28 | 0 | - | 30 | 0 | 0 | 28 | 0 | - | 28 |
| % Articulated Trucks | - | 0.0 | 0.0 | 3.2 | - | 2.3 | - | 0.0 | - | 11.1 | - | 3.0 | - | 28.6 | 2.5 | 0.0 | - | 2.4 | - | 0.0 | 4.4 | 0.0 | - | 4.1 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 |
| % Bicycles on Road | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| % Pedestrians | - | - | - | - | 0 | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Koenig, Lindgren, O'Hara, Aboona, Inc.
 Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Rohlwing Rd
 Site Code:
 Start Date: 05/29/2019
 Page No.: 4

Turning Movement Peak Hour Data (4:30 PM)

| Start Time | Medinah Dr Eastbound | | | | | Spring Lake Dr Westbound | | | | | Rohlwing Rd Northbound | | | | | Rohlwing Rd Southbound | | | | | | | | | |
|----------------------|----------------------|-------|-------|-------|------|--------------------------|--------|-------|-------|-------|------------------------|------------|--------|-------|-------|------------------------|------|------------|--------|-------|-------|-------|------|------------|-------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | |
| 4:30 PM | 0 | 4 | 0 | 5 | 0 | 9 | 0 | 53 | 0 | 17 | 0 | 70 | 0 | 10 | 165 | 7 | 0 | 182 | 1 | 1 | 351 | 8 | 0 | 361 | 622 |
| 4:45 PM | 0 | 3 | 0 | 8 | 0 | 11 | 0 | 43 | 0 | 13 | 0 | 56 | 0 | 6 | 180 | 7 | 0 | 193 | 0 | 0 | 387 | 8 | 0 | 395 | 655 |
| 5:00 PM | 0 | 5 | 0 | 1 | 0 | 6 | 0 | 56 | 0 | 17 | 0 | 73 | 0 | 5 | 174 | 6 | 0 | 185 | 0 | 2 | 347 | 7 | 0 | 356 | 620 |
| 5:15 PM | 0 | 3 | 1 | 2 | 0 | 6 | 0 | 39 | 1 | 7 | 0 | 47 | 0 | 6 | 220 | 11 | 0 | 237 | 0 | 2 | 343 | 6 | 0 | 351 | 641 |
| Total | 0 | 15 | 1 | 16 | 0 | 32 | 0 | 191 | 1 | 54 | 0 | 246 | 0 | 27 | 739 | 31 | 0 | 797 | 1 | 5 | 1428 | 29 | 0 | 1463 | 2538 |
| Approach % | 0.0 | 46.9 | 3.1 | 50.0 | - | - | 0.0 | 77.6 | 0.4 | 22.0 | - | - | 0.0 | 3.4 | 92.7 | 3.9 | - | - | 0.1 | 0.3 | 97.6 | 2.0 | - | - | - |
| Total % | 0.0 | 0.6 | 0.0 | 0.6 | - | 1.3 | 0.0 | 7.5 | 0.0 | 2.1 | - | 9.7 | 0.0 | 1.1 | 29.1 | 1.2 | - | 31.4 | 0.0 | 0.2 | 56.3 | 1.1 | - | 57.6 | - |
| PHF | 0.000 | 0.750 | 0.250 | 0.500 | - | 0.727 | 0.000 | 0.853 | 0.250 | 0.794 | - | 0.842 | 0.000 | 0.675 | 0.840 | 0.705 | - | 0.841 | 0.250 | 0.625 | 0.922 | 0.906 | - | 0.926 | 0.969 |
| Lights | 0 | 15 | 1 | 16 | - | 32 | 0 | 190 | 1 | 54 | - | 245 | 0 | 26 | 707 | 30 | - | 763 | 1 | 3 | 1383 | 28 | - | 1415 | 2455 |
| % Lights | - | 100.0 | 100.0 | 100.0 | - | 100.0 | - | 99.5 | 100.0 | 100.0 | - | 99.6 | - | 96.3 | 95.7 | 96.8 | - | 95.7 | 100.0 | 60.0 | 96.8 | 96.6 | - | 96.7 | 96.7 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 1 | 0 | - | 3 | 3 |
| % Buses | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 40.0 | 0.1 | 0.0 | - | 0.2 | 0.1 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 1 | 20 | 1 | - | 22 | 0 | 0 | 24 | 1 | - | 25 | 48 |
| % Single-Unit Trucks | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.5 | 0.0 | 0.0 | - | 0.4 | - | 3.7 | 2.7 | 3.2 | - | 2.8 | 0.0 | 0.0 | 1.7 | 3.4 | - | 1.7 | 1.9 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 12 | 0 | - | 12 | 0 | 0 | 20 | 0 | - | 20 | 32 |
| % Articulated Trucks | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 1.6 | 0.0 | - | 1.5 | 0.0 | 0.0 | 1.4 | 0.0 | - | 1.4 | 1.3 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Kerig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Irving Park Rd
 Site Code:
 Start Date: 05/29/2019
 Page No.: 1

Turning Movement Data

| Start Time | Irving Park Rd Eastbound | | | | Irving Park Rd Westbound | | | | Spring Lake Dr Northbound | | | | Spring Lake Dr Southbound | | | | Int. Total | |
|----------------------|--------------------------|------|------|-------|--------------------------|------------|--------|------|---------------------------|-------|------|------------|---------------------------|------|------|-------|------------|------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | | Peds |
| 7:00 AM | 0 | 6 | 170 | 12 | 0 | 188 | 0 | 9 | 142 | 1 | 0 | 152 | 0 | 2 | 0 | 8 | 0 | 10 |
| 7:15 AM | 1 | 5 | 162 | 11 | 0 | 179 | 0 | 10 | 129 | 1 | 0 | 140 | 0 | 3 | 0 | 3 | 0 | 6 |
| 7:30 AM | 0 | 4 | 173 | 12 | 0 | 189 | 0 | 8 | 151 | 3 | 0 | 162 | 0 | 2 | 0 | 5 | 0 | 7 |
| 7:45 AM | 0 | 6 | 183 | 19 | 0 | 208 | 0 | 27 | 167 | 4 | 0 | 198 | 0 | 3 | 0 | 6 | 0 | 9 |
| Hourly Total | 1 | 21 | 688 | 54 | 0 | 764 | 0 | 54 | 589 | 9 | 0 | 652 | 0 | 10 | 0 | 22 | 0 | 32 |
| 8:00 AM | 0 | 11 | 144 | 13 | 0 | 168 | 0 | 19 | 128 | 4 | 0 | 151 | 0 | 4 | 0 | 10 | 0 | 14 |
| 8:15 AM | 0 | 3 | 130 | 19 | 0 | 152 | 0 | 13 | 126 | 1 | 0 | 140 | 0 | 4 | 0 | 7 | 0 | 11 |
| 8:30 AM | 0 | 7 | 121 | 16 | 0 | 144 | 0 | 11 | 121 | 4 | 0 | 136 | 0 | 6 | 0 | 5 | 0 | 11 |
| 8:45 AM | 0 | 7 | 139 | 13 | 0 | 159 | 0 | 13 | 117 | 1 | 0 | 131 | 0 | 0 | 0 | 4 | 1 | 4 |
| Hourly Total | 0 | 28 | 534 | 61 | 0 | 623 | 0 | 56 | 492 | 10 | 0 | 588 | 0 | 14 | 0 | 26 | 1 | 40 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 0 | 0 | 178 | 6 | 0 | 184 | 0 | 15 | 184 | 2 | 0 | 201 | 0 | 13 | 0 | 17 | 0 | 30 |
| 4:15 PM | 0 | 2 | 180 | 6 | 0 | 188 | 0 | 6 | 174 | 0 | 0 | 180 | 0 | 13 | 0 | 15 | 0 | 28 |
| 4:30 PM | 0 | 0 | 173 | 7 | 0 | 180 | 0 | 13 | 211 | 2 | 0 | 226 | 0 | 11 | 0 | 29 | 0 | 40 |
| 4:45 PM | 1 | 1 | 212 | 10 | 0 | 224 | 0 | 5 | 208 | 0 | 0 | 213 | 0 | 14 | 0 | 12 | 1 | 26 |
| Hourly Total | 1 | 3 | 743 | 29 | 0 | 776 | 0 | 39 | 777 | 4 | 0 | 820 | 0 | 51 | 0 | 73 | 1 | 124 |
| 5:00 PM | 0 | 1 | 211 | 6 | 0 | 218 | 0 | 11 | 218 | 0 | 0 | 229 | 0 | 15 | 0 | 17 | 1 | 32 |
| 5:15 PM | 0 | 1 | 161 | 7 | 0 | 169 | 0 | 11 | 202 | 0 | 0 | 213 | 0 | 7 | 0 | 15 | 0 | 22 |
| 5:30 PM | 1 | 1 | 164 | 5 | 0 | 171 | 0 | 6 | 210 | 0 | 0 | 216 | 0 | 11 | 0 | 14 | 0 | 25 |
| 5:45 PM | 1 | 1 | 153 | 11 | 0 | 166 | 0 | 4 | 184 | 0 | 0 | 188 | 0 | 2 | 0 | 3 | 0 | 5 |
| Hourly Total | 2 | 4 | 689 | 29 | 0 | 724 | 0 | 32 | 814 | 0 | 0 | 846 | 0 | 35 | 0 | 49 | 1 | 84 |
| Grand Total | 4 | 56 | 2654 | 173 | 0 | 2887 | 0 | 181 | 2672 | 23 | 0 | 2876 | 0 | 110 | 0 | 170 | 3 | 280 |
| Approach % | 0.1 | 1.9 | 91.9 | 6.0 | - | - | 0.0 | 6.3 | 92.9 | 0.8 | - | - | 0.0 | 39.3 | 0.0 | 60.7 | - | - |
| Total % | 0.1 | 0.9 | 43.5 | 2.8 | - | 47.3 | 0.0 | 3.0 | 43.8 | 0.4 | - | 47.1 | 0.0 | 1.8 | 0.0 | 2.8 | - | 4.6 |
| Lights | 4 | 54 | 2578 | 162 | - | 2798 | 0 | 168 | 2575 | 20 | - | 2763 | 0 | 102 | 0 | 161 | - | 263 |
| % Lights | 100.0 | 96.4 | 97.1 | 93.6 | - | 96.9 | - | 92.8 | 96.4 | 87.0 | - | 96.1 | - | 92.7 | - | 94.7 | - | 93.9 |
| Buses | 0 | 0 | 7 | 0 | - | 7 | 0 | 5 | 18 | 0 | - | 23 | 0 | 3 | 0 | 4 | - | 7 |
| % Buses | 0.0 | 0.0 | 0.3 | 0.0 | - | 0.2 | - | 2.8 | 0.7 | 0.0 | - | 0.8 | - | 2.7 | - | 2.4 | - | 2.5 |
| Single-Unit Trucks | 0 | 1 | 42 | 3 | - | 46 | 0 | 4 | 42 | 2 | - | 48 | 0 | 3 | 0 | 3 | - | 6 |
| % Single-Unit Trucks | 0.0 | 1.8 | 1.6 | 1.7 | - | 1.6 | - | 2.2 | 1.6 | 8.7 | - | 1.7 | - | 2.7 | - | 1.8 | - | 2.1 |
| Articulated Trucks | 0 | 1 | 27 | 8 | - | 36 | 0 | 0 | 37 | 1 | - | 38 | 0 | 2 | 0 | 1 | - | 3 |
| % Articulated Trucks | 0.0 | 1.8 | 1.0 | 4.6 | - | 1.2 | - | 0.0 | 1.4 | 4.3 | - | 1.3 | - | 1.8 | - | 0.6 | - | 1.1 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 4 | 0 | 0 | - | 4 | 0 | 0 | 0 | 1 | - | 1 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 2.2 | 0.0 | 0.0 | - | 0.1 | - | 0.0 | - | 0.6 | - | 0.4 |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 3 |



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

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

Count Name: Spring Lake Dr and Irving Park Rd
 Site Code:
 Start Date: 05/29/2019
 Page No: 3

Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Irving Park Rd Eastbound | | | | | Irving Park Rd Westbound | | | | | Spring Lake Dr Northbound | | | | | Spring Lake Dr Southbound | | | | | Int. Total | | | | |
|----------------------|--------------------------|-------|-------|-------|------|--------------------------|--------|-------|-------|-------|---------------------------|------------|--------|-------|-------|---------------------------|------|------------|--------|-------|------------|-------|-------|-------|------------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | | Thru | Right | Peds | App. Total |
| 7:00 AM | 0 | 6 | 170 | 12 | 0 | 188 | 0 | 9 | 142 | 1 | 0 | 152 | 0 | 2 | 0 | 8 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 351 |
| 7:15 AM | 1 | 5 | 162 | 11 | 0 | 179 | 0 | 10 | 129 | 1 | 0 | 140 | 0 | 3 | 0 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 325 |
| 7:30 AM | 0 | 4 | 173 | 12 | 0 | 189 | 0 | 8 | 151 | 3 | 0 | 162 | 0 | 2 | 0 | 5 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 360 |
| 7:45 AM | 0 | 6 | 183 | 19 | 0 | 208 | 0 | 27 | 167 | 4 | 0 | 198 | 0 | 3 | 0 | 6 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 415 |
| Total | 1 | 21 | 688 | 54 | 0 | 764 | 0 | 54 | 589 | 9 | 0 | 652 | 0 | 10 | 0 | 22 | 0 | 32 | 0 | 0 | 0 | 3 | 1 | 3 | 1451 |
| Approach % | 0.1 | 2.7 | 90.1 | 7.1 | - | - | 0.0 | 8.3 | 90.3 | 1.4 | - | - | 0.0 | 31.3 | 0.0 | 68.8 | - | - | 0.0 | 0.0 | 0.0 | 100.0 | - | - | - |
| Total % | 0.1 | 1.4 | 47.4 | 3.7 | - | 52.7 | 0.0 | 3.7 | 40.6 | 0.6 | - | 44.9 | 0.0 | 0.7 | 0.0 | 1.5 | - | 2.2 | 0.0 | 0.0 | 0.0 | 0.2 | - | 0.2 | - |
| PHF | 0.250 | 0.875 | 0.940 | 0.711 | - | 0.918 | 0.000 | 0.500 | 0.882 | 0.563 | - | 0.823 | 0.000 | 0.833 | 0.000 | 0.688 | - | 0.800 | 0.000 | 0.000 | 0.000 | 0.375 | - | 0.375 | 0.874 |
| Lights | 1 | 21 | 663 | 52 | - | 737 | 0 | 48 | 558 | 7 | - | 613 | 0 | 8 | 0 | 21 | - | 29 | 0 | 0 | 0 | 1 | - | 1 | 1380 |
| % Lights | 100.0 | 100.0 | 96.4 | 96.3 | - | 96.5 | - | 88.9 | 94.7 | 77.8 | - | 94.0 | - | 80.0 | - | 95.5 | - | 90.6 | - | - | - | 33.3 | - | 33.3 | 95.1 |
| Buses | 0 | 0 | 6 | 0 | - | 6 | 0 | 3 | 9 | 0 | - | 12 | 0 | 1 | 0 | 1 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 20 |
| % Buses | 0.0 | 0.0 | 0.9 | 0.0 | - | 0.8 | - | 5.6 | 1.5 | 0.0 | - | 1.8 | - | 10.0 | - | 4.5 | - | 6.3 | - | - | - | 0.0 | - | 0.0 | 1.4 |
| Single-Unit Trucks | 0 | 0 | 11 | 0 | - | 11 | 0 | 1 | 4 | 1 | - | 6 | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | 1 | - | 1 | 19 |
| % Single-Unit Trucks | 0.0 | 0.0 | 1.6 | 0.0 | - | 1.4 | - | 1.9 | 0.7 | 11.1 | - | 0.9 | - | 10.0 | - | 0.0 | - | 3.1 | - | - | - | 33.3 | - | 33.3 | 1.3 |
| Articulated Trucks | 0 | 0 | 8 | 2 | - | 10 | 0 | 0 | 18 | 1 | - | 19 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 1 | - | 1 | 30 |
| % Articulated Trucks | 0.0 | 0.0 | 1.2 | 3.7 | - | 1.3 | - | 0.0 | 3.1 | 11.1 | - | 2.9 | - | 0.0 | - | 0.0 | - | 0.0 | - | - | - | 33.3 | - | 33.3 | 2.1 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 2 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 3.7 | 0.0 | 0.0 | - | 0.3 | - | 0.0 | - | 0.0 | - | 0.0 | - | - | - | 0.0 | - | 0.0 | 0.1 |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - |



Konig, Lindgren, O'Hara, Aboona, Inc.
 Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Irving Park Rd
 Site Code:
 Start Date: 05/29/2019
 Page No.: 4

Turning Movement Peak Hour Data (4:30 PM)

| Start Time | Irving Park Rd Eastbound | | | | | Irving Park Rd Westbound | | | | | Spring Lake Dr Northbound | | | | | Spring Lake Dr Southbound | | | | | Int. Total | | | | |
|----------------------|--------------------------|-------|-------|-------|------|--------------------------|--------|-------|-------|-------|---------------------------|------------|--------|-------|-------|---------------------------|-------|------------|--------|-------|------------|-------|-------|-------|------------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | | Thru | Right | Peds | App. Total |
| 4:30 PM | 0 | 0 | 173 | 7 | 0 | 180 | 0 | 13 | 211 | 2 | 0 | 226 | 0 | 11 | 0 | 29 | 0 | 40 | 0 | 3 | 1 | 9 | 1 | 13 | 459 |
| 4:45 PM | 1 | 1 | 212 | 10 | 0 | 224 | 0 | 5 | 208 | 0 | 0 | 213 | 0 | 14 | 0 | 12 | 1 | 26 | 0 | 2 | 0 | 4 | 1 | 6 | 469 |
| 5:00 PM | 0 | 1 | 211 | 6 | 0 | 218 | 0 | 11 | 218 | 0 | 0 | 229 | 0 | 15 | 0 | 17 | 1 | 32 | 0 | 1 | 0 | 5 | 0 | 6 | 485 |
| 5:15 PM | 0 | 1 | 161 | 7 | 0 | 169 | 0 | 11 | 202 | 0 | 0 | 213 | 0 | 7 | 0 | 15 | 0 | 22 | 0 | 0 | 0 | 2 | 0 | 2 | 406 |
| Total | 1 | 3 | 757 | 30 | 0 | 791 | 0 | 40 | 839 | 2 | 0 | 881 | 0 | 47 | 0 | 73 | 2 | 120 | 0 | 6 | 1 | 20 | 2 | 27 | 1819 |
| Approach % | 0.1 | 0.4 | 95.7 | 3.8 | - | - | 0.0 | 4.5 | 95.2 | 0.2 | - | - | 0.0 | 38.2 | 0.0 | 60.8 | - | - | 0.0 | 22.2 | 3.7 | 74.1 | - | - | - |
| Total % | 0.1 | 0.2 | 41.6 | 1.6 | - | 43.5 | 0.0 | 2.2 | 46.1 | 0.1 | - | 48.4 | 0.0 | 2.6 | 0.0 | 4.0 | - | 6.6 | 0.0 | 0.3 | 0.1 | 1.1 | - | 1.5 | - |
| PHF | 0.250 | 0.750 | 0.893 | 0.750 | - | 0.883 | 0.000 | 0.769 | 0.962 | 0.250 | - | 0.962 | 0.000 | 0.783 | 0.000 | 0.629 | - | 0.750 | 0.000 | 0.500 | 0.250 | 0.556 | - | 0.519 | 0.938 |
| Lights | 1 | 3 | 743 | 28 | - | 775 | 0 | 39 | 820 | 1 | - | 860 | 0 | 46 | 0 | 69 | - | 115 | 0 | 6 | 1 | 19 | - | 26 | 1776 |
| % Lights | 100.0 | 100.0 | 98.2 | 93.3 | - | 98.0 | - | 97.5 | 97.7 | 50.0 | - | 97.6 | - | 97.9 | - | 94.5 | - | 95.8 | - | 100.0 | 100.0 | 95.0 | - | 96.3 | 97.6 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Buses | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | 2.5 | 0.1 | 0.0 | 0.2 | - | 2.1 | - | 1.4 | - | 1.7 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.2 |
| Single-Unit Trucks | 0 | 0 | 9 | 1 | - | 10 | 0 | 0 | 13 | 1 | - | 14 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 0 | 1 | - | 1 | 26 |
| % Single-Unit Trucks | 0.0 | 0.0 | 1.2 | 3.3 | - | 1.3 | - | 0.0 | 1.5 | 50.0 | - | 1.6 | - | 0.0 | - | 1.4 | - | 0.8 | - | 0.0 | 0.0 | 5.0 | - | 3.7 | 1.4 |
| Articulated Trucks | 0 | 0 | 5 | 1 | - | 6 | 0 | 0 | 5 | 0 | - | 5 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 12 |
| % Articulated Trucks | 0.0 | 0.0 | 0.7 | 3.3 | - | 0.8 | - | 0.0 | 0.6 | 0.0 | - | 0.6 | - | 0.0 | - | 1.4 | - | 0.8 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.7 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | - | 1.4 | - | 0.8 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.1 |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - | - | - | - | - | 2 | - |
| % Pedestrians | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - |



Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990 bmay@kloainc.com

Count Name: Spring Lake Dr and Maplewood Dr
 Site Code:
 Start Date: 05/29/2019
 Page No: 1

Turning Movement Data

| Start Time | Maplewood Dr Eastbound | | | | Holiday Inn Entrance Westbound | | | | Spring Lake Dr Northbound | | | | Spring Lake Dr Southbound | | | | Int. Total | | | | | | | | |
|----------------------|------------------------|------|------|-------|--------------------------------|------------|--------|------|---------------------------|-------|------|------------|---------------------------|------|------|-------|------------|------|------------|------|------|------|---|------|------|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | | Peds | App. Total | | | | | | |
| 7:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 9 | 1 | 0 | 10 | 0 | 2 | 16 | 2 | 0 | 20 | 34 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 2 | 11 | 8 | 0 | 21 | 26 |
| 7:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 3 | 13 | 4 | 0 | 20 | 29 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 4 | 31 | 9 | 0 | 44 | 53 |
| Hourly Total | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 8 | 0 | 12 | 0 | 0 | 22 | 1 | 0 | 23 | 0 | 11 | 71 | 23 | 0 | 105 | 142 |
| 8:00 AM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 1 | 10 | 1 | 0 | 12 | 0 | 1 | 20 | 13 | 0 | 34 | 51 |
| 8:15 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 0 | 5 | 0 | 0 | 7 | 2 | 0 | 9 | 0 | 2 | 21 | 8 | 0 | 31 | 46 |
| 8:30 AM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 6 | 0 | 0 | 7 | 0 | 2 | 19 | 6 | 0 | 27 | 39 |
| 8:45 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 2 | 15 | 9 | 0 | 26 | 31 |
| Hourly Total | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 2 | 0 | 11 | 0 | 13 | 0 | 2 | 26 | 3 | 0 | 31 | 0 | 7 | 75 | 36 | 0 | 118 | 167 |
| *** BREAK *** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4:00 PM | 0 | 8 | 0 | 2 | 1 | 10 | 0 | 1 | 0 | 3 | 0 | 4 | 0 | 0 | 19 | 2 | 1 | 21 | 0 | 4 | 15 | 2 | 0 | 21 | 56 |
| 4:15 PM | 0 | 6 | 1 | 1 | 0 | 8 | 0 | 2 | 1 | 3 | 0 | 6 | 0 | 1 | 18 | 1 | 1 | 20 | 0 | 4 | 7 | 1 | 0 | 12 | 46 |
| 4:30 PM | 0 | 7 | 1 | 1 | 0 | 9 | 0 | 2 | 0 | 4 | 0 | 6 | 0 | 0 | 30 | 0 | 0 | 30 | 0 | 2 | 17 | 2 | 0 | 21 | 66 |
| 4:45 PM | 0 | 5 | 0 | 2 | 1 | 7 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 16 | 1 | 1 | 17 | 0 | 5 | 7 | 4 | 0 | 16 | 43 |
| Hourly Total | 0 | 26 | 2 | 6 | 2 | 34 | 0 | 5 | 1 | 13 | 0 | 19 | 0 | 1 | 83 | 4 | 3 | 88 | 0 | 15 | 46 | 9 | 0 | 70 | 211 |
| 5:00 PM | 0 | 8 | 0 | 1 | 0 | 9 | 0 | 0 | 1 | 6 | 0 | 7 | 0 | 0 | 23 | 0 | 0 | 23 | 0 | 6 | 10 | 1 | 0 | 17 | 56 |
| 5:15 PM | 0 | 6 | 0 | 1 | 0 | 7 | 0 | 3 | 0 | 3 | 1 | 6 | 0 | 0 | 11 | 1 | 0 | 12 | 0 | 3 | 11 | 4 | 0 | 18 | 43 |
| 5:30 PM | 0 | 11 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 12 | 1 | 0 | 13 | 0 | 1 | 8 | 3 | 0 | 12 | 37 |
| 5:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 2 | 12 | 1 | 1 | 15 | 21 |
| Hourly Total | 0 | 26 | 0 | 2 | 0 | 28 | 0 | 3 | 1 | 10 | 1 | 14 | 0 | 0 | 51 | 2 | 0 | 53 | 0 | 12 | 41 | 9 | 1 | 62 | 157 |
| Grand Total | 0 | 57 | 2 | 10 | 2 | 69 | 0 | 14 | 2 | 42 | 1 | 58 | 0 | 3 | 182 | 10 | 3 | 195 | 0 | 45 | 233 | 77 | 1 | 355 | 677 |
| Approach % | 0.0 | 82.6 | 2.9 | 14.5 | - | - | 0.0 | 24.1 | 3.4 | 72.4 | - | - | 0.0 | 1.5 | 93.3 | 5.1 | - | - | 0.0 | 12.7 | 65.6 | 21.7 | - | - | - |
| Total % | 0.0 | 8.4 | 0.3 | 1.5 | - | 10.2 | 0.0 | 2.1 | 0.3 | 6.2 | - | 8.6 | 0.0 | 0.4 | 26.9 | 1.5 | - | 28.8 | 0.0 | 6.6 | 34.4 | 11.4 | - | 52.4 | - |
| Lights | 0 | 55 | 1 | 9 | - | 65 | 0 | 13 | 2 | 39 | - | 54 | 0 | 2 | 169 | 10 | - | 181 | 0 | 42 | 214 | 71 | - | 327 | 627 |
| % Lights | - | 96.5 | 50.0 | 90.0 | - | 94.2 | - | 92.9 | 100.0 | 92.9 | - | 93.1 | - | 66.7 | 92.9 | 100.0 | - | 92.8 | - | 93.3 | 91.8 | 92.2 | - | 92.1 | 92.6 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 4 | 0 | - | 4 | 0 | 0 | 5 | 0 | - | 5 | 10 |
| % Buses | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 2.4 | - | 1.7 | - | 0.0 | 2.2 | 0.0 | - | 2.1 | - | 0.0 | 2.1 | 0.0 | - | 1.4 | 1.5 |
| Single-Unit Trucks | 0 | 1 | 1 | 1 | - | 3 | 0 | 1 | 0 | 0 | - | 1 | 0 | 1 | 5 | 0 | - | 6 | 0 | 1 | 8 | 4 | - | 13 | 23 |
| % Single-Unit Trucks | - | 1.8 | 50.0 | 10.0 | - | 4.3 | - | 7.1 | 0.0 | 0.0 | - | 1.7 | - | 33.3 | 2.7 | 0.0 | - | 3.1 | - | 2.2 | 3.4 | 5.2 | - | 3.7 | 3.4 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 2 | - | 2 | 0 | 0 | 1 | 0 | - | 1 | 0 | 2 | 4 | 0 | - | 6 | 9 |
| % Articulated Trucks | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 4.8 | - | 3.4 | - | 0.0 | 0.5 | 0.0 | - | 0.5 | - | 4.4 | 1.7 | 0.0 | - | 1.7 | 1.3 |
| Bicycles on Road | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 3 | 0 | - | 3 | 0 | 0 | 2 | 2 | - | 4 | 8 |
| % Bicycles on Road | - | 1.8 | 0.0 | 0.0 | - | 1.4 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 1.6 | 0.0 | - | 1.5 | - | 0.0 | 0.9 | 2.6 | - | 1.1 | 1.2 |
| Pedestrians | - | - | - | - | - | 2 | - | - | - | - | - | 1 | - | - | - | - | - | 3 | - | - | - | - | - | 1 | - |



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

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

Count Name: Spring Lake Dr and Maplewood Dr
Site Code:
Start Date: 05/29/2019
Page No.: 3

Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Maplewood Dr Eastbound | | | | | Holiday Inn Entrance Westbound | | | | | Spring Lake Dr Northbound | | | | | Spring Lake Dr Southbound | | | | | | | | | | |
|----------------------|------------------------|-------|-------|-------|------|--------------------------------|--------|-------|-------|-------|---------------------------|------------|--------|-------|-------|---------------------------|------|------------|--------|-------|-------|-------|------|------------|------------|----|
| | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | U-Turn | Left | Thru | Right | Peds | App. Total | Int. Total | |
| 7:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 9 | 1 | 0 | 0 | 10 | 0 | 2 | 16 | 2 | 0 | 20 | 34 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 2 | 11 | 8 | 0 | 21 | 26 |
| 7:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 3 | 13 | 4 | 0 | 20 | 29 | |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 4 | 31 | 9 | 0 | 44 | 53 | |
| Total | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 12 | 0 | 12 | 0 | 0 | 22 | 1 | 0 | 23 | 0 | 11 | 71 | 23 | 0 | 105 | 142 | |
| Approach % | 0.0 | 100.0 | 0.0 | 0.0 | - | - | 0.0 | 33.3 | 0.0 | 66.7 | - | - | 0.0 | 0.0 | 95.7 | 4.3 | - | - | 0.0 | 10.5 | 67.6 | 21.9 | - | - | - | |
| Total % | 0.0 | 1.4 | 0.0 | 0.0 | - | 1.4 | 0.0 | 2.8 | 0.0 | 5.6 | - | 8.5 | 0.0 | 0.0 | 15.5 | 0.7 | - | 16.2 | 0.0 | 7.7 | 50.0 | 16.2 | - | 73.9 | - | |
| PHF | 0.000 | 0.500 | 0.000 | 0.000 | - | 0.500 | 0.000 | 0.500 | 0.000 | 0.500 | - | 0.750 | 0.000 | 0.000 | 0.611 | 0.250 | - | 0.575 | 0.000 | 0.688 | 0.573 | 0.639 | - | 0.597 | 0.670 | |
| Lights | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 7 | - | 11 | 0 | 0 | 19 | 1 | - | 20 | 0 | 11 | 65 | 21 | - | 97 | 130 | |
| % Lights | - | 100.0 | - | - | - | 100.0 | - | 100.0 | - | 87.5 | - | 91.7 | - | - | 86.4 | 100.0 | - | 87.0 | - | 100.0 | 91.5 | 91.3 | - | 92.4 | 91.5 | |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | - | 1 | 0 | 0 | 1 | 0 | - | 1 | 0 | 0 | 3 | 0 | - | 3 | 5 | |
| % Buses | - | 0.0 | - | - | - | 0.0 | - | 0.0 | - | 12.5 | - | 8.3 | - | - | 4.5 | 0.0 | - | 4.3 | - | 0.0 | 4.2 | 0.0 | - | 2.9 | 3.5 | |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 0 | - | 1 | 0 | 0 | 2 | 2 | - | 4 | 5 | |
| % Single-Unit Trucks | - | 0.0 | - | - | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | - | 4.5 | 0.0 | - | 4.3 | - | 0.0 | 2.8 | 8.7 | - | 3.8 | 3.5 | |
| Articulated Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | |
| % Articulated Trucks | - | 0.0 | - | - | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | - | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | |
| Bicycles on Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 1 | 0 | - | 1 | 2 | |
| % Bicycles on Road | - | 0.0 | - | - | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | - | 4.5 | 0.0 | - | 4.3 | - | 0.0 | 1.4 | 0.0 | - | 1.0 | 1.4 | |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |



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

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

Count Name: Spring Lake Dr and Maplewood Dr
Site Code:
Start Date: 05/29/2019
Page No.: 4

Turning Movement Peak Hour Data (4:30 PM)

| Start Time | Maplewood Dr Eastbound | | | | | Holiday Inn Entrance Westbound | | | | | Spring Lake Dr Northbound | | | | | Spring Lake Dr Southbound | | | | | | | | | | | | |
|----------------------|------------------------|-------|-------|-------|-------|--------------------------------|-------|-------|-------|-------|---------------------------|-------|-------|-------|-------|---------------------------|-------|-------|-------|-------|--------|-------|-------|-------|------|------------|------------|---|
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | App. Total | Int. Total | |
| 4:30 PM | 0 | 7 | 1 | 1 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 17 | 2 | 0 | 0 | 2 | 17 | 2 | 0 | 21 | 66 | |
| 4:45 PM | 0 | 5 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 16 | 1 | 1 | 0 | 5 | 7 | 4 | 0 | 0 | 5 | 7 | 4 | 0 | 16 | 43 | |
| 5:00 PM | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 6 | 10 | 1 | 0 | 0 | 6 | 10 | 1 | 0 | 17 | 56 | |
| 5:15 PM | 0 | 6 | 0 | 1 | 0 | 0 | 3 | 0 | 3 | 1 | 6 | 0 | 11 | 1 | 0 | 0 | 3 | 11 | 4 | 0 | 0 | 3 | 11 | 4 | 0 | 18 | 43 | |
| Total | 0 | 26 | 1 | 5 | 1 | 0 | 5 | 1 | 16 | 1 | 22 | 0 | 80 | 2 | 1 | 0 | 16 | 45 | 11 | 0 | 0 | 16 | 45 | 11 | 0 | 72 | 208 | |
| Approach % | 0.0 | 81.3 | 3.1 | 15.6 | - | 0.0 | 22.7 | 4.5 | 72.7 | - | - | 0.0 | 0.0 | 97.6 | 2.4 | - | 22.2 | 62.5 | 15.3 | - | 0.0 | 22.2 | 62.5 | 15.3 | - | - | - | |
| Total % | 0.0 | 12.5 | 0.5 | 2.4 | - | 15.4 | 0.0 | 2.4 | 0.5 | 7.7 | - | 10.6 | 0.0 | 38.5 | 1.0 | - | 7.7 | 21.6 | 5.3 | - | 0.0 | 7.7 | 21.6 | 5.3 | - | 34.6 | - | |
| PHF | 0.000 | 0.813 | 0.250 | 0.625 | - | 0.889 | 0.000 | 0.417 | 0.250 | 0.667 | - | 0.786 | 0.000 | 0.667 | 0.500 | - | 0.683 | 0.667 | 0.662 | 0.688 | - | 0.667 | 0.662 | 0.688 | - | 0.857 | 0.788 | |
| Lights | 0 | 25 | 0 | 4 | - | 29 | 0 | 4 | 16 | - | 21 | 0 | 75 | 2 | - | 77 | 0 | 14 | 43 | 10 | - | 14 | 43 | 10 | - | 67 | 194 | |
| % Lights | - | 96.2 | 0.0 | 80.0 | - | 90.6 | - | 80.0 | 100.0 | - | 95.5 | - | 93.8 | 100.0 | - | 93.9 | - | 87.5 | 95.6 | 90.9 | - | 87.5 | 95.6 | 90.9 | - | 93.1 | 93.9 | |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 0 | - | 0 | 0 | 1 | 0 | - | 0 | 0 | 1 | 0 | - | 1 | 2 |
| % Buses | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | - | 0.0 | - | 1.3 | 0.0 | - | 1.2 | - | 0.0 | 2.2 | 0.0 | - | 0.0 | 2.2 | 0.0 | - | 1.4 | 1.0 | |
| Single-Unit Trucks | 0 | 0 | 1 | 1 | - | 2 | 0 | 1 | 0 | - | 1 | 0 | 0 | 1 | 0 | - | 0 | 1 | 1 | 1 | - | 0 | 1 | 1 | 1 | - | 3 | 7 |
| % Single-Unit Trucks | - | 0.0 | 100.0 | 20.0 | - | 6.3 | - | 20.0 | 0.0 | - | 4.5 | - | 1.3 | 0.0 | - | 1.2 | - | 6.3 | 2.2 | 9.1 | - | 6.3 | 2.2 | 9.1 | - | 4.2 | 3.4 | |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 0 | - | 0 | 1 | 0 | 0 | - | 0 | 1 | 0 | 0 | - | 1 | 2 |
| % Articulated Trucks | - | 0.0 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | - | 0.0 | - | 1.3 | 0.0 | - | 1.2 | - | 6.3 | 0.0 | 0.0 | - | 6.3 | 0.0 | 0.0 | - | 1.4 | 1.0 | |
| Bicycles on Road | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 3 |
| % Bicycles on Road | - | 3.8 | 0.0 | 0.0 | - | 3.1 | - | 0.0 | 0.0 | - | 0.0 | - | 2.5 | 0.0 | - | 2.4 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 1.4 | |
| Pedestrians | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | |

Table A
 Parking Occupancy Rates at Woodridge Interventions

| Time | Parking Occupancy/Bed* |
|-----------------|------------------------|
| 7:00 AM | 0.25 |
| 7:30 AM | 0.41 |
| 8:00 AM | 0.65 |
| 8:30 AM | 0.71 |
| 9:00 AM | 0.75 |
| 9:30 AM | 0.80 |
| 10:00 AM | 0.80 |
| 10:30 AM | 0.81 |
| 11:00 AM | 0.84 |
| 11:30 AM | 0.85 |
| 12:00 PM | 0.87 |
| 12:30 PM | 0.85 |
| 1:00 PM | 0.84 |
| 1:30 PM | 0.86 |
| 2:00 PM | 0.78 |
| 2:30 PM | 0.72 |
| 3:00 PM | 0.80 |
| 3:30 PM | 0.71 |
| 4:00 PM | 0.68 |
| 4:30 PM | 0.56 |
| 5:00 PM | 0.53 |
| 5:30 PM | 0.51 |
| 6:00 PM | 0.56 |

*79 Beds

CMAP Traffic Projection Letter



Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

June 25, 2019

William R. Woodward
Senior Consultant
Koenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Chicago, IL 60602

Subject: IL 19 @ IL 53
IDOT

Dear Mr. Woodward:

In response to a request made on your behalf and dated June 25, 2019, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

| ROAD SEGMENT | Current Volumes | Year 2050 ADT |
|----------------------|-----------------|---------------|
| IL 19 east of IL 53 | 16,000 | 16,700 |
| IL 53 south of IL 19 | 17,900 | 22,300 |

Traffic projections are developed using existing ADT data provided in the request letter and the results from the March 2019 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.

Sincerely,

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

cc: Quigley (IDOT)
S:\AdminGroups\ResearchAnalysis\2019_ForecastsTraffic\Itasca\du-19-19\du-19-19.docx

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

| Signalized Intersections | | |
|--|--|--|
| Level of Service | Interpretation | Average Control Delay (seconds per vehicle) |
| A | Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping. | ≤10 |
| B | Good progression, with more vehicles stopping than for Level of Service A. | >10 - 20 |
| C | Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping. | >20 - 35 |
| D | The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable. | >35 - 55 |
| E | Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent. | >55 - 80 |
| F | The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue. | >80.0 |
| Unsignalized Intersections | | |
| Level of Service | Average Total Delay (SEC/VEH) | |
| A | 0 - 10 | |
| B | > 10 - 15 | |
| C | > 15 - 25 | |
| D | > 25 - 35 | |
| E | > 35 - 50 | |
| F | > 50 | |
| Source: <i>Highway Capacity Manual</i> , 2010. | | |

Capacity Analysis – Existing Conditions

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019

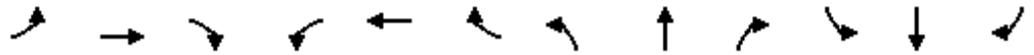


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 8 | 4 | 31 | 24 | 0 | 9 | 7 | 1135 | 123 | 39 | 631 | 6 |
| Future Volume (vph) | 8 | 4 | 31 | 24 | 0 | 9 | 7 | 1135 | 123 | 39 | 631 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 100 | | 0 | 0 | | 150 | 250 | | 170 | 245 | | 0 |
| Storage Lanes | 1 | | 0 | 0 | | 1 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 50 | | | 25 | | | 100 | | | 155 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.866 | | | | 0.850 | | | 0.850 | | 0.999 | |
| Flt Protected | 0.950 | | | | 0.950 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1562 | 0 | 0 | 1736 | 1214 | 1410 | 3438 | 1583 | 1752 | 3306 | 0 |
| Flt Permitted | 0.755 | | | | 0.755 | | 0.382 | | | 0.188 | | |
| Satd. Flow (perm) | 1434 | 1562 | 0 | 0 | 1379 | 1214 | 567 | 3438 | 1583 | 347 | 3306 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 34 | | | | 82 | | | 125 | | | 1 |
| Link Speed (mph) | | 25 | | | 25 | | | 40 | | | | 40 |
| Link Distance (ft) | | 420 | | | 575 | | | 842 | | | | 768 |
| Travel Time (s) | | 11.5 | | | 15.7 | | | 14.4 | | | | 13.1 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 0% | 0% | 6% | 4% | 2% | 33% | 28% | 5% | 2% | 3% | 9% | 17% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 9 | 38 | 0 | 0 | 27 | 10 | 8 | 1261 | 137 | 43 | 708 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | |
| 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) | 24.5 | 24.5 | | 24.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 15.0 | 60.0 | 60.0 | 15.0 | 60.0 | 60.0 |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 15.0% | 60.0% | 60.0% | 15.0% | 60.0% | 60.0% |
| Yellow Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 |
| 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) | 6.5 | 6.5 | | | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | |
| Act Effect Green (s) | 7.5 | 7.5 | | | 7.6 | 7.6 | 84.1 | 80.8 | 80.8 | 86.2 | 85.0 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | | 0.08 | 0.08 | 0.84 | 0.81 | 0.81 | 0.86 | 0.85 | |

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019

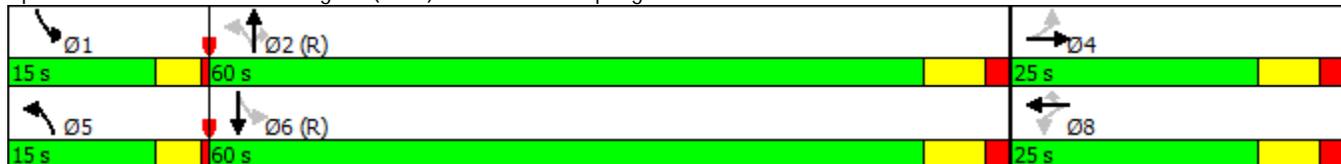


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|-----|------|------|------|------|------|------|------|-----|
| v/c Ratio | 0.08 | 0.26 | | | 0.26 | 0.06 | 0.02 | 0.45 | 0.11 | 0.11 | 0.25 | |
| Control Delay | 43.4 | 20.6 | | | 48.8 | 0.7 | 2.1 | 6.3 | 1.5 | 2.5 | 3.4 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 43.4 | 20.6 | | | 48.8 | 0.7 | 2.1 | 6.3 | 1.5 | 2.5 | 3.4 | |
| LOS | D | C | | | D | A | A | A | A | A | A | |
| Approach Delay | | 25.0 | | | 35.8 | | | 5.8 | | | 3.3 | |
| Approach LOS | | C | | | D | | | A | | | A | |
| Queue Length 50th (ft) | 5 | 2 | | | 17 | 0 | 1 | 177 | 2 | 4 | 47 | |
| Queue Length 95th (ft) | 21 | 33 | | | 43 | 0 | 3 | 255 | 21 | 11 | 118 | |
| Internal Link Dist (ft) | | 340 | | | 495 | | | 762 | | | 688 | |
| Turn Bay Length (ft) | 100 | | | | | 150 | 250 | | 170 | 245 | | |
| Base Capacity (vph) | 265 | 316 | | | 255 | 291 | 585 | 2778 | 1303 | 455 | 2809 | |
| 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 | 0.03 | 0.12 | | | 0.11 | 0.03 | 0.01 | 0.45 | 0.11 | 0.09 | 0.25 | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 100 |
| Actuated Cycle Length: | 100 |
| Offset: | 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Coordinated |
| Maximum v/c Ratio: | 0.45 |
| Intersection Signal Delay: | 5.9 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 56.0% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr



HCM Unsignalized Intersection Capacity Analysis

2: Spring Lake Dr & Irving Park Rd (IL 19)

06/28/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 22 | 688 | 54 | 54 | 589 | 9 | 10 | 0 | 22 | 0 | 0 | 3 |
| Future Volume (Veh/h) | 22 | 688 | 54 | 54 | 589 | 9 | 10 | 0 | 22 | 0 | 0 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 25 | 791 | 62 | 62 | 677 | 10 | 11 | 0 | 25 | 0 | 0 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | TWLTL | | | None | | | | | | | |
| Median storage veh | | 2 | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 687 | | | 853 | | | 1338 | 1683 | 426 | 1276 | 1709 | 344 |
| vC1, stage 1 conf vol | | | | | | | 872 | 872 | | 806 | 806 | |
| vC2, stage 2 conf vol | | | | | | | 466 | 811 | | 470 | 903 | |
| vCu, unblocked vol | 687 | | | 853 | | | 1338 | 1683 | 426 | 1276 | 1709 | 344 |
| tC, single (s) | 4.1 | | | 4.3 | | | 7.9 | 6.5 | 7.0 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | 6.9 | 5.5 | | 6.5 | 5.5 | |
| tF (s) | 2.2 | | | 2.3 | | | 3.7 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 91 | | | 95 | 100 | 96 | 100 | 100 | 100 |
| cM capacity (veh/h) | 916 | | | 727 | | | 235 | 251 | 568 | 271 | 233 | 658 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 | SB 1 | | | |
| Volume Total | 25 | 527 | 326 | 62 | 451 | 236 | 11 | 25 | 3 | | | |
| Volume Left | 25 | 0 | 0 | 62 | 0 | 0 | 11 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 62 | 0 | 0 | 10 | 0 | 25 | 3 | | | |
| cSH | 916 | 1700 | 1700 | 727 | 1700 | 1700 | 235 | 568 | 658 | | | |
| Volume to Capacity | 0.03 | 0.31 | 0.19 | 0.09 | 0.27 | 0.14 | 0.05 | 0.04 | 0.00 | | | |
| Queue Length 95th (ft) | 2 | 0 | 0 | 7 | 0 | 0 | 4 | 3 | 0 | | | |
| Control Delay (s) | 9.0 | 0.0 | 0.0 | 10.4 | 0.0 | 0.0 | 21.0 | 11.6 | 10.5 | | | |
| Lane LOS | A | | | B | | | C | B | B | | | |
| Approach Delay (s) | 0.3 | | | 0.9 | | | 14.5 | | 10.5 | | | |
| Approach LOS | | | | | | | B | | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.9 | | | | | | | | | |
| Intersection Capacity Utilization | | | 41.3% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: Rohlwing Rd (IL 53) & Hawthorn Dr

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 1063 | 98 | 76 | 678 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 1063 | 98 | 76 | 678 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 8 | 0 | 9 | 0 | 1194 | 110 | 85 | 762 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | | None |
| Median storage (veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | 768 | | | | |
| pX, platoon unblocked | 0.86 | 0.86 | | 0.86 | 0.86 | 0.86 | | | | 0.86 | | |
| vC, conflicting volume | 1538 | 2236 | 381 | 1745 | 2126 | 597 | 762 | | | 1304 | | |
| vC1, stage 1 conf vol | 932 | 932 | | 1194 | 1194 | | | | | | | |
| vC2, stage 2 conf vol | 606 | 1304 | | 551 | 932 | | | | | | | |
| vCu, unblocked vol | 1293 | 2108 | 381 | 1535 | 1980 | 194 | 762 | | | 1020 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 96 | 100 | 99 | 100 | | | 85 | | |
| cM capacity (veh/h) | 228 | 154 | 617 | 221 | 210 | 697 | 846 | | | 579 | | |
| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | | |
| Volume Total | 0 | 8 | 9 | 0 | 597 | 597 | 110 | 85 | 508 | 254 | | |
| Volume Left | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | | |
| Volume Right | 0 | 0 | 9 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | | |
| cSH | 1700 | 221 | 697 | 1700 | 1700 | 1700 | 1700 | 579 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.04 | 0.01 | 0.00 | 0.35 | 0.35 | 0.06 | 0.15 | 0.30 | 0.15 | | |
| Queue Length 95th (ft) | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 21.9 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | | |
| Lane LOS | A | C | B | | | | | B | | | | |
| Approach Delay (s) | 0.0 | 15.7 | | 0.0 | | | | 1.2 | | | | |
| Approach LOS | A | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 46.9% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
 4: Spring Lake Dr & Maplewood Dr/Access

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations |  | |  | |  | |  |  | |  |  | | |
| Traffic Volume (veh/h) | 2 | 1 | 0 | 4 | 0 | 8 | 1 | 22 | 1 | 11 | 71 | 23 | |
| Future Volume (Veh/h) | 2 | 1 | 0 | 4 | 0 | 8 | 1 | 22 | 1 | 11 | 71 | 23 | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | | |
| Peak Hour Factor | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | |
| Hourly flow rate (vph) | 3 | 1 | 0 | 6 | 0 | 12 | 1 | 33 | 1 | 16 | 106 | 34 | |
| Pedestrians | | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | | |
| Median type | | | | | | | None | | | None | | | |
| Median storage (veh) | | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | | |
| vC, conflicting volume | 202 | 191 | 123 | 174 | 208 | 34 | 140 | | | 34 | | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | | |
| vCu, unblocked vol | 202 | 191 | 123 | 174 | 208 | 34 | 140 | | | 34 | | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.3 | 4.1 | | | 4.1 | | | |
| tC, 2 stage (s) | | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.4 | 2.2 | | | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | 99 | 100 | 99 | 100 | | | 99 | | | |
| cM capacity (veh/h) | 745 | 700 | 933 | 786 | 685 | 1012 | 1456 | | | 1591 | | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | | |
| Volume Total | 3 | 1 | 18 | 1 | 34 | 16 | 140 | | | | | | |
| Volume Left | 3 | 0 | 6 | 1 | 0 | 16 | 0 | | | | | | |
| Volume Right | 0 | 0 | 12 | 0 | 1 | 0 | 34 | | | | | | |
| cSH | 745 | 700 | 923 | 1456 | 1700 | 1591 | 1700 | | | | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.01 | 0.08 | | | | | | |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 0 | 1 | 0 | | | | | | |
| Control Delay (s) | 9.8 | 10.2 | 9.0 | 7.5 | 0.0 | 7.3 | 0.0 | | | | | | |
| Lane LOS | A | B | A | A | | A | | | | | | | |
| Approach Delay (s) | 9.9 | | 9.0 | 0.2 | | 0.7 | | | | | | | |
| Approach LOS | A | | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | | |
| Average Delay | | | 1.5 | | | | | | | | | | |
| Intersection Capacity Utilization | | | Err% | | ICU Level of Service | | | | H | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | | |

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 1 | 16 | 191 | 1 | 54 | 27 | 739 | 31 | 6 | 1428 | 29 |
| Future Volume (vph) | 15 | 1 | 16 | 191 | 1 | 54 | 27 | 739 | 31 | 6 | 1428 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 100 | | 0 | 0 | | 150 | 250 | | 170 | 245 | | 0 |
| Storage Lanes | 1 | | 0 | 0 | | 1 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 50 | | | 25 | | | 100 | | | 155 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.859 | | | | 0.850 | | | 0.850 | | 0.997 | |
| Flt Protected | 0.950 | | | | 0.953 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1632 | 0 | 0 | 1793 | 1615 | 1736 | 3471 | 1568 | 1289 | 3494 | 0 |
| Flt Permitted | 0.487 | | | | 0.715 | | 0.105 | | | 0.353 | | |
| Satd. Flow (perm) | 925 | 1632 | 0 | 0 | 1345 | 1615 | 192 | 3471 | 1568 | 479 | 3494 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 16 | | | | 74 | | | 74 | | | 3 |
| Link Speed (mph) | | 25 | | | 25 | | | 40 | | | | 40 |
| Link Distance (ft) | | 420 | | | 575 | | | 842 | | | | 768 |
| Travel Time (s) | | 11.5 | | | 15.7 | | | 14.4 | | | | 13.1 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 0% | 4% | 4% | 3% | 40% | 3% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 15 | 17 | 0 | 0 | 198 | 56 | 28 | 762 | 32 | 6 | 1502 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | |
| 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) | 24.5 | 24.5 | | 24.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 13.0 | 67.0 | 67.0 | 13.0 | 67.0 | 67.0 |
| Total Split (%) | 27.3% | 27.3% | | 27.3% | 27.3% | 27.3% | 11.8% | 60.9% | 60.9% | 11.8% | 60.9% | 60.9% |
| Yellow Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 |
| 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) | 6.5 | 6.5 | | | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | |
| Act Effect Green (s) | 20.0 | 20.0 | | | 20.0 | 20.0 | 78.8 | 74.9 | 74.9 | 76.7 | 70.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | | 0.18 | 0.18 | 0.72 | 0.68 | 0.68 | 0.70 | 0.64 | |

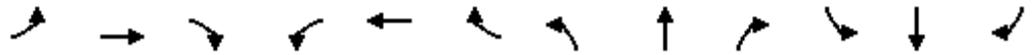
Weekday PM - Existing
19-133; Itasca, IL

Synchro 9 Report

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019

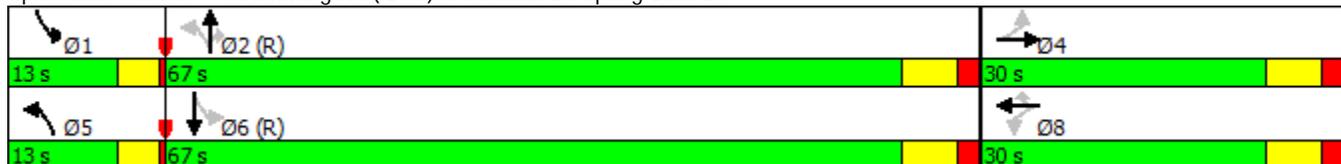


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|-----|------|------|------|------|------|------|------|-----|
| v/c Ratio | 0.09 | 0.05 | | | 0.81 | 0.16 | 0.13 | 0.32 | 0.03 | 0.02 | 0.67 | |
| Control Delay | 36.7 | 16.2 | | | 67.3 | 6.0 | 6.4 | 8.5 | 0.1 | 5.5 | 15.8 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 36.7 | 16.2 | | | 67.3 | 6.0 | 6.4 | 8.5 | 0.1 | 5.5 | 15.8 | |
| LOS | D | B | | | E | A | A | A | A | A | B | |
| Approach Delay | | 25.8 | | | 53.8 | | | 8.1 | | | 15.8 | |
| Approach LOS | | C | | | D | | | A | | | B | |
| Queue Length 50th (ft) | 9 | 1 | | | 133 | 0 | 5 | 102 | 0 | 1 | 371 | |
| Queue Length 95th (ft) | 27 | 19 | | | #226 | 22 | 14 | 186 | 1 | 5 | 487 | |
| Internal Link Dist (ft) | | 340 | | | 495 | | | 762 | | | 688 | |
| Turn Bay Length (ft) | 100 | | | | | 150 | 250 | | 170 | 245 | | |
| Base Capacity (vph) | 197 | 361 | | | 287 | 403 | 264 | 2364 | 1092 | 408 | 2247 | |
| 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 | 0.08 | 0.05 | | | 0.69 | 0.14 | 0.11 | 0.32 | 0.03 | 0.01 | 0.67 | |

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 22 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 17.2
 Intersection LOS: B
 Intersection Capacity Utilization 68.5%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr



HCM Unsignalized Intersection Capacity Analysis

2: Spring Lake Dr & Irving Park Rd (IL 19)

06/28/2019

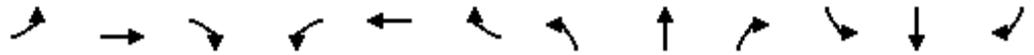


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 4 | 757 | 30 | 40 | 839 | 2 | 47 | 0 | 73 | 6 | 1 | 20 |
| Future Volume (Veh/h) | 4 | 757 | 30 | 40 | 839 | 2 | 47 | 0 | 73 | 6 | 1 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 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 |
| Hourly flow rate (vph) | 4 | 805 | 32 | 43 | 893 | 2 | 50 | 0 | 78 | 6 | 1 | 21 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | TWLTL | | | None | | | | | | | |
| Median storage veh | | 2 | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 895 | | | 837 | | | 1383 | 1810 | 418 | 1468 | 1825 | 448 |
| vC1, stage 1 conf vol | | | | | | | 829 | 829 | | 980 | 980 | |
| vC2, stage 2 conf vol | | | | | | | 554 | 981 | | 488 | 845 | |
| vCu, unblocked vol | 895 | | | 837 | | | 1383 | 1810 | 418 | 1468 | 1825 | 448 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 7.0 | 7.5 | 6.5 | 7.0 |
| tC, 2 stage (s) | | | | | | | 6.5 | 5.5 | | 6.5 | 5.5 | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 95 | | | 82 | 100 | 86 | 97 | 100 | 96 |
| cM capacity (veh/h) | 767 | | | 793 | | | 271 | 242 | 575 | 223 | 235 | 550 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 | SB 1 | | | |
| Volume Total | 4 | 537 | 300 | 43 | 595 | 300 | 50 | 78 | 28 | | | |
| Volume Left | 4 | 0 | 0 | 43 | 0 | 0 | 50 | 0 | 6 | | | |
| Volume Right | 0 | 0 | 32 | 0 | 0 | 2 | 0 | 78 | 21 | | | |
| cSH | 767 | 1700 | 1700 | 793 | 1700 | 1700 | 271 | 575 | 404 | | | |
| Volume to Capacity | 0.01 | 0.32 | 0.18 | 0.05 | 0.35 | 0.18 | 0.18 | 0.14 | 0.07 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 4 | 0 | 0 | 17 | 12 | 6 | | | |
| Control Delay (s) | 9.7 | 0.0 | 0.0 | 9.8 | 0.0 | 0.0 | 21.3 | 12.2 | 14.6 | | | |
| Lane LOS | A | | | A | | | C | B | B | | | |
| Approach Delay (s) | 0.0 | | | 0.4 | | | 15.8 | | 14.6 | | | |
| Approach LOS | | | | | | | C | | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 1.5 | | | | | | | | | |
| Intersection Capacity Utilization | | | 45.6% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: Rohlwing Rd (IL 53) & Hawthorn Dr

06/28/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|-------------|------|------|
| Lane Configurations | | ↔ | | | ↔ | ↔ | ↔ | ↑↑ | ↔ | ↔ | ↑↔ | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 91 | 0 | 77 | 0 | 802 | 3 | 8 | 1313 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 91 | 0 | 77 | 0 | 802 | 3 | 8 | 1313 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 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 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 93 | 0 | 79 | 0 | 818 | 3 | 8 | 1340 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | | None |
| Median storage (veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | 768 | | | | |
| pX, platoon unblocked | 0.91 | 0.91 | | 0.91 | 0.91 | 0.91 | | | | | 0.91 | |
| vC, conflicting volume | 1844 | 2177 | 670 | 1504 | 2174 | 409 | 1340 | | | | 821 | |
| vC1, stage 1 conf vol | 1356 | 1356 | | 818 | 818 | | | | | | | |
| vC2, stage 2 conf vol | 488 | 821 | | 686 | 1356 | | | | | | | |
| vCu, unblocked vol | 1729 | 2095 | 670 | 1356 | 2092 | 152 | 1340 | | | | 605 | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | | 4.1 | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | | 2.2 | |
| p0 queue free % | 100 | 100 | 100 | 69 | 100 | 90 | 100 | | | | 99 | |
| cM capacity (veh/h) | 149 | 190 | 399 | 296 | 191 | 789 | 510 | | | | 882 | |
| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | | |
| Volume Total | 0 | 93 | 79 | 0 | 409 | 409 | 3 | 8 | 893 | 447 | | |
| Volume Left | 0 | 93 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | | |
| Volume Right | 0 | 0 | 79 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | | |
| cSH | 1700 | 296 | 789 | 1700 | 1700 | 1700 | 1700 | 882 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.31 | 0.10 | 0.00 | 0.24 | 0.24 | 0.00 | 0.01 | 0.53 | 0.26 | | |
| Queue Length 95th (ft) | 0 | 33 | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 22.6 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | | |
| Lane LOS | A | C | B | | | | | A | | | | |
| Approach Delay (s) | 0.0 | 16.9 | | 0.0 | | | | 0.1 | | | | |
| Approach LOS | A | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 1.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 48.0% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

4: Spring Lake Dr & Maplewood Dr/Access

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | |  | |  | |  |  | |  |  |  |
| Traffic Volume (veh/h) | 26 | 1 | 5 | 5 | 1 | 16 | 1 | 80 | 2 | 16 | 45 | 11 |
| Future Volume (Veh/h) | 26 | 1 | 5 | 5 | 1 | 16 | 1 | 80 | 2 | 16 | 45 | 11 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Hourly flow rate (vph) | 33 | 1 | 6 | 6 | 1 | 20 | 1 | 101 | 3 | 20 | 57 | 14 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 228 | 210 | 64 | 208 | 216 | 102 | 71 | | | 104 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 228 | 210 | 64 | 208 | 216 | 102 | 71 | | | 104 | | |
| tC, single (s) | 7.1 | 6.5 | 6.4 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.5 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 95 | 100 | 99 | 99 | 100 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 700 | 681 | 952 | 699 | 676 | 958 | 1542 | | | 1427 | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | |
| Volume Total | 33 | 7 | 27 | 1 | 104 | 20 | 71 | | | | | |
| Volume Left | 33 | 0 | 6 | 1 | 0 | 20 | 0 | | | | | |
| Volume Right | 0 | 6 | 20 | 0 | 3 | 0 | 14 | | | | | |
| cSH | 700 | 901 | 873 | 1542 | 1700 | 1427 | 1700 | | | | | |
| Volume to Capacity | 0.05 | 0.01 | 0.03 | 0.00 | 0.06 | 0.01 | 0.04 | | | | | |
| Queue Length 95th (ft) | 4 | 1 | 2 | 0 | 0 | 1 | 0 | | | | | |
| Control Delay (s) | 10.4 | 9.0 | 9.3 | 7.3 | 0.0 | 7.6 | 0.0 | | | | | |
| Lane LOS | B | A | A | A | | A | | | | | | |
| Approach Delay (s) | 10.2 | | 9.3 | 0.1 | | 1.7 | | | | | | |
| Approach LOS | B | | A | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.1 | | | | | | | | | |
| Intersection Capacity Utilization | | | Err% | ICU Level of Service | H | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Capacity Analysis – Year 2026 Total
Projected Conditions

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 8 | 4 | 31 | 29 | 0 | 9 | 7 | 1183 | 157 | 39 | 653 | 6 |
| Future Volume (vph) | 8 | 4 | 31 | 29 | 0 | 9 | 7 | 1183 | 157 | 39 | 653 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 100 | | 0 | 0 | | 150 | 250 | | 170 | 245 | | 0 |
| Storage Lanes | 1 | | 0 | 0 | | 1 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 50 | | | 25 | | | 100 | | | 155 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.866 | | | | 0.850 | | | 0.850 | | 0.999 | |
| Flt Protected | 0.950 | | | | 0.950 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1562 | 0 | 0 | 1736 | 1214 | 1410 | 3438 | 1583 | 1752 | 3306 | 0 |
| Flt Permitted | 0.736 | | | | 0.732 | | 0.373 | | | 0.175 | | |
| Satd. Flow (perm) | 1398 | 1562 | 0 | 0 | 1337 | 1214 | 554 | 3438 | 1583 | 323 | 3306 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 34 | | | | 82 | | | 152 | | | 1 |
| Link Speed (mph) | | 25 | | | 25 | | | 40 | | | | 40 |
| Link Distance (ft) | | 420 | | | 575 | | | 842 | | | | 768 |
| Travel Time (s) | | 11.5 | | | 15.7 | | | 14.4 | | | | 13.1 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 0% | 0% | 6% | 4% | 2% | 33% | 28% | 5% | 2% | 3% | 9% | 17% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 9 | 38 | 0 | 0 | 32 | 10 | 8 | 1314 | 174 | 43 | 733 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | |
| 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) | 24.5 | 24.5 | | 24.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 15.0 | 60.0 | 60.0 | 15.0 | 60.0 | 60.0 |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 15.0% | 60.0% | 60.0% | 15.0% | 60.0% | 60.0% |
| Yellow Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 |
| 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) | 6.5 | 6.5 | | | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | |
| Act Effect Green (s) | 7.8 | 7.8 | | | 8.0 | 8.0 | 83.8 | 80.5 | 80.5 | 85.9 | 84.6 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | | 0.08 | 0.08 | 0.84 | 0.80 | 0.80 | 0.86 | 0.85 | |

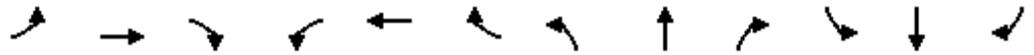
Weekday AM - Future
19-133; Itasca, IL

Synchro 9 Report

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019



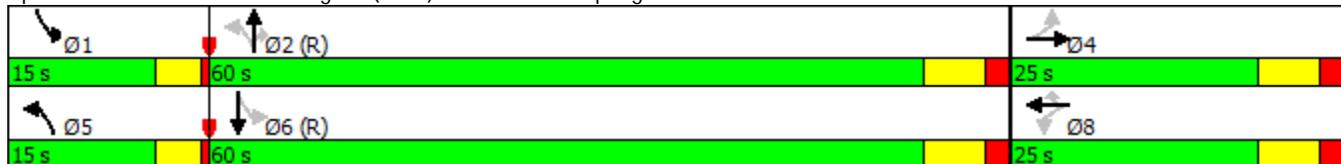
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|-----|------|------|------|------|------|------|------|-----|
| v/c Ratio | 0.08 | 0.25 | | | 0.30 | 0.06 | 0.02 | 0.48 | 0.13 | 0.12 | 0.26 | |
| Control Delay | 42.8 | 20.1 | | | 49.9 | 0.7 | 2.3 | 6.8 | 1.7 | 2.6 | 3.6 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 42.8 | 20.1 | | | 49.9 | 0.7 | 2.3 | 6.8 | 1.7 | 2.6 | 3.6 | |
| LOS | D | C | | | D | A | A | A | A | A | A | |
| Approach Delay | | 24.4 | | | 38.1 | | | 6.1 | | | 3.5 | |
| Approach LOS | | C | | | D | | | A | | | A | |
| Queue Length 50th (ft) | 5 | 2 | | | 20 | 0 | 1 | 192 | 4 | 4 | 51 | |
| Queue Length 95th (ft) | 21 | 33 | | | 48 | 0 | 4 | 281 | 26 | 11 | 125 | |
| Internal Link Dist (ft) | | 340 | | | 495 | | | 762 | | | 688 | |
| Turn Bay Length (ft) | 100 | | | | | 150 | 250 | | 170 | 245 | | |
| Base Capacity (vph) | 258 | 316 | | | 247 | 291 | 573 | 2766 | 1303 | 436 | 2798 | |
| 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 | 0.03 | 0.12 | | | 0.13 | 0.03 | 0.01 | 0.48 | 0.13 | 0.10 | 0.26 | |

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 6.2
 Intersection Capacity Utilization 57.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

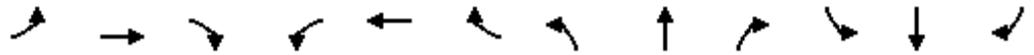
Splits and Phases: 1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr



HCM Unsignalized Intersection Capacity Analysis

2: Spring Lake Dr & Irving Park Rd (IL 19)

06/28/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↗ | | | ↕ | |
| Traffic Volume (veh/h) | 22 | 709 | 98 | 72 | 607 | 9 | 19 | 0 | 21 | 0 | 0 | 3 |
| Future Volume (Veh/h) | 22 | 709 | 98 | 72 | 607 | 9 | 19 | 0 | 21 | 0 | 0 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 25 | 815 | 113 | 83 | 698 | 10 | 22 | 0 | 24 | 0 | 0 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | TWLTL | | | None | | | | | | | |
| Median storage veh | | 2 | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 708 | | | 928 | | | 1440 | 1796 | 464 | 1350 | 1847 | 354 |
| vC1, stage 1 conf vol | | | | | | | 922 | 922 | | 869 | 869 | |
| vC2, stage 2 conf vol | | | | | | | 518 | 874 | | 482 | 978 | |
| vCu, unblocked vol | 708 | | | 928 | | | 1440 | 1796 | 464 | 1350 | 1847 | 354 |
| tC, single (s) | 4.1 | | | 4.3 | | | 7.9 | 6.5 | 7.0 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | 6.9 | 5.5 | | 6.5 | 5.5 | |
| tF (s) | 2.2 | | | 2.3 | | | 3.7 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 88 | | | 90 | 100 | 96 | 100 | 100 | 100 |
| cM capacity (veh/h) | 900 | | | 679 | | | 213 | 227 | 537 | 241 | 198 | 648 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 | SB 1 | | | |
| Volume Total | 25 | 543 | 385 | 83 | 465 | 243 | 22 | 24 | 3 | | | |
| Volume Left | 25 | 0 | 0 | 83 | 0 | 0 | 22 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 113 | 0 | 0 | 10 | 0 | 24 | 3 | | | |
| cSH | 900 | 1700 | 1700 | 679 | 1700 | 1700 | 213 | 537 | 648 | | | |
| Volume to Capacity | 0.03 | 0.32 | 0.23 | 0.12 | 0.27 | 0.14 | 0.10 | 0.04 | 0.00 | | | |
| Queue Length 95th (ft) | 2 | 0 | 0 | 10 | 0 | 0 | 8 | 4 | 0 | | | |
| Control Delay (s) | 9.1 | 0.0 | 0.0 | 11.0 | 0.0 | 0.0 | 23.8 | 12.0 | 10.6 | | | |
| Lane LOS | A | | | B | | | C | B | B | | | |
| Approach Delay (s) | 0.2 | | | 1.2 | | | 17.7 | | 10.6 | | | |
| Approach LOS | | | | | | | C | | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 1.1 | | | | | | | | | |
| Intersection Capacity Utilization | | | 44.4% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: Rohlwing Rd (IL 53) & Hawthorn Dr

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 10 | 0 | 8 | 0 | 1095 | 112 | 76 | 698 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 10 | 0 | 8 | 0 | 1095 | 112 | 76 | 698 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 11 | 0 | 9 | 0 | 1230 | 126 | 85 | 784 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | | None |
| Median storage (veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | 768 | | | | |
| pX, platoon unblocked | 0.84 | 0.84 | | 0.84 | 0.84 | 0.84 | | | | 0.84 | | |
| vC, conflicting volume | 1578 | 2310 | 392 | 1792 | 2184 | 615 | 784 | | | 1356 | | |
| vC1, stage 1 conf vol | 954 | 954 | | 1230 | 1230 | | | | | | | |
| vC2, stage 2 conf vol | 624 | 1356 | | 562 | 954 | | | | | | | |
| vCu, unblocked vol | 1315 | 2182 | 392 | 1568 | 2033 | 173 | 784 | | | 1051 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 95 | 100 | 99 | 100 | | | 85 | | |
| cM capacity (veh/h) | 220 | 144 | 607 | 214 | 203 | 709 | 830 | | | 555 | | |
| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | | |
| Volume Total | 0 | 11 | 9 | 0 | 615 | 615 | 126 | 85 | 523 | 261 | | |
| Volume Left | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | | |
| Volume Right | 0 | 0 | 9 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | | |
| cSH | 1700 | 214 | 709 | 1700 | 1700 | 1700 | 1700 | 555 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.05 | 0.01 | 0.00 | 0.36 | 0.36 | 0.07 | 0.15 | 0.31 | 0.15 | | |
| Queue Length 95th (ft) | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 22.7 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 0.0 | 0.0 | | |
| Lane LOS | A | C | B | | | | | B | | | | |
| Approach Delay (s) | 0.0 | 17.1 | | 0.0 | | | | 1.2 | | | | |
| Approach LOS | A | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 47.8% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
 4: Spring Lake Dr & Maplewood Dr/Access

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | |  | |  | |  |  | |  |  | |
| Traffic Volume (veh/h) | 2 | 0 | 1 | 12 | 0 | 18 | 1 | 22 | 49 | 73 | 71 | 23 |
| Future Volume (Veh/h) | 2 | 0 | 1 | 12 | 0 | 18 | 1 | 22 | 49 | 73 | 71 | 23 |
| Sign Control | Stop | | | Stop | | | Free | | | Free | | |
| Grade | 0% | | | 0% | | | 0% | | | 0% | | |
| Peak Hour Factor | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 |
| Hourly flow rate (vph) | 3 | 0 | 1 | 18 | 0 | 27 | 1 | 33 | 73 | 109 | 106 | 34 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | None | | | None | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 403 | 449 | 123 | 396 | 430 | 70 | 140 | | | | 106 | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 403 | 449 | 123 | 396 | 430 | 70 | 140 | | | | 106 | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.3 | 4.1 | | | | 4.1 | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.4 | 2.2 | | | | 2.2 | |
| p0 queue free % | 99 | 100 | 100 | 97 | 100 | 97 | 100 | | | | 93 | |
| cM capacity (veh/h) | 515 | 471 | 933 | 535 | 483 | 966 | 1456 | | | | 1498 | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | |
| Volume Total | 3 | 1 | 45 | 1 | 106 | 109 | 140 | | | | | |
| Volume Left | 3 | 0 | 18 | 1 | 0 | 109 | 0 | | | | | |
| Volume Right | 0 | 1 | 27 | 0 | 73 | 0 | 34 | | | | | |
| cSH | 515 | 933 | 730 | 1456 | 1700 | 1498 | 1700 | | | | | |
| Volume to Capacity | 0.01 | 0.00 | 0.06 | 0.00 | 0.06 | 0.07 | 0.08 | | | | | |
| Queue Length 95th (ft) | 0 | 0 | 5 | 0 | 0 | 6 | 0 | | | | | |
| Control Delay (s) | 12.0 | 8.9 | 10.3 | 7.5 | 0.0 | 7.6 | 0.0 | | | | | |
| Lane LOS | B | A | B | A | | A | | | | | | |
| Approach Delay (s) | 11.2 | | 10.3 | 0.1 | | 3.3 | | | | | | |
| Approach LOS | B | | B | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 25.8% | ICU Level of Service | | | A | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 1 | 16 | 198 | 1 | 54 | 27 | 767 | 40 | 6 | 1477 | 29 |
| Future Volume (vph) | 15 | 1 | 16 | 198 | 1 | 54 | 27 | 767 | 40 | 6 | 1477 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 100 | | 0 | 0 | | 150 | 250 | | 170 | 245 | | 0 |
| Storage Lanes | 1 | | 0 | 0 | | 1 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 50 | | | 25 | | | 100 | | | 155 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.859 | | | | 0.850 | | | 0.850 | | 0.997 | |
| Flt Protected | 0.950 | | | | 0.953 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1632 | 0 | 0 | 1793 | 1615 | 1736 | 3471 | 1568 | 1289 | 3494 | 0 |
| Flt Permitted | 0.475 | | | | 0.715 | | 0.094 | | | 0.340 | | |
| Satd. Flow (perm) | 902 | 1632 | 0 | 0 | 1345 | 1615 | 172 | 3471 | 1568 | 461 | 3494 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 16 | | | | 74 | | | 74 | | | 3 |
| Link Speed (mph) | | 25 | | | 25 | | | 40 | | | | 40 |
| Link Distance (ft) | | 420 | | | 575 | | | 842 | | | | 768 |
| Travel Time (s) | | 11.5 | | | 15.7 | | | 14.4 | | | | 13.1 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 0% | 4% | 4% | 3% | 40% | 3% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 15 | 17 | 0 | 0 | 205 | 56 | 28 | 791 | 41 | 6 | 1553 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | |
| 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) | 24.5 | 24.5 | | 24.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 13.0 | 67.0 | 67.0 | 13.0 | 67.0 | 67.0 |
| Total Split (%) | 27.3% | 27.3% | | 27.3% | 27.3% | 27.3% | 11.8% | 60.9% | 60.9% | 11.8% | 60.9% | 60.9% |
| Yellow Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 | 3.5 | 4.5 | 4.5 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 | 0.5 | 2.0 | 2.0 |
| 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) | 6.5 | 6.5 | | | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 | 4.0 | 6.5 | 6.5 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | |
| Act Effect Green (s) | 20.4 | 20.4 | | 20.4 | 20.4 | 20.4 | 78.4 | 74.6 | 74.6 | 76.4 | 70.4 | |
| Actuated g/C Ratio | 0.19 | 0.19 | | 0.19 | 0.19 | 0.19 | 0.71 | 0.68 | 0.68 | 0.69 | 0.64 | |

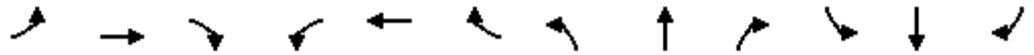
Weekday PM - Future
19-133; Itasca, IL

Synchro 9 Report

Lanes, Volumes, Timings

1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr

06/28/2019

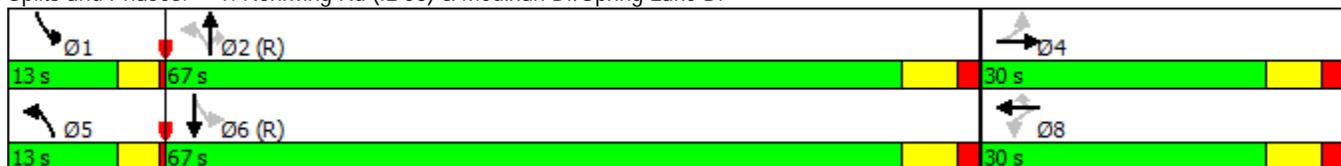


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|-----|------|------|------|------|------|------|------|-----|
| v/c Ratio | 0.09 | 0.05 | | | 0.82 | 0.16 | 0.13 | 0.34 | 0.04 | 0.02 | 0.69 | |
| Control Delay | 36.6 | 16.2 | | | 68.4 | 6.0 | 6.6 | 8.8 | 0.7 | 5.5 | 16.6 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 36.6 | 16.2 | | | 68.4 | 6.0 | 6.6 | 8.8 | 0.7 | 5.5 | 16.6 | |
| LOS | D | B | | | E | A | A | A | A | A | B | |
| Approach Delay | | 25.8 | | | 55.0 | | | 8.3 | | | 16.6 | |
| Approach LOS | | C | | | E | | | A | | | B | |
| Queue Length 50th (ft) | 9 | 1 | | | 137 | 0 | 5 | 109 | 0 | 1 | 401 | |
| Queue Length 95th (ft) | 27 | 19 | | | #239 | 22 | 14 | 194 | 5 | 5 | 518 | |
| Internal Link Dist (ft) | | 340 | | | 495 | | | 762 | | | 688 | |
| Turn Bay Length (ft) | 100 | | | | | 150 | 250 | | 170 | 245 | | |
| Base Capacity (vph) | 192 | 361 | | | 287 | 403 | 251 | 2352 | 1086 | 395 | 2235 | |
| 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 | 0.08 | 0.05 | | | 0.71 | 0.14 | 0.11 | 0.34 | 0.04 | 0.02 | 0.69 | |

Intersection Summary

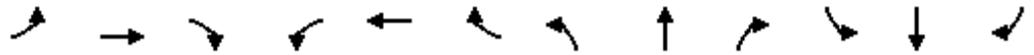
Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 22 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 17.8
 Intersection LOS: B
 Intersection Capacity Utilization 70.3%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Rohlwing Rd (IL 53) & Medinah Dr/Spring Lake Dr



HCM Unsignalized Intersection Capacity Analysis
 2: Spring Lake Dr & Irving Park Rd (IL 19)

06/28/2019

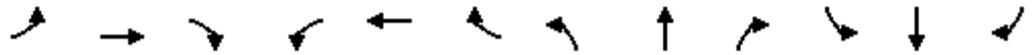


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↗ | | | ↕ | |
| Traffic Volume (veh/h) | 4 | 780 | 40 | 40 | 246 | 2 | 57 | 0 | 73 | 6 | 1 | 20 |
| Future Volume (Veh/h) | 4 | 780 | 40 | 40 | 246 | 2 | 57 | 0 | 73 | 6 | 1 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 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 |
| Hourly flow rate (vph) | 4 | 830 | 43 | 43 | 262 | 2 | 61 | 0 | 78 | 6 | 1 | 21 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | TWLTL | | | None | | | | | | | |
| Median storage veh | | 2 | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 264 | | | 873 | | | 1098 | 1210 | 436 | 850 | 1230 | 132 |
| vC1, stage 1 conf vol | | | | | | | 860 | 860 | | 349 | 349 | |
| vC2, stage 2 conf vol | | | | | | | 238 | 350 | | 501 | 881 | |
| vCu, unblocked vol | 264 | | | 873 | | | 1098 | 1210 | 436 | 850 | 1230 | 132 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 7.0 | 7.5 | 6.5 | 7.0 |
| tC, 2 stage (s) | | | | | | | 6.5 | 5.5 | | 6.5 | 5.5 | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 94 | | | 80 | 100 | 86 | 98 | 100 | 98 |
| cM capacity (veh/h) | 1312 | | | 768 | | | 298 | 336 | 560 | 372 | 303 | 883 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 | SB 1 | | | |
| Volume Total | 4 | 553 | 320 | 43 | 175 | 89 | 61 | 78 | 28 | | | |
| Volume Left | 4 | 0 | 0 | 43 | 0 | 0 | 61 | 0 | 6 | | | |
| Volume Right | 0 | 0 | 43 | 0 | 0 | 2 | 0 | 78 | 21 | | | |
| cSH | 1312 | 1700 | 1700 | 768 | 1700 | 1700 | 298 | 560 | 648 | | | |
| Volume to Capacity | 0.00 | 0.33 | 0.19 | 0.06 | 0.10 | 0.05 | 0.20 | 0.14 | 0.04 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 4 | 0 | 0 | 19 | 12 | 3 | | | |
| Control Delay (s) | 7.8 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 20.1 | 12.5 | 10.8 | | | |
| Lane LOS | A | | | A | | | C | B | B | | | |
| Approach Delay (s) | 0.0 | | | 1.4 | | | 15.8 | | 10.8 | | | |
| Approach LOS | | | | | | | C | | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 46.0% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: Rohlwing Rd (IL 53) & Hawthorn Dr

06/28/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|-------------|------|------|
| Lane Configurations | | ↔ | | | ↔ | ↔ | ↔ | ↑↑ | ↔ | ↔ | ↔ | ↔ |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 97 | 0 | 77 | 0 | 826 | 9 | 8 | 1352 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 97 | 0 | 77 | 0 | 826 | 9 | 8 | 1352 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 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 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 99 | 0 | 79 | 0 | 843 | 9 | 8 | 1380 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | | None |
| Median storage (veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | 768 | | | | |
| pX, platoon unblocked | 0.90 | 0.90 | | 0.90 | 0.90 | 0.90 | | | | 0.90 | | |
| vC, conflicting volume | 1896 | 2248 | 690 | 1549 | 2239 | 422 | 1380 | | | 852 | | |
| vC1, stage 1 conf vol | 1396 | 1396 | | 843 | 843 | | | | | | | |
| vC2, stage 2 conf vol | 500 | 852 | | 706 | 1396 | | | | | | | |
| vCu, unblocked vol | 1779 | 2168 | 690 | 1394 | 2158 | 146 | 1380 | | | 623 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 66 | 100 | 90 | 100 | | | 99 | | |
| cM capacity (veh/h) | 141 | 181 | 388 | 287 | 182 | 790 | 493 | | | 862 | | |
| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | | |
| Volume Total | 0 | 99 | 79 | 0 | 422 | 422 | 9 | 8 | 920 | 460 | | |
| Volume Left | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | | |
| Volume Right | 0 | 0 | 79 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | | |
| cSH | 1700 | 287 | 790 | 1700 | 1700 | 1700 | 1700 | 862 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.34 | 0.10 | 0.00 | 0.25 | 0.25 | 0.01 | 0.01 | 0.54 | 0.27 | | |
| Queue Length 95th (ft) | 0 | 37 | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 24.0 | 10.1 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | | |
| Lane LOS | A | C | B | | | | | A | | | | |
| Approach Delay (s) | 0.0 | 17.8 | | 0.0 | | | | 0.1 | | | | |
| Approach LOS | A | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 1.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 49.4% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

4: Spring Lake Dr & Maplewood Dr/Access

06/28/2019

| |  |  |  |  |  |  |  |  |  |  |  |  | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations |  | |  | |  | |  |  | |  |  | | |
| Traffic Volume (veh/h) | 26 | 1 | 5 | 18 | 1 | 26 | 1 | 80 | 18 | 26 | 45 | 11 | |
| Future Volume (Veh/h) | 26 | 1 | 5 | 18 | 1 | 26 | 1 | 80 | 18 | 26 | 45 | 11 | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | | |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | |
| Hourly flow rate (vph) | 33 | 1 | 6 | 23 | 1 | 33 | 1 | 101 | 23 | 33 | 57 | 14 | |
| Pedestrians | | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | | |
| Median storage veh | | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | | |
| vC, conflicting volume | 266 | 256 | 64 | 244 | 252 | 112 | 71 | | | 124 | | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | | |
| vCu, unblocked vol | 266 | 256 | 64 | 244 | 252 | 112 | 71 | | | 124 | | | |
| tC, single (s) | 7.1 | 6.5 | 6.4 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | | |
| tC, 2 stage (s) | | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.5 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | | |
| p0 queue free % | 95 | 100 | 99 | 96 | 100 | 97 | 100 | | | 98 | | | |
| cM capacity (veh/h) | 645 | 636 | 952 | 657 | 639 | 946 | 1542 | | | 1403 | | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | | |
| Volume Total | 33 | 7 | 57 | 1 | 124 | 33 | 71 | | | | | | |
| Volume Left | 33 | 0 | 23 | 1 | 0 | 33 | 0 | | | | | | |
| Volume Right | 0 | 6 | 33 | 0 | 23 | 0 | 14 | | | | | | |
| cSH | 645 | 889 | 797 | 1542 | 1700 | 1403 | 1700 | | | | | | |
| Volume to Capacity | 0.05 | 0.01 | 0.07 | 0.00 | 0.07 | 0.02 | 0.04 | | | | | | |
| Queue Length 95th (ft) | 4 | 1 | 6 | 0 | 0 | 2 | 0 | | | | | | |
| Control Delay (s) | 10.9 | 9.1 | 9.9 | 7.3 | 0.0 | 7.6 | 0.0 | | | | | | |
| Lane LOS | B | A | A | A | | A | | | | | | | |
| Approach Delay (s) | 10.6 | | 9.9 | 0.1 | | 2.4 | | | | | | | |
| Approach LOS | B | | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | | |
| Average Delay | | | 3.8 | | | | | | | | | | |
| Intersection Capacity Utilization | | | Err% | | ICU Level of Service | | | | | | H | | |
| Analysis Period (min) | | | 15 | | | | | | | | | | |