CITY OF MINNETONKA
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To: Planning Commission

From: Loren Gordon, City Planner

Date: June 9, 2022

Subject: Change Memo for the June 9th Planning Commission meeting

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ITEM 8B – Rayito del Sol

As noted in the staff report, the traffic study is attached.

Page 3 of the Resolution should include the addition of the following traffic related condition:

3. All queueing must be contained on-site and not extend on city streets or adjacent properties. Further review of site circulation and mitigation measures may be required if queueing extends beyond property lines.

~~3.~~4. Eight to 10 parking spaces should be dedicated to parent drop-off/pick-up procedures for Rayito de Sol. These stalls should be reserved with a time limit of 10 minutes during the a.m. and p.m. peak periods.

~~4.~~5. The applicant must contact the state fire marshal division for their fire inspection.

~~5.~~6. Cash escrow in the amount of $1000. This escrow must be accompanied by a document prepared by the city attorney and signed by the builder and property owner. Through this document, the builder and property owner will acknowledge:

- The property will be brought into compliance within 48 hours of notification of a violation of the construction management plan, other conditions of approval, or city code standards; and
- If compliance is not achieved, the city will use any or all of the escrow dollars to correct any erosion and/or grading problems.

~~6.~~7. The city council may reasonably add or revise conditions to address any future unforeseen problems.

~~7.~~8. Any change to the approved use that results in a significant increase in a significant change in character would require a revised conditional use permit.

DRAFT Memorandum

SRF No. 15798

To: Ashley Cauley
City of Minnetonka

From: Tom Sachi, PE, Project Manager
Eric Wurst, Engineer I

Date: June 8, 2022

Subject: Rayito de Sol Traffic Study; Minnetonka, Minnesota

Introduction

As requested, SRF has completed a traffic study for the proposed daycare/immersion school development in the City of Minnetonka. The proposed development is generally located along Williston Road immediately west of City Hall. (see Figure 1: Project Location). The main objectives of the study are to evaluate the existing operations and queueing within the study area, identify any transportation impacts associated with the proposed development, and recommend improvements to address any issues, if necessary. The following information provides the assumptions, analysis, and recommendations offered for consideration.

Existing Conditions

Existing conditions were reviewed to establish a baseline to identify any future impacts associated with the proposed development. The evaluation of existing conditions includes a review of traffic volumes, roadway characteristics, and an intersection capacity analysis, which are summarized in the following sections.

Data Collection

Vehicular turning movement counts of the before and after school periods and the p.m. peak hour were collected by SRF during the week of May 23, 2022, at the following study intersections:

- Williston Road and North Site Access
- Williston Road and South Site Access
- Williston Road and City Hall Access

Queuing observations of existing pick-up/drop off operations at the Minnetonka Christian Academy (MCA) and Academy of Whole Learning were performed, as well as observations at an existing Rayito de Sol facility within the Twin Cities to understand trip generation, queueing, and pick-up/drop-off procedures. Further discussion of the Rayito De Sol observations is included later in the report.

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Project Location

Rayito de Sol Traffic Study

City of Minnetonka

Figure 1

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Roadway Characteristics

A field assessment was completed to identify various roadway characteristics within the transportation system study area. Williston Road is classified as a local street with a two-lane undivided roadway and a posted speed limit of 30 mph. From a traffic control perspective, all study intersections are unsignalized with side-street stop controlled. Existing geometrics, traffic controls, and traffic volumes in the study area are shown in Figure 2.

Intersection Capacity Analysis

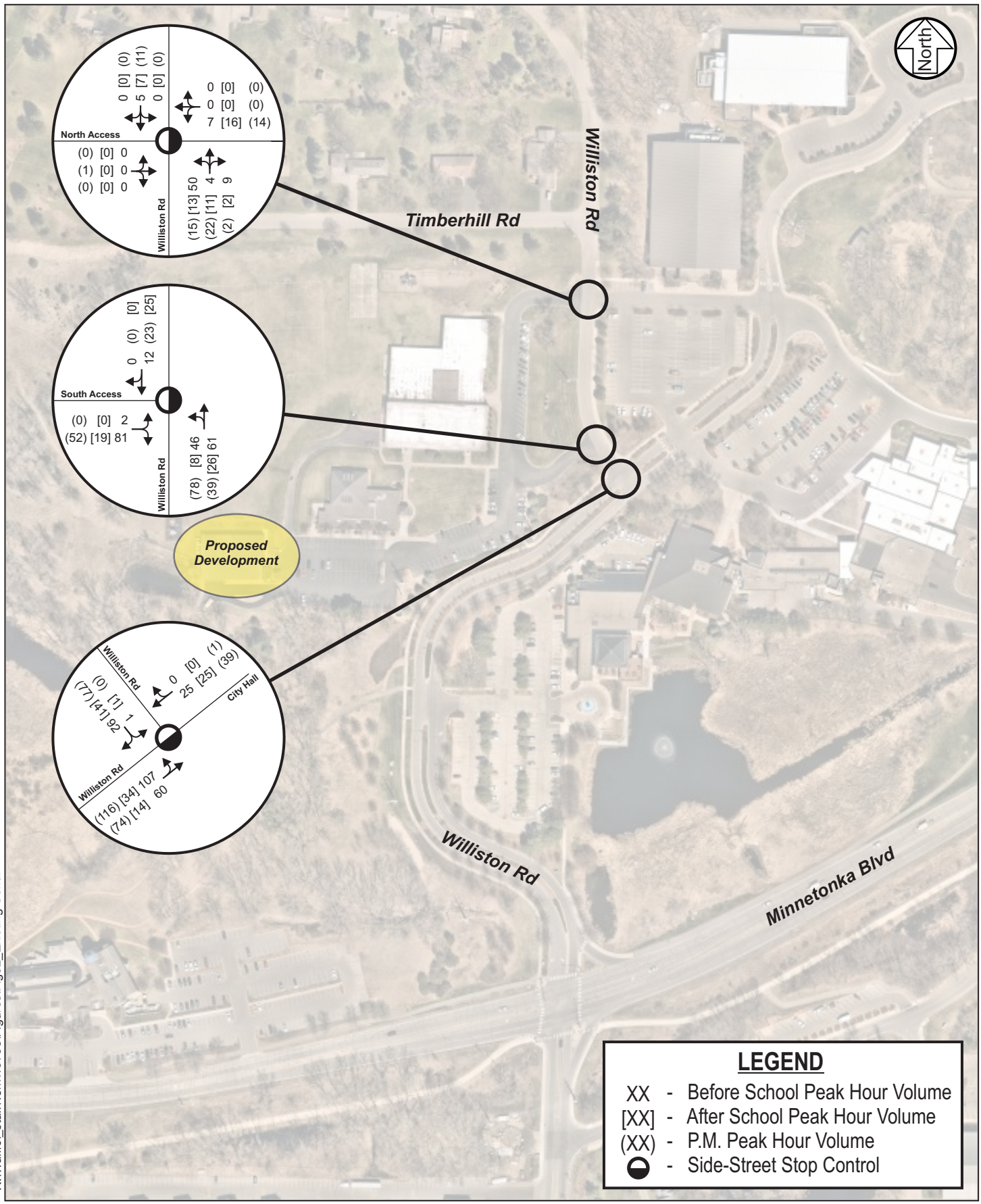
An intersection capacity analysis was completed using Synchro/SimTraffic software to establish a baseline condition to which future traffic operations could be compared. Capacity analysis results identify a Level of Service (LOS) which indicates how well an intersection is operating. Intersections are graded from LOS A through LOS F. The LOS results are based on average delay per vehicle, which correspond to the delay threshold values shown in Table 1. LOS A indicates the best traffic operation, while LOS F indicates an intersection where demand exceeds capacity. Overall intersection LOS A though LOS D is generally considered acceptable based on MnDOT guidelines.

Table 1. Level of Service Criteria for Signalized and Unsignalized Intersections

LOS Designation	Signalized Intersection Average Delay/Vehicle (seconds)	Unsignalized Intersection Average Delay/Vehicle (seconds)
A	≤ 10	≤ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

For side-street stop/yield-controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop/yield control can be described in two ways. First, consideration is given to the overall intersection level of service. This takes into account the total number of vehicles entering the intersection and the capability of the intersection to support these volumes.

Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, the majority of delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high-levels of delay (i.e. poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions.



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Existing Conditions

Rayito de Sol Traffic Study

City of Minnetonka

Figure 2

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Results of the existing capacity analysis, shown in Table 2, indicate that all study intersections currently operate at an acceptable overall LOS A during the peak hours, with the existing geometric layout and traffic controls.

Table 2. Existing Intersection Capacity Analysis

Intersection	Before School		After School		P.M. Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Williston Road / North Site Access (1)	A/B	10 sec.	A/B	11 sec.	A/A	9 sec.
Williston Road / South Site Access (1)	A/A	9 sec.	A/A	9 sec.	A/A	9 sec.
Williston Road / City Hall Access (1)	A/A	9 sec.	A/A	9 sec.	A/A	9 sec.

(1) Indicates an unsignalized intersection with side-street stop control, where the overall LOS is shown followed by the worst side-street approach LOS. The delay shown represents the worst side-street approach delay.

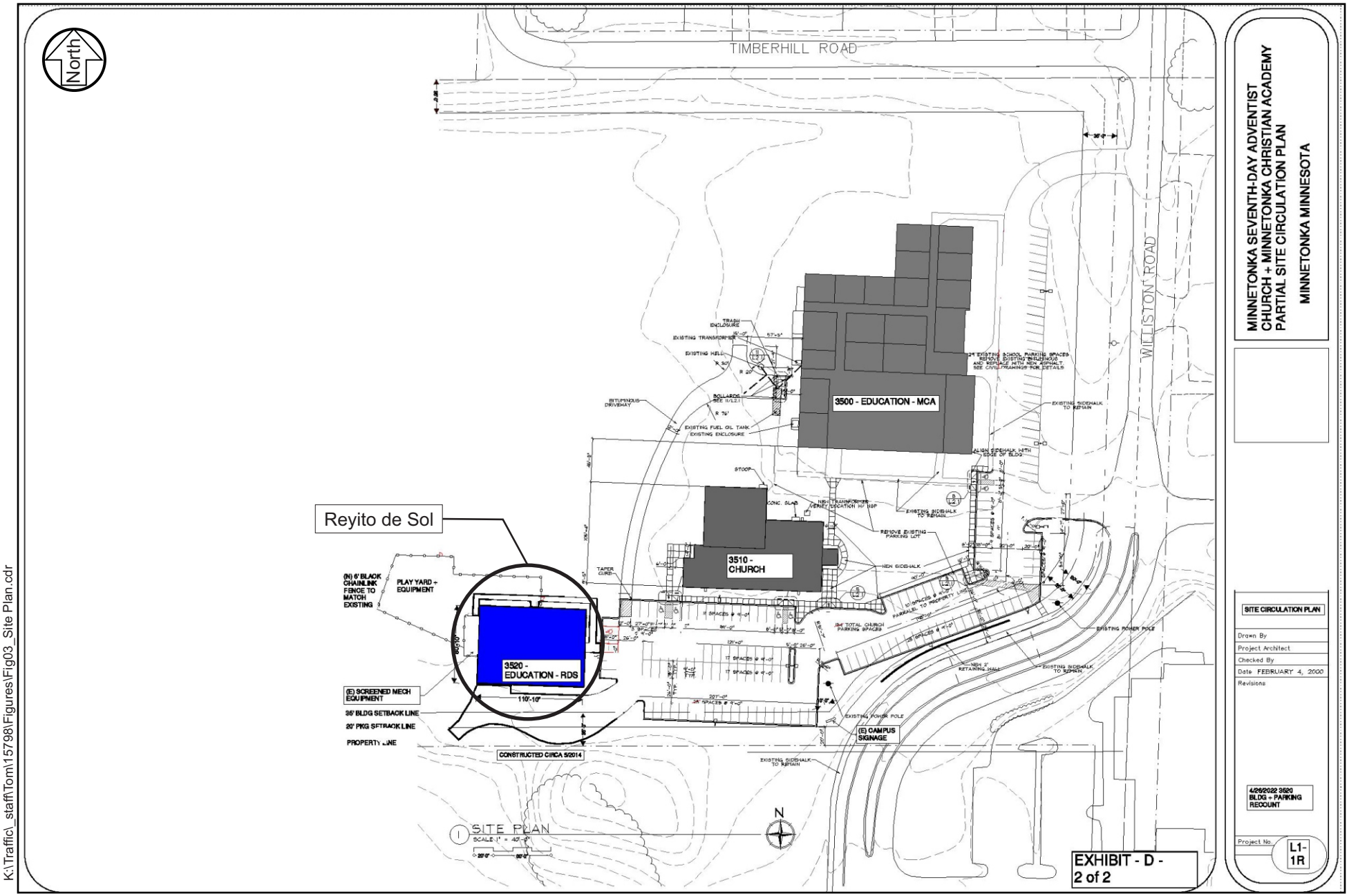
While not indicated from an hourly level of service perspective, it was observed that the North Access has drop-off and pick-up queues that occur in the Ice Arena parking lot. It was observed that a portion of parents doing drop-off/pick-up do not utilize Williston Road, rather they continue northeast near City Hall and enter the Ice Arena parking lot. This queuing behavior lasted for about five (5) to 10 minutes during the peak arrival and departure periods. This is a result of the Academy of Whole drop-off/pick-up service rates. It was observed that drop-off/pick-up behavior at Academy of Whole takes longer than typical school drop-off/pick-up from other schools due to the nature of the school. This results in the longer than typical queues and parents would rather queue in the Ice Arena lot than Williston Road. Note, the MCA school was not observed to have queueing issues during the peak arrival and departure periods.

Proposed Development

The proposed development, shown in Figure 3, is generally located along Williston Road immediately west of City Hall. As part of the future conditions, it is expected that Academy of Whole moves to a new site, off the site of the study area. MCA would move from their current location to the existing Academy of Whole building. It is proposed that a Rayito de Sol daycare/school with a potential maximum enrollment of 100 students will occupy the current MCA space.

Traffic Forecasts

To identify potential impacts associated with the proposed development, traffic forecasts for year 2023 (i.e., one-year after opening) conditions were developed. The year 2023 traffic forecasts take into account general area background growth and traffic generated by the proposed development. The following sections outline the proposed development trip generation, as well as the overall traffic forecast development process and assumptions.



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Site Plan

Rayito de Sol Traffic Study
City of Minnetonka

Figure 3

Background Traffic Growth

To account for general background growth in the area, an annual growth rate of one (1) percent was applied to the existing peak hour traffic volumes to develop year 2023 background forecasts. This growth rate was developed using a combination of historical average daily traffic (ADT) volumes from surrounding roadways as published by MnDOT, traffic forecasts from the *City of Minnetonka's 2040 Comprehensive Guide Plan*, and engineering judgment.

Proposed Development Trip Generation

To account for traffic impacts associated with the proposed development, trip generation estimates for the proposed land uses were completed. As part of the data collection task for the project, data was collected at an existing Rayito de Sol location in Richfield during the before school, after school, and p.m. peak hour. The Richfield Rayito de Sol school only has an enrollment of 50 students, therefore the entering/exiting data was modified to reflect a 100 student enrollment (i.e. volumes were doubled). Note, the before school and after school peak hours reflect the arrival and departure times of the MCA school, which will still be on site. The Rayito de Sol facility is currently open from 7:30 a.m. to 5:00 p.m., at the peak hours are expected to be during the before school and p.m. peak hours. These estimates are shown in Table 3.

Table 3. Proposed Development Trip Generation Estimate

Land Use Type *(ITE Code)*	Size	Before School		After School		P.M. Peak Hour	
		In	Out	In	Out	In	Out
Day Care Center (565)	100 students	46	36	8	4	34	38

Results of the trip generation estimate indicate that the proposed development is expected to generate approximately 82 before school, 12 after school, and 72 p.m. peak hour trips. The trips generated were distributed throughout the area based on the directional distribution shown in Figure 4, which was developed based on existing travel patterns and engineering judgement. The resultant year 2023 traffic forecasts, which include general area background growth and trips generated by the proposed development, are shown in Figure 5.

Note, as part of developing the future year 2023 build conditions volumes, the traffic volumes associated with the existing Academy of Whole school were removed from the traffic forecasts. This school is planning to move off site. Volumes related to the existing MCA school were then moved from entering/exiting within the South Access to entering in the North Access and exiting via the South Access. This follows the designated drop-off/pick-up area alongside the future school.

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Directional Distribution

Rayito de Sol Traffic Study

City of Minnetonka

Figure 4

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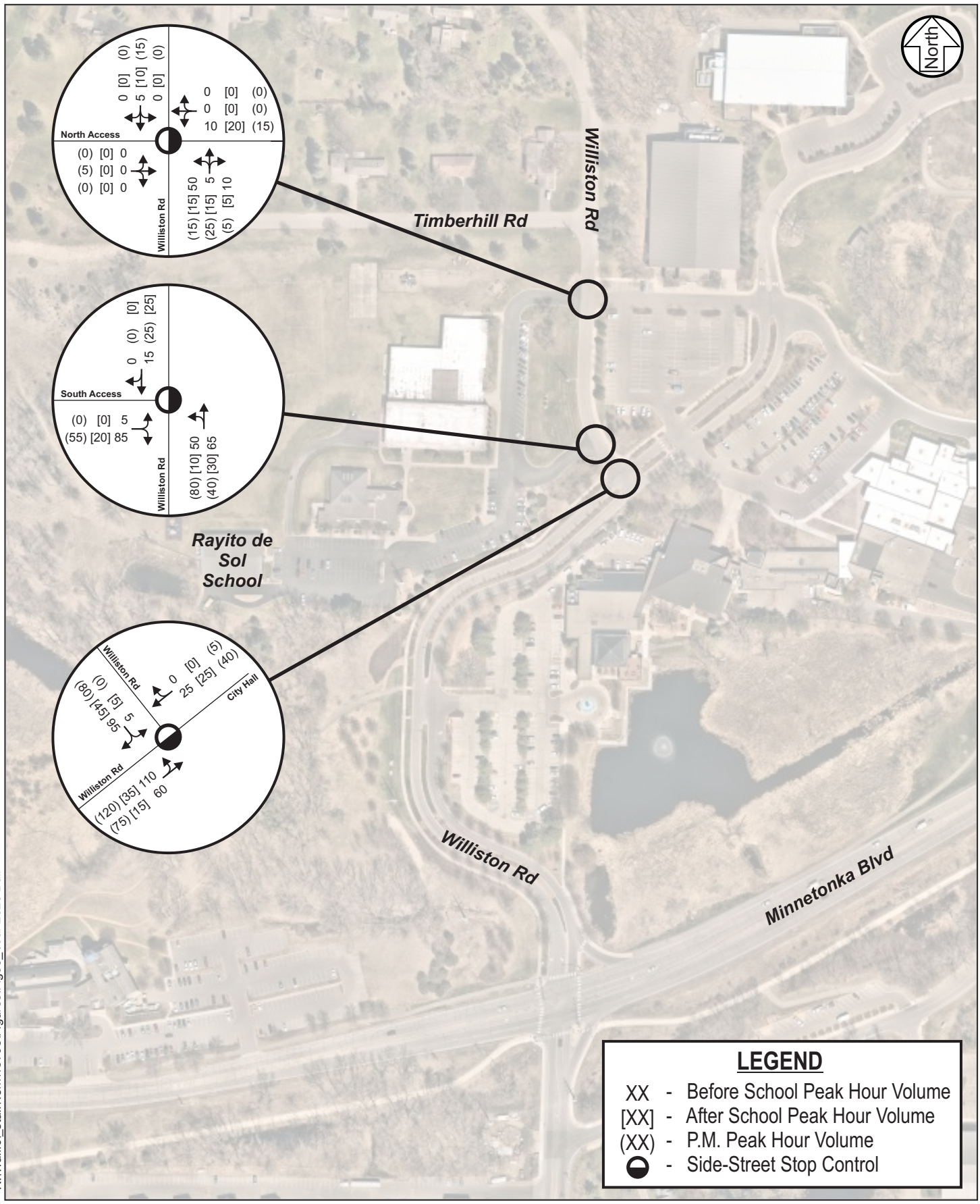

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Year 2023 Build Conditions

Rayito de Sol Traffic Study

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Figure 5

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Year 2023 Build Conditions

To determine how the study intersections and site access will operate under year 2023 conditions, an intersection capacity analysis was completed using Synchro/SimTraffic software. Results of the analysis, summarized in Table 4, indicate that all study intersections are expected to continue to operate at an acceptable overall LOS A during the peak hours. Side-street delays at the study intersections are expected to remain similar to existing conditions over the course of the peak hours.

Table 4. 2023 Build Intersection Capacity Analysis

Intersection	Before School		After School		P.M. Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Williston Road / North Site Access (1)	A/A	10 sec.	A/A	9 sec.	A/A	10 sec.
Williston Road / South Site Access (1)	A/A	9 sec.	A/A	9 sec.	A/A	9 sec.
Williston Road / City Hall Access (1)	A/A	9 sec.	A/A	9 sec.	A/A	9 sec.

(1) Indicates an unsignalized intersection with side-street stop control, where the overall LOS is shown followed by the worst side-street approach LOS. The delay shown represents the worst side-street approach delay.

Based on the year 2023 build conditions operations analysis, no geometric or traffic control changes are expected to be necessary to accommodate the proposed development from an intersection capacity perspective. 95th percentile queues exiting from the South School access are expected to be approximately 2-3 vehicles during the before and after school periods.

With Academy of Whole moving off site, it is not expected that the pick-up or drop-off lines will continue to extend through the North Access into the Ice Arena parking lot. The duration of drop-off/pick-up maneuvers is expected to be quicker, which will reduce the potential of queues extending beyond the designated area. The current issues, which are primarily caused by the longer drop-off/pick-up times of Academy of Whole, are not expected to be replicated by MCA as the time for students to enter/exit vehicles will be quicker, which will keep the queue moving. No major queueing issues were observed during the existing conditions observations at MCA that would indicate issues at the new location.

Site Plan Review

In regards to drop-off/pick-up procedures at Rayito de Sol, these maneuvers were not observed to be completed curbside, rather parents parked and walked in/out of the existing facility with their children. Given the pick-up and drop-off procedures of the current Rayito Del Sol, it is expected that this proposed location will need between eight (8) to 10 parking spaces dedicated to parents during the a.m. and p.m. peak hours (i.e. between 7:30 to 8:30 a.m. and 4:00 to 5:00 p.m.). A majority of pick-ups were noted to be completed in the 4:30 to 5:00 p.m. period. Note, if necessary, curbside parallel parking spaces could be dedicated for drop-off and pick-up, however, it should be known that the parents will enter/exit the facility rather than wait in their car, increasing the service time.

Additionally, it was observed at the Richfield location that there were 5 staff vehicles on-site during the observation periods. Given this site will have double the students, it would be expected that a minimum of 10 staff spaces are necessary. However, verification with Rayito should be done to identify their peak staff load and parking demand.

A further review of the proposed site plan was completed to identify any issues and recommend potential improvements for consideration with regard to access, circulation, traffic controls, and multimodal facilities. In general, the following should be considered when designing internal traffic control and access roadways:

1. Incorporate traffic controls, signing, and striping based on guidelines established in the Manual on Uniform Traffic Control Devices (MUTCD).
2. Special consideration should be made to limit any sight distance impacts from future structures, landscaping, and signing.
3. Designate between eight (8) to 10 parent drop-off/pick-up stalls either within a parking lot or a designated curbside location. Limit parking in these stalls to 10 minutes to ensure a proper turnover during those peak drop-off and pick-up timeframes.

In general, all roadways within the proposed development are expected to function adequately as two-lane facilities, and all internal intersections are expected to operate adequately with side-street stop control.

Summary and Conclusions

The following study conclusions and recommendations are offered for consideration:

1) Results of the existing intersection capacity analysis indicate that the study intersections currently operate at an acceptable overall LOS A during the before school, after school, and p.m. peak hours with the existing geometric layout and traffic controls. No significant side-street delays were identified.
    a. At the North Access, drop-off and pick-up queues for Academy of Whole currently extend into the Ice Arena parking lot. These queues were observed to last between five (5) to 10 minutes.
2) The proposed development consists of a Rayito de Sol daycare/school with 100 students which will move into the current Minnetonka Christian Academy (MCA) space. MCA will be moving from their current location to the existing Academy of Whole building. Academy of Whole is planning to move off-site.
3) Observations completed at the existing Rayito de Sol location in Richfield found the proposed development is expected to generate approximately 82 before school, 12 after school, and 72 p.m. peak hour trips.

4) Results of the year 2023 build capacity analysis indicate that all study intersections are expected to continue to operate at an overall LOS A during the before school, after school, and p.m. peak hours. No significant side street delays or queuing issues were identified, as the current queueing issues that are occurring on site are expected to be mitigated with Academy of Whole moving off site.

5) No roadway changes or mitigation are anticipated to be needed to accommodate the proposed development from an intersection capacity perspective.

6) Based on observations at their existing site, between eight (8) to 10 parking spaces should be dedicated to parent drop-off/pick-up procedures for Rayito de Sol. These stalls should be reserved with a time limit of 10 minutes during the a.m. and p.m. peak periods.