

Real People. Real Solutions.

Jordan School Area Traffic Study

City of Jordan Scott County, MN

August 19, 2019

Submitted by:

Bolton & Menk, Inc. 12224 Nicollet Avenue Burnsville, MN 55337 P: 952-890-0509 F: 952-890-8065

Certification

Jordan School Area Traffic Study

City of Jordan, Minnesota

August 19, 2019

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Bv:

Ross B. Tillman, P.E. License No. 51692

Date: 8/19/2019

Table of Contents

l.		Introduction	1
II.		Existing Conditions	2
	Α.	Data Collection	2
	В.	Traffic Speed	2
	C.	Safety Analysis	3
	D.	Existing Operational Analysis	3
III.		Future No Build Conditions	5
	Α.	Traffic Forecasting	5
	В.		
IV.		Future Build Conditions	7
	Α.	Option 1a	7
	В.		
V.		Alternative Roadway and Access Concepts	8
	Α.		
	В.	All Way Stop Control (Option 1)	
	C.	All Way Stop Control (Option 2)	
	D.		
	Ε.		
VI.		Analysis Summary	
VII.		Recommendations	15
Fi	σι	ures	
		1: Project Location Map	1
rigu	re.	1. Project Location Map	
т,	. L	alos	
		oles	
		: Aberdeen Ave (between Sunset Dr and Elementary School Access) Vehicle Speed Data	
		: Sunset Dr (between Timber Ridge Ct and North Elementary Access 4) Vehicle Speed Data	
		: Sunset Dr (between North Elementary Access 4 and Hillside Dr) Vehicle Speed Data	
		: Crash Detail	
		: Level of Service Criteria	
		: 2019 No Build Operations	
Tabl	e 7	: 2040 No Build Operations	6
Tabl	e 8	: Two-Way Stop Control Operational Analysis	8
Tabl	e 9	: All Way Stop Control (Option 1) Operational Analysis	g

Table 10: All Way Stop Control (Option 2) Operational Analysis	10
Table 11: All Way Stop Control (Option 3) Operational Analysis	11
Table 12: West Mini-Roundabout Operational Analysis	11
Table 13: West Mini-Roundabout Queues	12
Table 14: East Mini-Roundabout Operational Analysis	12
Table 15: East Mini-Roundabout Queues	12

Appendix

Appendix A: Traffic Volumes

Appendix B: Crash Analysis

Appendix C: No Build Operational Analysis

Appendix D: Provided Layouts

Appendix E: Mitigation Operational Analysis

Appendix F: Mitigation Layouts
Appendix G: Warrant Analysis

I. Introduction

A traffic study was performed at in the area of the Jordan Public Schools to identify existing traffic challenges and to develop possible solutions that improve safety, maintain access, and provide acceptable mobility for future expansion and development of the school property and adjacent land. This report will analyze the existing conditions, future conditions, and the build options for the area.

The study area is located in the City of Jordan, MN in Scott County. See **Figure 1** for the project location map. The study area is located just south and east of TH 169.



II. Existing Conditions

The study area includes the following three segments:

- County Road (CR) 66 from Prospect Pointe Rd to Aberdeen Ave
 - o The posted speed limit is 55 mph.
 - o The functional class is identified as Major Collector.
- Aberdeen Ave from CR 66 to Sunset Dr
 - o The posted speed limit is 30 mph and 25 mph during School hours.
 - o The functional class is identified as Major Collector.
- Sunset Dr from Aberdeen Ave to Hillside Dr/High School Access
 - o The posted speed limit is 30 mph and 20 mph during School hours.
 - The functional class of Sunset Dr from Aberdeen Ave to Hillside Dr is identified as Major Collector. The functional class of the east of Sunset Dr is identified as Minor Collector.

A. Data Collection

Traffic counts were collected at thirteen (13) intersections along the study area. The counts were completed in May 2019. Three peak hours of traffic were determined from the data collected:

AM Peak 7:15 am to 8:15 am
Afternoon Peak 2:45 pm to 3:45 pm
PM Peak 4:30 pm to 5:30 pm

Figure 2 in the **Appendix A** shows existing 2019 peak hour turning movement counts and Average Daily Traffic (ADT).

B. Traffic Speed

85th percentile vehicle speeds were also collected at three (3) locations, one location on Aberdeen Ave and two locations on Sunset Dr/Hillside Dr. The 85th percentile speed indicates where only 15 percent of traffic is exceeding that speed and is used, in part, to set speed limit. The tables below show the collected speed information.

Table 1: Aberdeen Ave (between Sunset Dr and Elementary School Access) Vehicle Speed Data

85 th Percentile Vehicle Speed (mph)	37
Posted Speed Limits (mph)	30

Table 2: Sunset Dr (between Timber Ridge Ct and North Elementary Access 4) Vehicle Speed Data

85 th Percentile Vehicle Speed (mph)	37
Posted Speed Limits (mph)	30

Table 3: Sunset Dr (between North Elementary Access 4 and Hillside Dr) Vehicle Speed Data

•	, , , , , , , , , , , , , , , , , , , ,
85 th Percentile Vehicle Speed (mph)	33
Posted Speed Limits (mph)	30

Red text indicates value is greater than the posted speed limits.

C. Safety Analysis

Crash data was obtained from data administered by the Minnesota Department of Transportation (MnDOT) for a three-year time period (2015-2017). A summary of the crashes at the intersections where crashes occurred are shown in **Table 4**.

Table 4: Crash Detail

Crash Details											
	01/01/2015 - 12/31/2017										
							Head On				
Sunset Dr and Hillside Dr	2			1	1		1	1			
Aberdeen Ave and West Elementary School Access	1					1			1		
CR 66 and Aberdeen Ave	2					2		1	1		

To determine if there are existing safety issues, the intersection crash rates and the critical rates were compared. The crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside of the expected, normal range. The critical index reports the magnitude of this difference and a critical index of less than one indicates that the intersection is operating within the normal range. All intersections within the study area have a lower crash rate than the statewide average. All critical and severity indices are found to be less than one indicating that the intersections are operating within the normal range compared to similar intersections statewide. Intersection crash rate worksheets and crash diagrams are included in the **Appendix B**.

D. Existing Operational Analysis

The traffic operations analysis for the intersections in the project area included an evaluation of existing intersection delay and Level of Service (LOS). LOS results are described using letters ranging from A to F. These letters serve to describe a range of operating conditions for different types of facilities. Levels of Service are calculated based on the Highway Capacity Manual (HCM) 6th Edition, which defines the LOS, based on control delay. Control delay is the delay experienced by vehicles slowing down as they are approaching the intersection, the wait time at the intersection, and the time for the vehicle to speed up through the intersection and enter the traffic stream. The average intersection control delay is a volume weighted average of delay experienced by all motorists entering the intersection on all intersection approaches. The control delay is modeled within the analysis software, Trafficware Synchro and SimTraffic. LOS D or better is considered acceptable. **Table 5** shows the control delay thresholds for LOS A through F from the Highway Capacity Manual (HCM) 6th Edition).

Table 5: Level of Service Criteria

	Signalized Intersection	Unsignalized Intersection
LOS	Control Delay per Vehicle (sec.)	Control Delay per Vehicle (sec.)
A	≤ 10	≤ 10
В	>10 and ≤ 20	>10 and ≤ 15
С	$>$ 20 and \leq 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
Е	>55 and ≤ 80	>35 and ≤ 50
F	>80	>50

The 2019 No Build AM, Afternoon and PM peak traffic volumes were analyzed with current geometry. The results of this analysis are shown in **Table 6**. Detailed LOS and queues are included in **Appendix C**.

Table 6: 2019 No Build Operations

Intersection	Peak Hour	Intersection Delay (1.)		Maximum D	elay-LOS (2.)	Limiting Movement (3.)
Hillside Dr and High School Access	AM	1	A	8	A	NBL
St. C. 11.1	Afternoon	1	A	4	A	NBL
Stop Controlled	PM	1	A	4	A	NBL
Sunset Dr and Hillside Dr	AM	5	A	6	A	SBT
g. g . H .	Afternoon	4	A	5	A	NBT
Stop Controlled	PM	4	A	5	A	WBT
Sunset Dr and Middle School Access	AM	1	A	9	A	SBL
	Afternoon	0	A	3	A	EBL
Stop Controlled	PM	1	A	7	A	SBL
Sunset Dr and North Elementary School Access 4	AM	0	A	3	A	WBL
G. G. H.I	Afternoon	1	A	5 4	A	NBL
Stop Controlled	PM	0	A	7	A	NBR
Sunset Dr and North Elementary School Access 3	AM	1	A A	1	A A	NBL EBT
St C 11 - 1	Afternoon	1	A	1	A	EBT
Stop Controlled	PM AM	2		4	A A	EBT
Sunset Dr and North Elementary School Access 2	Afternoon	2	A A	3	A A	EBT
Stop Controlled	PM	2	A	4	A	EBT
·	AM	2	A	19	C	SBL
Sunset Dr and Timber Ridge Ct	Afternoon	1	A	12	В	SBL
Stop Controlled	PM	1	A	13	В	SBL
	AM	1	A	3	A	WBL
Sunset Dr and North Elementary School Access 1	Afternoon	1	A	6	A	NBL
Stop Controlled	PM	0	A	4	A	NBL
	AM	4	A	6	A	EBT
Sunset Dr and Aberdeen Ave	Afternoon	3	A	5	A	WBT
Stop Controlled	PM	4	A	7	A	EBT
41 1 4 1W E	AM	2	A	5	A	WBL
Aberdeen Ave and West Elementary School Access	Afternoon	1	A	2	A	WBL
Stop Controlled	PM	1	A	5	A	WBL
41 1 4 1D'1 C	AM	2	A	4	A	WBR
Aberdeen Ave and Ridge St	Afternoon	1	A	3	A	WBR
Stop Controlled	PM	2	A	7	A	WBL
•	AM	6	A	10	В	EBT
CR 66 and Aberdeen Ave	Afternoon	6	A	10	В	WBT
Stop Controlled	PM	7	A	10	В	WBT
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	NBL
CK to and Flospect Foline Kd	Afternoon	1	A	4	A	NBL
Stop Controlled	PM	1	A	6	A	NBL

^{1.} Delay in seconds per vehicle

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

Delay:

• All intersections are anticipated to operate with an intersection LOS A.

Queuing:

- Queues are acceptable at most intersections. However, there are a few approach queues that should be noted within the study area. The following will detail existing traffic queue conditions:
 - O Aberdeen Ave and West Elementary School Area:
 - The queues for school drop off during the AM peak hour extend onto Aberdeen Ave. The maximum queues for school drop off are 975 feet during the AM peak hour, which extends beyond the current storage within the school site.
 - The northbound maximum queues are 50 feet and southbound maximum queues are 75 feet during the AM peak hour, which is a result of traffic queuing onto Aberdeen Ave from the site.
 - These queues block the southbound through and northbound through movements.

III. Future No Build Conditions

A. Traffic Forecasting

The forecasts were determined based on the Annual Average Daily Traffic (AADT) counts available from the City of Jordan 2040 Transportation Plan as well as conceptual site plans/housing numbers for the agricultural property west of Aberdeen. The City of Jordan 2040 Transportation Plan provides daily traffic volume forecasts for the corridor and surrounding areas. The peak hour turning movement counts were grown or reallocated at each count location based on the forecasted AADTs for each leg of the intersection. **Figure 3** in the **Appendix A** details the forecasted 2040 No Build peak hour turning movements. The No Build forecast assumes growth in the area however no growth or changes to the school site.

B. No Build Operational Analysis

The 2040 No Build AM, Afternoon and PM peak traffic volumes were analyzed with the current geometry. The results of this analysis shown in **Table 7**. Detailed LOS and queues are included in **Appendix C**.

Table 7: 2040 No Build Operations

	7. 20401		perations			
Intersection	Peak Hour	Intersection Delay (1.)		Maximum D	elay-LOS (2.)	Limiting Movement (3.)
Hillside Dr and High School Access	AM	1	A	5	A	NBL
	Afternoon	1	A	5	A	NBL
Stop Controlled	PM	1	A	4	A	NBL
Sunset Dr and Hillside Dr	AM	5	A	6	A	SBT
	Afternoon	4	A	5	A	NBT
Stop Controlled	PM	4	A	5	A	WBT
Sunset Dr and Middle School Access	AM	1	A	5	A	SBL
	Afternoon	0	A	3	A	EBL
Stop Controlled	PM	1	A	7	A	SBL
Sunset Dr and North Elementary School Access 4	AM	0	A	3	A	WBL
	Afternoon	1	A	5	A	NBL
Stop Controlled	PM	0	A	2	A	NBR
Sunset Dr and North Elementary School Access 3	AM	1	A	6	A	NBL
Stan Cantuallal	Afternoon	1	A	2	A	WBL
Stop Controlled	PM AM	2	A	4	A	EBT EBT
Sunset Dr and North Elementary School Access 2	Afternoon	1	A A	3	A A	EBT
Ston Controlled	PM	2	A	4	A	EBT
Stop Controlled	AM	3	A	34	D	SBL
Sunset Dr and Timber Ridge Ct	Afternoon	1	A	10	В	SBL
Stop Controlled	PM	1	A	17	С	SBL
	AM	1	A	3	A	WBL
Sunset Dr and North Elementary School Access 1	Afternoon	1	A	6	A	NBL
Stop Controlled	PM	0	A	10	В	NBL
•	AM	5	A	6	A	WBL
Sunset Dr and Aberdeen Ave	Afternoon	3	A	6	A	EBT
Stop Controlled	PM	4	A	6	A	EBT
	AM	26	D	37	Е	SBL
Aberdeen Ave and West Elementary School Access	Afternoon	1	A	3	A	WBL
Stop Controlled	PM	1	A	4	A	WBL
	AM	10	В	24	С	EBL
Aberdeen Ave and Ridge St	Afternoon	1	A	5	A	EBL
Stop Controlled	PM	2	A	6	A	WBL
	AM	9	A	13	В	EBT
CR 66 and Aberdeen Ave	Afternoon	8	A	12	В	WBT
Stop Controlled	PM	10	В	14	В	WBT
	AM	3	A	6	A	SBL
CR 66 and Prospect Pointe Rd	Afternoon	1	A	6	A	SBL
Stop Controlled	PM	2	A	8	A	NBL

^{1.} Delay in seconds per vehicle

Delay:

• All intersections are anticipated to operate with an intersection LOS B or better except for the intersection at Aberdeen Ave and West Elementary School Access. It is anticipated to operate with an intersection LOS D during the AM peak hour.

Queuing:

- The maximum approach queue for the 2040 No Build analysis is shown in **Appendix C**, however, there are a few approach queues that should be noted within the study area:
 - o Aberdeen Ave and West Elementary School Area:
 - The queues for school drop off during the AM peak hour are anticipated to extend on to Aberdeen Ave.

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

• The northbound maximum queues are anticipated to be 250 feet and southbound maximum queues are anticipated to be 175 feet during the AM peak hour.

IV. Future Build Conditions

The Build forecast accounts for traffic from school enrollment growth, which is estimated to be an 22% increase from 2019 to 2040. For purposes of this analysis, this increase was assumed to occur immediately to be accounted for in both the 2020 and 2040 Build analysis. Based on traffic generated by 2019 enrollment, the minimum required drop off storage length is 975 feet. Enrollment increases anticipated by 2040 necessitate 1275 feet of drop off storage length for the Elementary School.

Figures 4 and 5 in **Appendix A** detail the forecasted 2020 Build and 2040 Build conditions. Two reconfigured school area concept layouts were provided by the City of Jordan. **Figures 6 to 9** in **Appendix D** detail the two layouts. Both options were analyzed, with summary information provided below.

A. Option 1a

1. Drop-off/Pick-up Operations

Option 1a provides approximately 450 feet vehicle storage length without extending into Sunset Dr. It is anticipated that this option decreases the existing vehicle storage length by 400 feet. Based on the above analysis and review of the concept drawing, it is anticipated that Option 1a could not be sufficiently modified to meet the needs of the transportation network would also cause additional delays along public roadways. Therefore, additional analysis of Option 1a was not completed.

B. Option 1b

1. Drop-off/Pick-up Operations

Option 1b provides approximately 2000 feet of vehicle storage length without extending onto Sunset Dr. It is anticipated that this option increases the existing vehicle storage length by 1200 feet and would provide sufficient storage length for future enrollment increases.

2. Parking

Based on the Option 1b layout, it is determined that a total of 144 stalls will be gained.

3. Vehicle access/circulation

An operational analysis was completed in Highway Capacity Software (HCS) Version 7 for the roundabout depicted at the intersection of Sunset Dr and Middle/High School Access. The roundabout was analyzed with single lane approaches for all approaches. The single lane roundabout option is anticipated to operate at LOS F during both AM and Afternoon peak hours in both 2020 and 2040, due to highly peaked, conflicting traffic entering and exiting the school site. The internal site roundabout was also analyzed and was found to provide sufficient operations for the anticipated traffic volumes. **Appendix E** shows the detailed LOS summary. See Section V for mitigation options analyzed to resolve this capacity issue.

4. Bus access/circulation

Option 1b does not appear to separate bus access and vehicle access for both Elementary School and High School, which would imply a mixed drop-off/pick-up zone. This is not recommended for effective operations. See Section V for mitigation options analyzed to resolve this issue.

5. Pedestrian/Bicycle accommodations

Option 1b, as provided, does not specifically call out any pedestrian accommodations. We recommend that any roundabouts provide signed and marked crossings on all approaches.

V. Alternative Roadway and Access Concepts

Alternative geometric designs and traffic control types were considered and analyzed focusing on the Elementary School, the Middle School and the High School accesses. These concept layouts were analyzed using forecasted 2020 and 2040 volumes with Synchro/SimTraffic version 10 software, while roundabout results were calculated using HCS 7 modeling software. **Figures 10 to 14** in **Appendix F** detail the mitigation option layouts. The operations and queues of the following options were analyzed:

- Two-Way Stop Control Option: Two-Way stop control used at both Sunset Dr/Hillside Dr and Sunset Dr/Middle/High School Access intersections. Sunset Drive traffic is not required to stop. This also includes shifting the internal roadway network/internal roundabout southwest to increase stacking distance to Sunset Dr.
- All Way Stop Control (Option 1): All-Way stop control used at both Sunset Dr/Hillside Dr and Sunset Dr/Middle/High School Access intersections.
- All Way Stop Control (Option 2): All-Way stop control used at the intersection of Sunset Dr/Middle/High School Access and two-way stop control used at Sunset Dr/Hillside Dr intersection (east/west not required to stop).
- All Way Stop Control (Option 3): All-Way stop control used at the intersection of Sunset Dr/Hillside Dr and two-way stop control used at Sunset Dr/Middle/High School Access (east/west not required to stop).
- *Mini Roundabout Option:* Mini roundabout control used at both Sunset Dr/Hillside Dr and Sunset Dr/Middle/High School Access intersections. Access to the schools is split with the Elementary and Middle School using the west roundabout and the high school using the east.

Note that all options include proposed pedestrian treatments and separate bus traffic from parent traffic, as depicted on **Figures 10 to 14**.

A. Two-Way Stop Control Option

Two-Way Stop Control option was analyzed for the intersection of Sunset Dr/Hillside Dr and the intersection of Sunset Dr/Middle-High School Access. **Table 8** below shows the operational analysis. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

Table 8: Two-Way Stop Control Operational Analysis

Year	Intersection	Peak Hour	Intersectio	n Delay (1.)	Maximum D	elay-LOS (2.)	Limiting Movement (3.)
	Sunset Dr and Hillside Dr	AM	3	A	12	В	SBL
	Sunset Di and Hillside Di	Afternoon	2	A	8	A	SBL
2020	Two-Way Stop Controlled	PM	3	A	8	A	SBL
2020	Sunset Dr and Middle/High School Access	AM	11	В	69	F	NBL
		Afternoon	3	A	5	A	NBL
	Two-Way Stop Controlled	PM	2	A	7	A	NBL
	Sunset Dr and Hillside Dr	AM	4	A	21	C	SBL
		Afternoon	3	A	11	В	SBL
2040	Two-Way Stop Controlled	PM	3	A	11	В	SBL
2040	Connect Durand Middle/High Calcal Access	AM	25	D	203	F	NBL
	Sunset Dr and Middle/High School Access	Afternoon	4	A	10	В	NBL
	Two-Way Stop Controlled	PM	2	A	10	В	NBL

^{1.} Delay in seconds per vehicle

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

- The intersection is anticipated to operate with an intersection LOS A in 2020 and 2040.
- Maximum southbound right queue is anticipated to be 200 feet during the AM peak hour in 2040.

Sunset Dr and Middle/High School Access

- The intersection is anticipated to operate with an intersection LOS B or better except for the AM peak hour in 2040. It is anticipated to operate with an intersection LOS D.
- Northbound left movements are anticipated to operate at LOS F during the AM peak hour in 2020 and 2040. Long delays can lead to driver frustration and can increase the likelihood of additional risk taking to exit the site for this short period of time. This could result in an increased crash rate if drivers attempt to turn into smaller gaps in traffic along Sunset Dr.
- Queues are acceptable for all peak hours in 2020 and 2040 with a shifted internal roundabout location providing more stacking distance to Sunset Dr. Maximum northbound queues in 2040 are anticipated to be 400 feet during the AM peak hour as vehicles leave the site after dropping off students.

B. All Way Stop Control (Option 1)

All Way Stop Control (Option 1) was analyzed for the intersection of Sunset Dr/Hillside Dr and the intersection of Sunset Dr/Middle-High School Access. Although neither intersection meets warrants to install all way stop control based on volumes, they are being considered as a means to control traffic for pedestrian/bicycle crossing. See **Appendix G** for warrant analysis results. **Table 9** details the All Way Stop Control (Option 1) traffic operations and queues. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

Table 9: All Way Stop Control (Option 1) Operational Analysis

Year	Intersection	Peak Hour	Intersectio	n Delay (1.)	Maximum D	elay-LOS (2.)	Limiting Movement (3.)
	Sunset Dr and Hillside Dr	AM	6	A	6	A	EBL
	Sunset Di and Thiside Di	Afternoon	4	A	5	A	EBL
2020	All Way Stop Controlled	PM	4	A	5	A	EBL
2020	Sunset Dr and Middle/High School Access	AM	12	В	22	C	WBL
		Afternoon	4	A	7	A	EBT
	All Way Stop Controlled	PM	5	A	7	A	EBT
	Sunset Dr and Hillside Dr	AM	8	A	10	В	SBR
		Afternoon	4	A	5	A	EBL
2040	All Way Stop Controlled	PM	4	A	5	A	EBL
2040	Connect Durand Middle/High Calcal Access	AM	13	В	27	D	WBL
	Sunset Dr and Middle/High School Access	Afternoon	5	A	7	A	EBT
	All Way Stop Controlled	PM	5	A	7	A	EBT

^{1.} Delay in seconds per vehicle

Sunset Dr and Hillside Dr

- The intersection is anticipated to operate with an intersection LOS A in 2020 and 2040.
- Maximum southbound right queue is anticipated to be 250 feet during the AM peak hour in 2040.

Sunset Dr and Middle/High School Access

• The intersection is anticipated to operate with an intersection LOS B or better in 2020 and 2040.

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

• Maximum westbound left queue is anticipated to exceed the storage capacity of the left turn lane during the AM peak hour in 2020 and 2040, causing additional queuing for southbound traffic along Sunset Dr and potentially blocking westbound through traffic.

C. All Way Stop Control (Option 2)

All Way Stop Control (Option 2) consists of a two-way stop at the intersection of Sunset Dr/Hillside Dr and an all-way stop at the intersection of Sunset Dr/Middle-High School Access. **Table 10** details the All Way Stop Control (Option 2) traffic operations and queues. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

Table 10: All Way Stop Control (Option 2) Operational Analysis

Year	Intersection	Peak Hour	Intersectio	n Delay (1.)	Maximum D	elay-LOS (2.)	Limiting Movement (3.)
	Sunset Dr and Hillside Dr	AM	4	A	14	В	SBL
	Sunset Di and Thiiside Di	Afternoon	2	A	9	A	SBL
2020	Two-Way Stop Controlled	PM	3	A	9	A	SBL
2020	Sunset Dr and Middle/High School Access	AM	12	В	22	C	WBL
		Afternoon	5	A	7	A	EBT
	All Way Stop Controlled	PM	5	A	7	A	EBT
	Sunset Dr and Hillside Dr	AM	6	A	18	C	SBL
		Afternoon	2	A	9	A	SBL
2040	Two-Way Stop Controlled	PM	3	A	9	A	SBL
2040	Connect Durand Middle/High Cohool Access	AM	14	В	29	D	WBL
	Sunset Dr and Middle/High School Access	Afternoon	5	A	7	A	EBT
	All Way Stop Controlled	PM	5	A	7	A	EBT

^{1.} Delay in seconds per vehicle

Sunset Dr and Hillside Dr

- The intersection is anticipated to operate with an intersection LOS A in 2020 and 2040.
- Maximum southbound right queue is anticipated to be 175 feet during the AM peak hour in 2040.

Sunset Dr and Middle/High School Access

- The intersection is anticipated to operate with an intersection LOS B or better in 2020 and 2040.
- Maximum westbound left queue is anticipated to exceed the storage capacity of the left turn lane during the AM peak hour in 2020 and 2040, causing additional queuing for southbound traffic along Sunset Dr and potentially blocking westbound through traffic.

D. All Way Stop Control (Option 3)

All Way Stop Control (Option 3) flips the traffic control proposed for Option 2. The assumed traffic control for Option 3 is an all-way stop at the intersection of Sunset Dr/Hillside Dr and a two-way stop at the intersection of Sunset Dr/Middle-High School Access. **Table 11** details the All Way Stop Control (Option 3) traffic operations and queues. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

Table 11: All Way Stop Control (Option 3) Operational Analysis

Year	Intersection	Peak Hour	ur Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
	Sunset Dr and Hillside Dr	AM	6	A	8	A	EBL
	Sunset Dr and Hillside Dr	Afternoon	4	A	5	A	EBL
2020	20 All Way Stop Controlled Sunset Dr and Middle/High School Access	PM	4	A	5	A	EBL
2020		AM	12	В	80	F	NBL
		Afternoon	3	A	6	A	NBL
	Two-Way Stop Controlled	PM	2	A	7	A	NBL
	Sunset Dr and Hillside Dr	AM	6	A	7	A	EBL
	Sunset Dr and Hillside Dr	Afternoon	4	A	5	A	EBL
2040	All Way Stop Controlled	PM	4	A	5	A	EBT
2040	Sunset Dr and Middle/High School Access	AM	12	В	74	F	NBL
	Sunset Dr and Middle/High School Access	Afternoon	3	A	7	A	NBL
	Two-Way Stop Controlled	PM	2	A	9	A	SBL

^{1.} Delay in seconds per vehicle

Sunset Dr and Hillside Dr

- The intersection is anticipated to operate with an intersection LOS A in 2020 and 2040.
- Maximum southbound right queue is anticipated to be 200 feet during the AM peak hour in 2040.

Sunset Dr and Middle/High School Access

- The intersection is anticipated to operate with an intersection LOS B or better in 2020 and 2040.
- Northbound left movements are anticipated to operate at LOS F during the AM peak hour in 2020 and 2040. Delays for northbound traffic are not as long as shown in the Two-Way Stop Control Option, however they may increase driver frustration and lead to additional risk taking as described previously.
- Queues are acceptable for all peak hours in 2020 and 2040 with a shifted internal roundabout location providing more stacking distance to Sunset Dr. Maximum northbound queues in 2040 are anticipated to be 225 feet during the AM peak hour as vehicles leave the site after dropping off students. The all-way stop at Sunset Dr/Hillside Dr provides some gaps in traffic to allow northbound traffic to exit the site more efficiently than the Two-Way Stop Control Option.

E. Mini Roundabout Option

A roundabout option was analyzed for the intersection of Sunset Dr and Middle/Elementary School Access (West Mini-Roundabout) using Highway Capacity Software Version 7. Previous options retained the single point of access for the majority of traffic destined to the elementary or high schools, which leads to a congested intersection at Sunset Dr/Middle-High School Access during peak periods. This option splits the circulation entering and exiting the site into two access points to alleviate congestion. **Tables 12 and 13** detail the Mini-Roundabout traffic operations and queues. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

Table 12: West Mini-Roundabout Operational Analysis

	V			Delay by Approach (sec) LOS by Approach						Intersection	Intersection		
	Year Options	Peak Hour	EB	WB	NB	SB	EB	WB	NB	SB	Delay (sec)	LOS	
	2020 Sunset Dr and Middle/Elementary School Access West Mini-Roundabout	AM	11	7	8	5	В	Α	Α	Α	9	Α	
		Sunset Di and Widdle/ Elementary School Access	Afternoon	3	4	4	0	Α	Α	Α	Α	4	Α
		West Mini-Roundabout	PM	4	4	4	4	Α	Α	Α	Α	4	Α
Γ		Sunger Dwand Middle/Elementary School Access	AM	15	8	10	5	С	Α	Α	Α	12	В
	2040	Sunset Dr and Middle/Elementary School Access	Afternoon	4	4	4	0	Α	Α	Α	A	4	A
ı		West Mini-Roundahout	PM	4	5	4	4	Α	Α	Α	Α	5	Α

^{2.} Maximum delay and LOS on any approach and/or movement

^{3.} Limiting Movement is the highest delay movement.

Table 13: West Mini-Roundabout Queues

Year	Options	Da al- Hassa	Maximum Queues (ft)					
		Peak Hour	EB	WB	NB	SB		
2020	Sunset Dr and Middle/Elementary School Access	AM	100	50	50	25		
		Afternoon	25	25	25	0		
	West Mini-Roundabout	PM	25	25	25	25		
2040	Sunset Dr and Middle/Elementary School Access	AM	150	75	50	25		
		Afternoon	25	25	25	0		
	West Mini-Roundabout	PM	25	25	25	25		

Delay:

• The west Mini-Roundabout is anticipated to operate with an intersection LOS B or better for all peak hours in 2020 and 2040.

Queuing:

• Queues are acceptable for all peak hours in 2020 and 2040.

Roundabout option was analyzed for the intersection of Sunset Dr and Hillside Dr (east Mini-Roundabout). **Table 14 and 15** details the Mini-Roundabout traffic operations and queues. Detailed operations are attached in the **Appendix E**. Preliminary layout is attached in the **Appendix F**.

Table 14: East Mini-Roundabout Operational Analysis

Year	Ontions	Peak Hour		Delay by Ap	by Approach (sec)		LOS by Approach				Intersection	Intersection
rear	Options	Peak Hour	EB	WB	NB	SB	EB	WB	NB	SB	Delay (sec)	LOS
	Sunset Dr and Hillside Dr	AM	9	6	7	8	Α	Α	Α	Α	8	Α
2020	Sunset Drand Hillside Dr	Afternoon	4	4	5	4	Α	Α	Α	Α	4	Α
	East Mini-Roundabout	PM	5	4	4	5	Α	Α	Α	Α	4	Α
	Sunset Dr and Hillside Dr	AM	13	8	8	9	В	Α	Α	Α	10	Α
2040	Sunset Dr and Hillside Dr	Afternoon	4	4	5	5	Α	Α	Α	Α	5	Α
	East Mini-Roundabout	PM	5	4	4	5	Α	Α	Α	Α	5	Α

Table 15: East Mini-Roundabout Queues

rable 13: Last Willi Roaliaabout Queues									
V	0	5	Maximum Queues (ft)						
Year	Options	Peak Hour	EB	WB	NB	SB			
2020	Sunset Dr and Hillside Dr	AM	75	25	25	75			
	Sunset Dr and miliside Dr	Afternoon	25	25	25	25			
	East Mini-Roundabout	PM	25	25	25	25			
	Sunset Dr and Hillside Dr	AM	100	25	25	75			
2040	Sunset Dr and miliside Dr	Afternoon	25	25	25	25			
	East Mini-Roundabout	PM	25	25	25	50			

Delay:

• The east Mini-Roundabout is anticipated to operate with an intersection LOS A for all peak hours in 2020 and 2040.

Queuing:

• Queues are acceptable for all peak hours in 2020 and 2040.

VI. Analysis Summary

The speed analysis shows that there is a vehicle speed compliance issue along Aberdeen Ave and Sunset Dr. The 85th percentile speed at three tested locations were all higher than the posted speed limits. This could be attributable to the rural or wide character of the roadway and surrounding land use (Aberdeen) or the wide roadway width (Sunset). Improvements related to the school site circulation changes should take these findings into consideration.

Two site circulation options were provided based on work completed by the school district:

• Option 1a

 The proposed parents drop off storage capacity at the Elementary School is undersized. Backups are anticipated to extend beyond the parking lot and onto Sunset Dr.

• Option 1b

o The single lane roundabout is anticipated to operate at LOS F during AM and Afternoon peak hours in 2020 and 2040. Eastbound traffic largely would be unable to enter the roundabout during the AM peak due to conflicting traffic. The concentrated access to all schools shifts too much traffic to this location for this type of design to accommodate traffic during peak periods.

Based on these results, five alternative roadway and access concepts were considered to improve traffic operation characteristics, starting from Option 1b:

• Two-Way Stop Control Option

- O At the intersection of Sunset Dr and Middle/High School Access, southbound left movements are anticipated to operate at LOS F during the AM peak hour in 2040. Also, northbound left movements are anticipated to operate at LOS F during the AM peak hour in 2020 and 2040. However, if the internal roundabout were shifted further south, stacking distance can be increased to minimize the risk of this movement queuing into the roundabout. Long delays for drivers exiting the site could lead to safety issues if inadequate gaps in traffic are used to enter Sunset Dr.
- o Traffic flows along Sunset Dr work well.
- O Pedestrians would be provided marked and signed crossings of Sunset Dr with median refuges to aid in safe and efficient crossing. Enhanced treatments, such as RRFBs, could be considered as well.
- Internal sidewalk networks need to be considered to provide relatively direct access to the crossing and destination points.
- O A traffic control officer is recommended to be present during the peak hours at the Sunset Dr and Middle/High School Access to manage traffic flows exiting the site.

• All Way Stop Control (Option 1)

- o All-way stop controlled intersections do not meet volume warrants at either intersection.
- O At the intersection of Sunset Dr and Middle/High School Access, maximum westbound left queue is anticipated to exceed the storage capacity of the left turn lane during the AM peak hour in 2020 and 2040. This would inhibit westbound through traffic flows for this period of time and cause additional backups for southbound Sunset Dr.
- o Traffic flows from the site work well.
- o Pedestrians would be provided marked crossings of Sunset Dr at the all way stop locations.
- Internal sidewalk networks need to be considered to provide relatively direct access to the crossing and destination points.
- O Due to low volumes throughout most of the day, driver compliance with the all way stops may be low.

• All Way Stop Control (Option 2)

- o All-way stop controlled intersections do not meet volume warrants at either intersection.
- O At the intersection of Sunset Dr and Middle/High School Access, maximum westbound left queue is anticipated to exceed the storage capacity of the left turn lane during the AM peak hour in 2020 and 2040. This would inhibit westbound through traffic flows for this period of time and cause additional backups for southbound Sunset Dr.
- o Traffic flows from the site work well.
- Pedestrians would be provided marked crossings of Sunset Dr at the all way stop location and marked/signed crossings with median refuge on the west leg of each intersection. Enhanced treatments could be considered as well.
- o Internal sidewalk networks need to be considered to provide relatively direct access to the crossing and destination points.
- O Due to low volumes throughout most of the day, driver compliance with the all way stop may be low.

• All Way Stop Control (Option 3)

- o All-way stop controlled intersections do not meet volume warrants at either intersection.
- At the intersection of Sunset Dr and Middle/High School Access, northbound left movements are anticipated to operate at LOS F during the AM peak hour in 2020 and 2040. However, if the internal roundabout were shifted further south, stacking distance can be increased to minimize the risk of this movement queuing into the roundabout. Long delays for drivers exiting the site could lead to safety issues if inadequate gaps in traffic are used to enter Sunset Dr.
- o Traffic flows along Sunset Dr work well.
- Pedestrians would be provided marked crossings of Sunset Dr at the all way stop location and marked/signed crossings with median refuge on the west leg of each intersection. Enhanced treatments could be considered as well.
- Internal sidewalk networks need to be considered to provide relatively direct access to the crossing and destination points.
- Due to low volumes throughout most of the day, driver compliance with the all way stop may be low, though this would likely be similar to the existing condition at Sunset Dr/Hillside Dr.
- O A traffic control officer is recommended to be present during the peak hours at the Sunset Dr and Middle/High School Access to manage traffic flows exiting the site.

• Mini-Roundabout Option

- O The intersections are anticipated to operate at LOS A for all peak hours in 2020 and 2040.
- O Queues are acceptable for all peak hours in 2020 and 2040.
- Pedestrians would be provided marked crossings of Sunset Dr at the mini roundabout locations. A midblock crossing between roundabouts could be an option if the position aligned with the desired routes for pedestrians.
- o Internal sidewalk networks need to be considered to provide relatively direct access

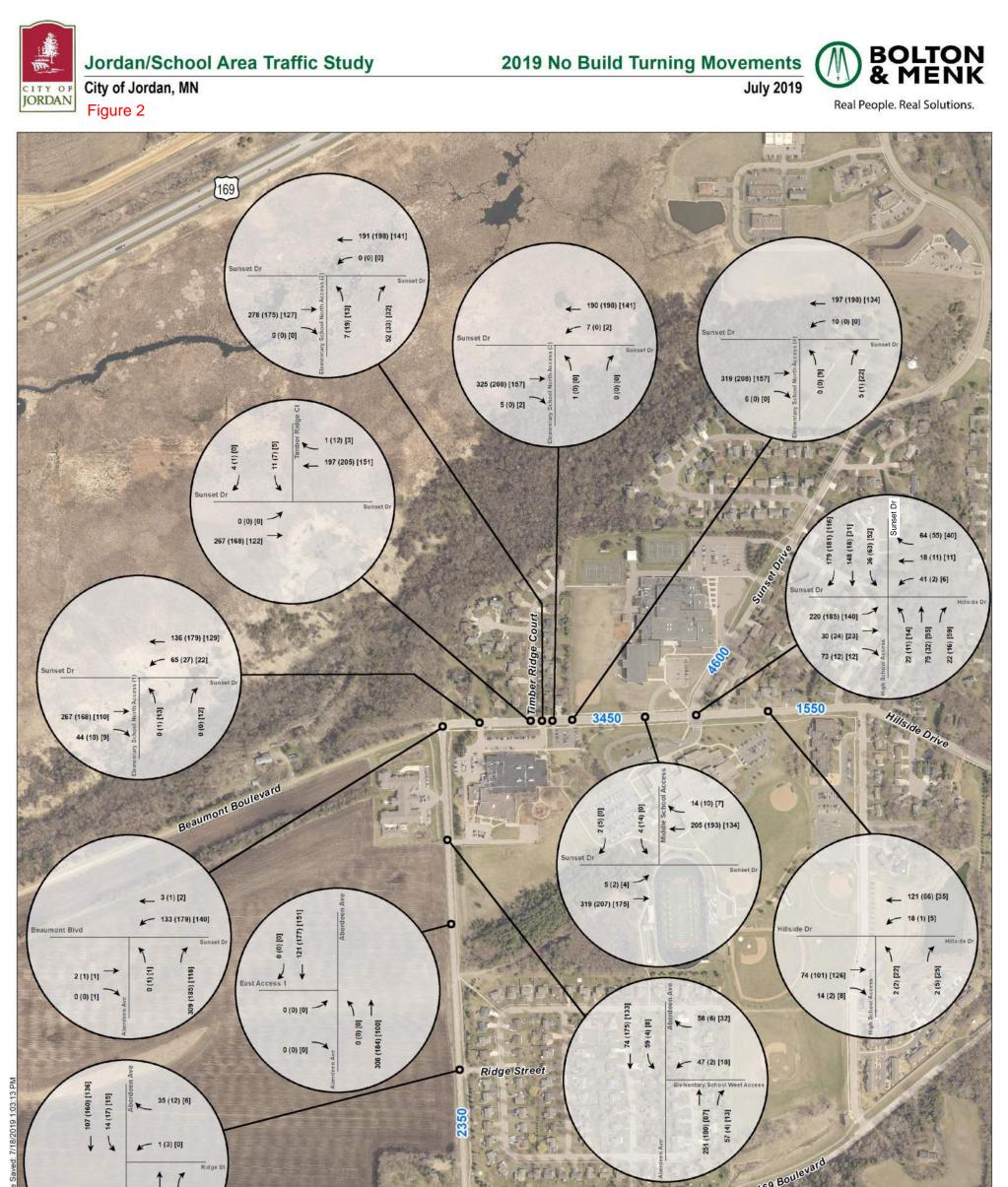
- to the crossing and destination points.
- o Constant speed control would be provided along Sunset Dr.
- O Mini-roundabouts have a smaller intersection footprint and can be constructed at a lower cost than traditional single-lane roundabouts. They can also be sized to accommodate busses without requiring tracking onto the traversable center island.

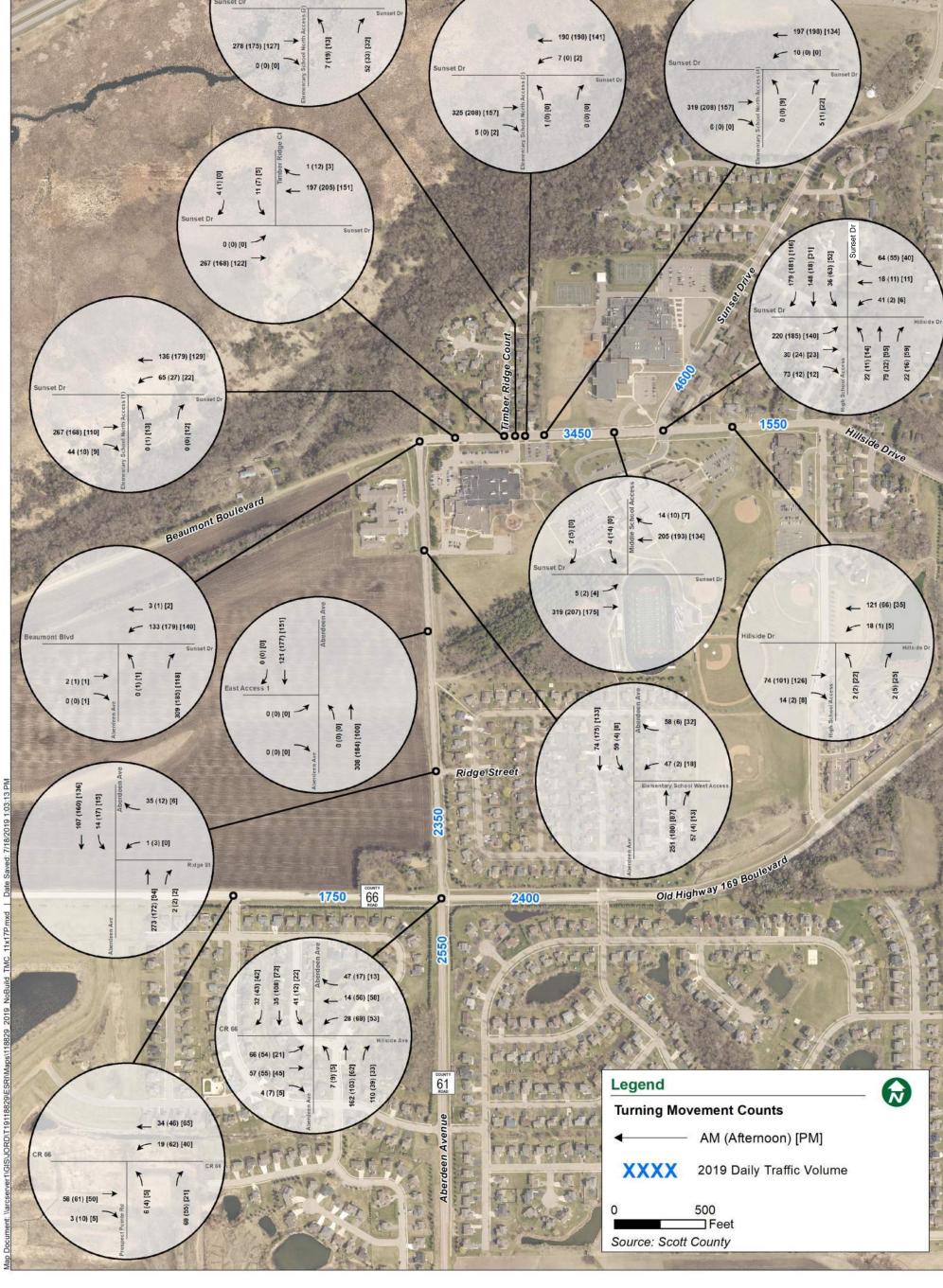
VII. Recommendations

Both All Way Stop Control (Option 1) and (Option 2) have the possibility of causing long queues and stopped traffic related to westbound vehicles trying to enter the site. Additionally, the All Way Stop Control (Option 3) would include an all way stop at the Sunset Dr/Hillside Dr intersection that is not warranted based on traffic volumes, therefore compliance will likely be low. For these reasons, the all way stop control options are not recommended for further consideration.

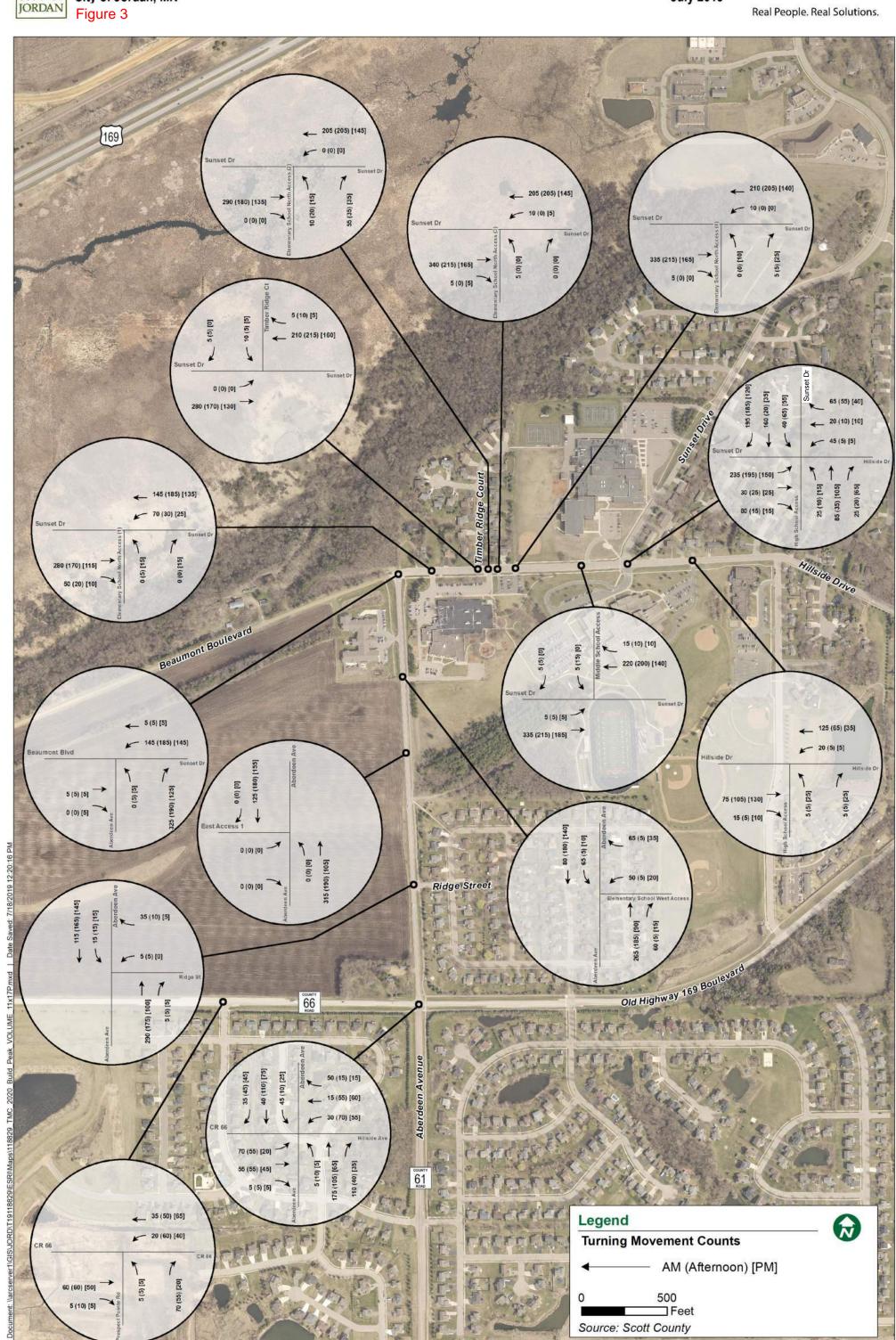
We recommend the Two Way Stop Control Option as well as the Mini Roundabout Option to be further considered along with the school site improvements. Both provide for good traffic flow along Sunset Dr and can accommodate site traffic with site modifications and other provisions. Additionally, both can be designed to incorporate features to accommodate pedestrians as well as slow traffic speeds (median refuges and roundabout geometrics). The main differentiators between both of these options is how the site needs to interact with the roadway improvements to function properly as well as treatment construction cost (mini roundabout option likely more expensive as it relates to Sunset Dr). If roundabouts are pursued for inclusion in overall improvements, additional, more detailed, traffic modeling will be required to confirm lane needs and sizing. Roundabout geometry and placement along Sunset Dr and how they interact with site improvements is subject to this additional modeling during preliminary design.

Appendix A: Traffic Volumes



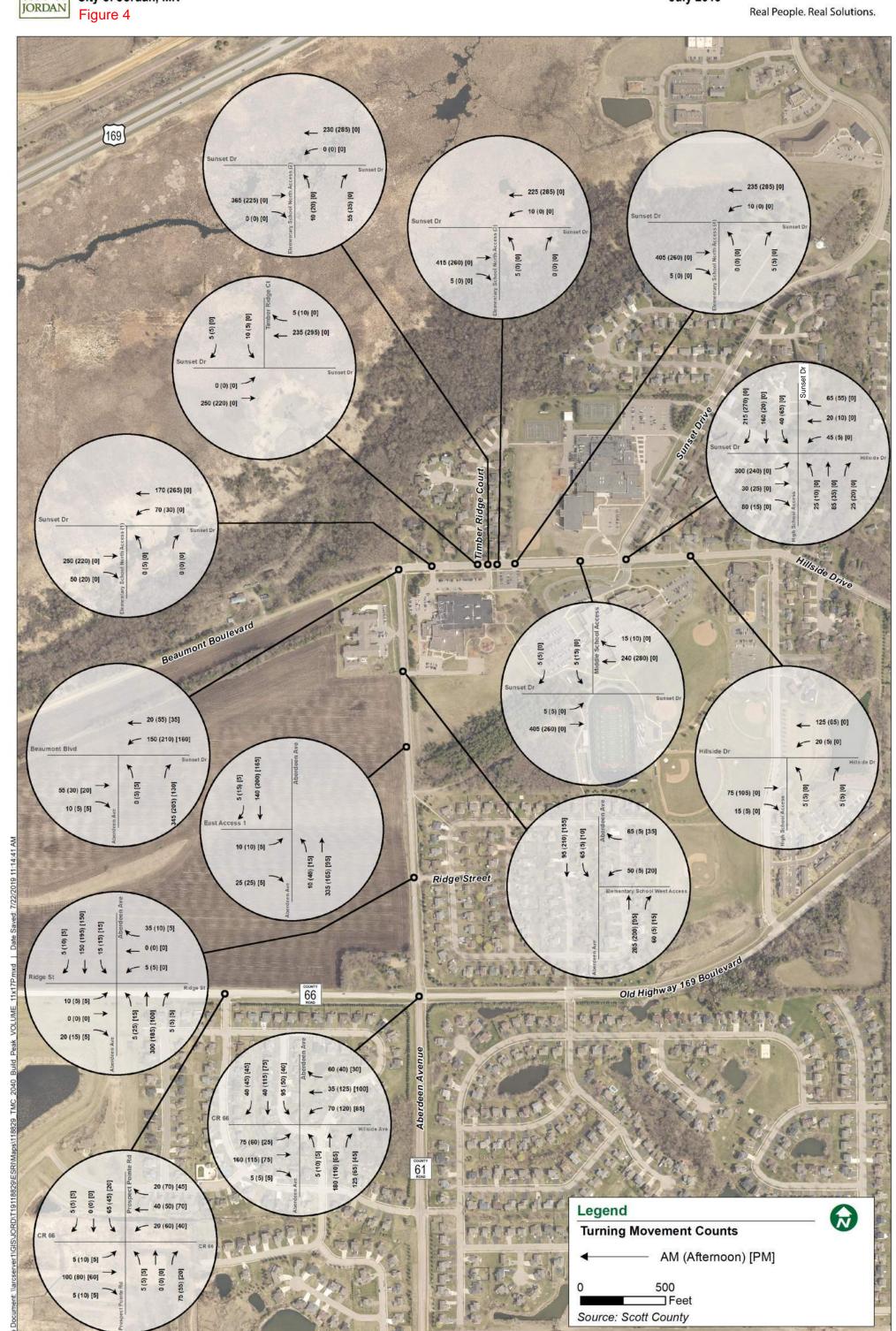


BOLTON & MENK **July 2019**

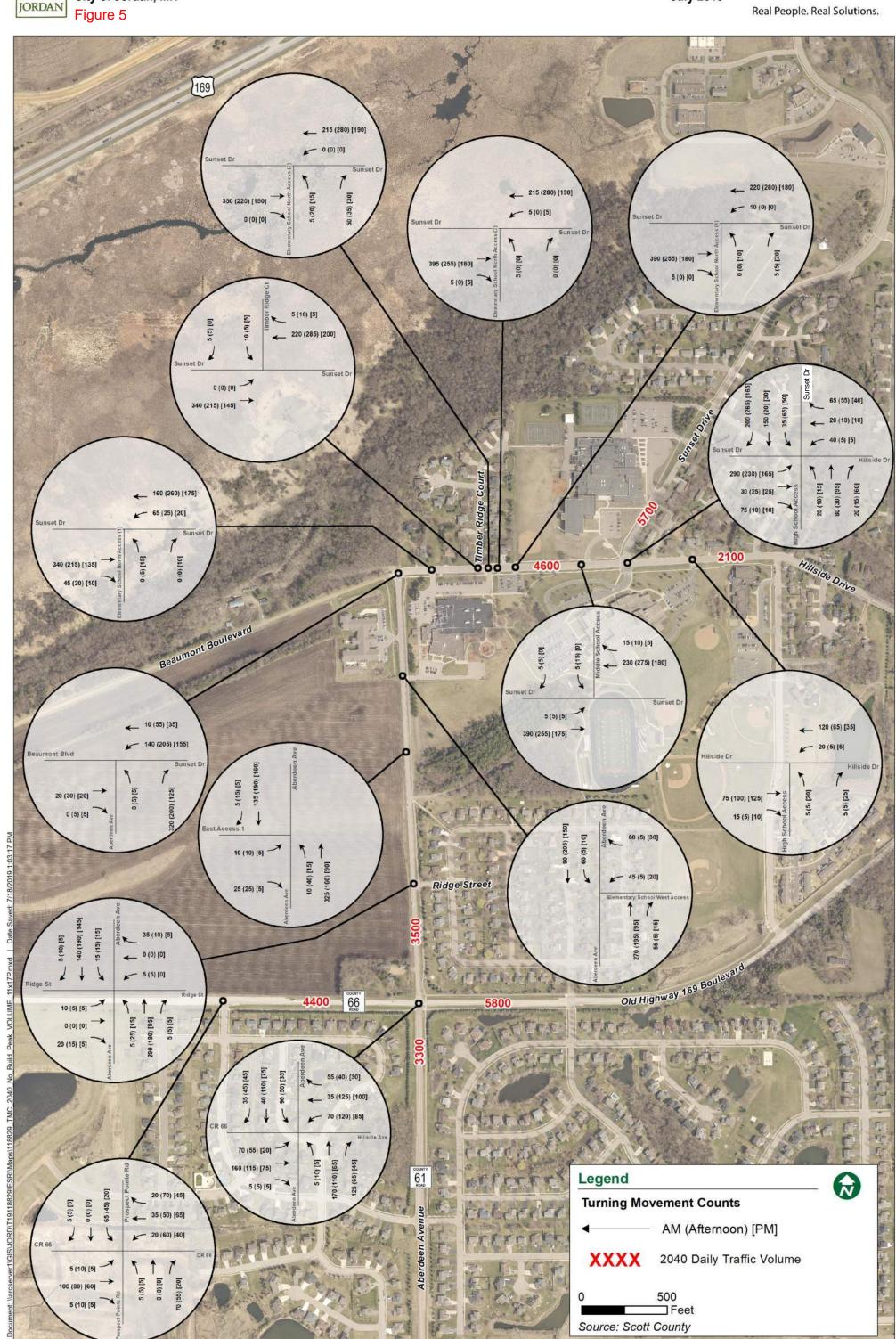


July 2019

BOLTON & MENK



BOLTON July 2019



Appendix B: Crash Analysis

Intersection Safety Screening

Intersection: Sunset Dr and Hillside Dr

Crash Data: 2015-2017.



Crashes by Crash Severity					
Fatal	0				
Incapacitating Injury	0				
Non-incapacitating Injury	1				
Possible Injury	1				
Property Damage	0				
Total Crashes	2				

Intersection Characteristics					
Entering Volume	4,800				
Traffic Control	All stop				
Environment	Urban				
Speed Limit	30 mph				

Annual crash cost = \$84,333

0.38

0.35

Statewide Comparison

Observed

Total Crash Rate

Statewide Average 0.34 Critical Rate 1.10 **Critical Index**

All Way Stop

Fatal & Serious Injury Crash Rate					
Observed	0.00				
Statewide Average	0.72				
Critical Rate	14.96				
Critical Index 0.00					

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference.

The observed total crash rate for this period is 0.38 per MEV; this is 65% below the critical rate. Based on similar statewide intersections, an additional 4 crashes over the three years would indicate this intersection operaters outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

Intersection Safety Screening

Intersection: Aberdeen Ave and West Elementary School

Crash Data: 2015-2017.



Crashes by Crash Severity					
Fatal	0				
Incapacitating Injury	0				
Non-incapacitating Injury	0				
Possible Injury	0				
Property Damage	1				
Total Crashes	1				

Intersection Characteristics					
Entering Volume	2,600				
Traffic Control	Thru / stop				
Environment	Urban				
Speed Limit	30 mph				

Annual crash cost = \$2,533

Statewide Comparison

Urban	Thru /	Stop

Total Crash Rate					
Observed	0.35				
Statewide Average	0.19				
Critical Rate	1.02				
Critical Index	0.34				

Fatal & Serious Injury Crash Rate				
Observed	0.00			
Statewide Average	0.36			
Critical Rate	22.45			
Critical Index	0.00			

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference.

The observed total crash rate for this period is 0.35 per MEV; this is 66% below the critical rate. Based on similar statewide intersections, an additional 2 crashes over the three years would indicate this intersection operaters outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

Intersection Safety Screening

Intersection: CR 66 and Aberdeen Ave

Crash Data: 2015-2017.



Crashes by Crash Severity			
Fatal	0		
Incapacitating Injury	0		
Non-incapacitating Injury	0		
Possible Injury	0		
Property Damage	2		
Total Crashes	2		

Intersection Characteristics			
Entering Volume	4,525		
Traffic Control	All stop		
Environment	Urban		
Speed Limit	55 mph		

Annual crash cost = \$5,067

Statewide Comparison

	Total Crash Rate	
Observed		0.40

Statewide Average 0.34
Critical Rate 1.13
Critical Index 0.35

All Way Stop

Fatal & Serious Injury Crash Rate				
Observed	0.00			
Statewide Average	0.72			
Critical Rate	15.68			
Critical Index	0.00			

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference.

The observed total crash rate for this period is 0.40 per MEV; this is 65% below the critical rate. Based on similar statewide intersections, an additional 4 crashes over the three years would indicate this intersection operaters outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

COLLISION DIAGRAM

LOCATION:	SUNSET DR AND HILLSIDE DR			
TIME PERIOD:	01/01/2015 - 12/31/2017	DATE:	06/20/19	



<u>CW</u>

PREPARED BY:



Total Accidents

	Year		
Crash Type	2015	2016	2017
Bicycle	0	0	1
Right Angle	1	0	0
Total Accidents	1	0	1

0

06/16/17 (18) ठैं



Left Turn

Fixed Object

SEVERITY IDENTIFIERS

Fatal Acc.

Personal **ABC** Injury

> 0 Property Damage Acc.

> > Right Angle

HILLSIDE DR

HIGH SCHOOL ACCESS

S= Snow or Sleet (4 or 5)

F= Fog, Smog, Smoke (6)
B= Blowing Sand/Dust (7)
W= Severe Crosswinds (8)
X= Other or Unknown (99)

KEY			NOTES		
Motor Vehicle Backing Up	♀ Pedestrian	[1]			\Box
	X redestrian	[2]			
Motor Vehicle Out of Control	Bicycle/Moped	[3]			П
SIDESWIPE	M	-			⇉
	Motorcycle	Light:	Weather:	Surface:	
Rear End	Left Turn	L= Daylight (1) DN= Dawn (2)	C= Clear or Cloudy (1 or 2) R= Rain (3)	D= Dry (1) W= Wet (2)	



12224 NICOLLET AVENUE BURNSVILLE, MINNESOTA 55337 Phone: (952) 890–0509 Email: Burnsville®bolton-menk.com www.bolton-menk.com

DU= Dusk (3)
DI= Dark, Lighted (4)
Do= Dark, Lights Off (5)
D= Dark, Unlighted (6)
X= Unknown (99)

JORDAN SCHOOL AREA TRAFFIC STUDY SUNSET DR AND HILLSIDE DR COLLISION DIAGRAM

S= Snow or Ice (3 or 4)

O= Oily (7) X= Other or Unknown (99)

DB= Debris (6)

2019 - 3: 20pm

20,

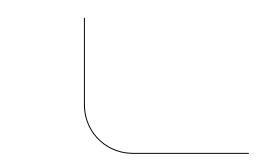
COLLISION DIAGRAM

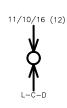
LOCATION:	ABERDEEN AVE AND WEST ELEMEN	TARY SCHOO	L ACCESS
TIME PERIOD:	01/01/2015 - 12/31/2017	DATE: _	06/20/19

PREPARED BY: CW



ABERDEEN AVE





	Year		
Severity	2015	2016	2017
Fatal	0	0	0
A Injury	0	0	0
B Injury	0	0	0
C Injury	0	0	0
Property Damage	0	1	0
Total Accidents	0	1	0

	Year		
Crash Type	2015	2016	2017
Head On	0	1	0
Total Accidents	0	1	0

WEST ELEMENTARY SCHOOL ACCESS

SEVERITY IDENTIFIERS

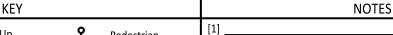
Fatal Acc.



Personal Injury



Property Damage Acc.



Motor Vehicle Backing Up Motor Vehicle Out of Control



Right Angle



Pedestrian



Bicycle/Moped



Left Turn



[3] Light:

[2]

LEGIT.

L= Daylight (1)
DN= Dawn (2)
DU= Dusk (3)
DI= Dark, Lighted (4)
Do= Dark, Unlighted (6)
X= Unknown (99)

Weather:

C= Clear or Cloudy (1 or 2) S= Snow or Sleet (4 or 5)

F= Fog, Smog, Smoke (6) B= Blowing Sand/Dust (7) W= Severe Crosswinds (8) X= Other or Unknown (99) Surface:

D= Dry (1) W= Wet (2) S= Snow or Ice (3 or 4) M= Muddy (5) DB= Debris (6) O= Oily (7) X= Other or Unknown (99)

JORDAN SCHOOL AREA TRAFFIC STUDY



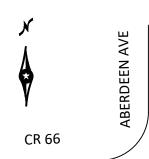
12224 NICOLLET AVENUE BURNSVILLE, MINNESOTA 55337 Phone: (952) 890–0509 Email: Burnsville@bolton-menk.com www.bolton-menk.com

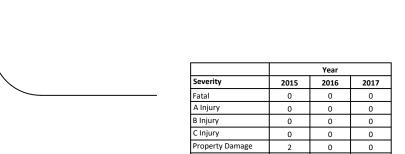
ABERDEEN AVE AND WEST ELEMENTARY SCHOOL ACCESS COLLISION DIAGRAM

COLLISION DIAGRAM

LOCATION:	CR 66 AND ABERDEEN AVE		
TIME PERIOD:	01/01/2015 - 12/31/2017	DATE: _	06/20/19

PREPARED BY: CW





Total Accidents

		Year	
Crash Type	2015	2016	2017
Fixed Object	1	0	0
Right Angle	1	0	0
Total Accidents	2	0	0

0





SEVERITY IDENTIFIERS

Fatal Acc.

ABC Personal Injury

O Property Damage Acc.

ABERDEEN AVE

KEY NOTES

[2]

Light:

Motor Vehicle Backing Up

Motor Vehicle Out of Control

SIDESWIPE Rear End

Right Angle



Pedestrian

Bicycle/Moped

Motorcycle Left Turn

Fixed Object

[3] ____

L= Daylight (1)
DN= Dawn (2)
DU= Dusk (3)
DI= Dark, Lighted (4)
Do= Dark, Lights Off (5)
D= Dark, Unlighted (6)
X= Unknown (99)

CR 66

Weather:

C= Clear or Cloudy (1 or 2) R= Rain (3) S= Snow or Sleet (4 or 5) F= Fog, Smog, Smoke (6) B= Blowing Sand/Dust (7) W= Severe Crosswinds (8) X= Other or Unknown (99) Surface:

D= Dry (1)
W= Wet (2)
S= Snow or Ice (3 or 4)
M= Muddy (5)
DB= Debris (6)
O= Oily (7)
X= Other or Unknown (99)



12224 NICOLLET AVENUE BURNSVILLE, MINNESOTA 55337 Phone: (952) 890-0509 Email: Burnsville®bolton-menk.com www.bolton-menk.com JORDAN SCHOOL AREA TRAFFIC STUDY

CR 66 AND ABERDEEN AVE

COLLISION DIAGRAM

2019 20, 틸 Drawing name: H:\JORD\T19118829\2_Preliminary\A_Calculations\Traffic\Crash Analysis\3 - Crash Diagram\Crash Diagram.dwg



Table 1: Scenario Traffic Operations Analysis - Jordan School Area Study

Table 1. Section I fame Operations Amarysis - sortia										Movement D	Delay (sec/veh)					
Intersection	Peak Hour	Intersection	on Delay (1.)	N	BL	NBT	NBR	SBL	SBT	SBR	EBL	ЕВТ	EBR	WBL	WBT	WBR
Hillside Dr and High School Access	AM	1	A	8	A	-	3 A	-	-	-	-	1 A	1 A	2 A	0 A	-
_	Afternoon	1	A	4	A	-	3 A	-	-	-	-	1 A	1 A	2 A	0 A 0 A	-
Stop Controlled	PM	1	A	4	A	-	2 A -		-	-	-	1 21	1 A			-
Sunset Dr and Hillside Dr	AM Afternoon	4	A	5 4	A A	6 A 5 A	3 A	6 A 4 A	6 A 4 A	3 A	5 A 4 A	5 A 4 A	3 A 2 A	5 A A	5 A 5 A	4 A A
Stop Controlled	PM	4	A	4	A	5 A	2 A	4 A	5 A	3 A	4 A	4 A	2 A	4 A	5 A	3 A
Sunset Dr and Middle School Access	AM	1	A		-	-	-	9 A	-	3 A	2 A	0 A	-	-	1 A	1 A
	Afternoon	0	A		-	ı	•	-	-	-	3 A	0 A	-	-	0 A	0 A
Stop Controlled	PM	1	A		-	•	•	7 A	-	3 A	2 A	0 A	-	-	0 A	0 A
Sunset Dr and North Elementary School Access 4	AM	0	A		-	-	3 A	-	-	-	-	0 A	0 A	3 A	0 A	-
	Afternoon	1	A	5	A	-	3 A	-	-	-	-	0 A	-	-	0 A	-
Stop Controlled	PM	0	A		-	-	4 A	-	-	-	-	0 A	-	-	0 A	-
Sunset Dr and North Elementary School Access 3	AM	1	A	7	A	-	-	-	-	-	-	1 A	1 A	2 A	0 A	-
•	Afternoon	1	A		-	-	-	-	-	-	-	1 A	1 A	1 A	0 A	-
Stop Controlled	PM	1	A		-	-	-	-	-	-	-	1 A	-	-	0 A	=
Sunset Dr and North Elementary School Access 2	AM	2	A	1	A	-	0 A	-	-	-	-	4 A	-	-	0 A	-
· ·	Afternoon	2	A	1	A	-	0 A	-	-	-	-	3 A	-	-	0 A	-
Stop Controlled	PM	2	A	2	A	-	0 A	-	-	<u> </u>	-	4 A	-	-	0 A	-
Sunset Dr and Timber Ridge Ct	AM Afternoon	2	A		-	-	-	19 C 12 B	-	4 A	-	3 A 1 A	-	-	0 A 0 A	0 A 0 A
Stop Controlled	PM	1	A		-	-	-	12 B	-	4 A	<u>-</u>	2 A	-	-	0 A	0 A
	AM	1	A		_	_	_		_	-	-	0 A	0 A	3 A	0 A	-
Sunset Dr and North Elementary School Access 1	Afternoon	1	A	6	A	=	3 A	-	-	-	-	0 A	0 A	1 A	0 A	-
Stop Controlled	PM	0	A	4	A	-	-	-	-	-	-	0 A	0 A	2 A	0 A	-
Sunset Dr and Aberdeen Ave	AM	4	A		-	=	4 A	=	-	-	-	6 A	-	4 A	4 A	-
	Afternoon	3	A	3	A	1 A	3 A	-	-	-	-	-	3 A	4 A	5 A	-
Stop Controlled	PM	4	A		-	-	3 A	-	-	-	-	7 A	-	4 A	3 A	-
Aberdeen Ave and West Elementary School Access	AM	2	A		-	1 A	2 A	4 A	1 A	-	-	-	-	5 A	0 A	3 A
•	Afternoon PM	1	A		-	0 A	0 A	2 A	1 A	-	-	-	-	2 A	-	2 A
Stop Controlled		1	A		-	1 A	0 A	2 A	1 A	-	-	-	-	5 A	-	2 A
Aberdeen Ave and Ridge St	AM Afternoon	1	A A		-	2 A 2 A	2 A 2 A	4 A A	1 A 1 A	-	-	-	-	3 A	-	4 A A
Stop Controlled	PM	2	A		-	2 A	2 A	3 A	1 A	-	-	-	-	7 A	-	3 A
CR 66 and Aberdeen Ave	AM	6	A	6	A	8 A	5 A	5 A	6 A	3 A	4 A	10 B	3 A	4 A	9 A	3 A
	Afternoon	6	A	5	A	6 A	3 A	5 A	7 A	4 A	3 A	9 A	2 A	4 A	10 B	3 A
Stop Controlled	PM	7	A	6	A	7 A	4 A	7 A	7 A	4 A	4 A	10 B	3 A	5 A	10 B	4 A
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	-	3 A	-	-	-	-	0 A	0 A	1 A	0 A	-
	Afternoon	1	A	4	A	-	2 A	-	-	-	-	0 A	0 A	1 A	1 A	-
Stop Controlled	PM	1	A	6	A	-	3 A	-	-	-	-	0 A	0 A	1 A	1 A	-

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

Table 2: Peak Hour Queues By Movement - Scenario Geometry

	I L																		Queue L	engths.																	
Intersection	Peak Hour	EBL	EB	L/T	EBL	/T/R	EB	T	EBT/	/R	WBL		WBI	_/R	WB	SL/T	WBL	/T/R	WE	BT .	WB	T/R	N	BL	NE	BL/R	NBL/	T/R	NBT/R		SBL/R		SBL/	Τ	SBL/T	R	SBR
		Avg Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Иax A	/g	Max .	Avg	Max	Avg	Max	Avg
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-		-	-	-	-	-	-
e e	Afternoon		-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	75	-	-	-	-		-	-	-	-	-	-
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-		-	-	-	-	-	
Sunset Dr and Hillside Dr	AM	50 100	-	-	-	-	-	-	50	75	25	75	-	-	-	-	-	-	-	-	50	75 75	25	50		-	-	-	50	75		-	50	125	-	-	25
Stop Controlled	Afternoon PM	50 75	-	-	-	-	-	-	25 25	50	25	50	-	-	-	-	-	-	-	-	50 50	50	25	25	-	-	-	-		100 50		-	25	75 50	-	-	25 50
Stop Controlled		50 /5	-	-	-	-	-	-	25	50	25	50	-	-	-	-	-	-	-	-	50	50	25	25	-	-	-	-	25	50	_	_	25	50	-	-	50
Sunset Dr and Middle School Access	AM Afternoon		25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 2	5	50	-	-	-	-	-
	PM		0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	_	-	-	-	-	-	-
Stop Controlled	PM AM		0	25	-	-	-		-	-	-	-	-	-	- 25	50	-	-	-	-	-	-	-	-	- 25	50	-	-	-	- 2	5	50	-	-	-	-	
Sunset Dr and North Elementary School Access 4	Afternoon		-	<u> </u>	-	-	-	-	-	-	-	-	-	-	25	- 50	-	-	-		-	-	-	<u> </u>	25	50	-	-	-	-		-	-	-	-	-	-
Stop Controlled	PM		-		-	-			-	-		-	-	-		-	_		-			-	-	-	25	25	-	-		-		-	-	-		-	-
1	AM		-	-	-	-						-	-	-	25		-	-			-		-	-	25	25	-	-		-		-	-	-	-	-	
Sunset Dr and North Elementary School Access 3	Afternoon		-	-	-	-	-	-	-	-	-	-	-	-	23	23	-	-	-	-	-	-	-	-	23	23	-	-	-	-		-	-	-	-	-	
Stop Controlled	PM				-													-	-		-									-		-	-			-	-
	AM								50	75		-		-					-			-			25	25		-		_		-	- +	-	-	-	
Sunset Dr and North Elementary School Access 2	Afternoon		-	-	-	-	_	-	50	75	-	-	-		-	-	-	-	-	-	-	-	-	-	25	50	_	-	-	-		-	-	-	-	-	
Stop Controlled	PM			-	-	-	-	-	50	75	-	-	-	-	-	-		-	-	-	-	-	-	-	25	50	-	-	-	-		-	-	-	-	-	
•	AM		50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 2	5	50	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	Afternoon		25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	- 2	5	50	-	-	-	-	
Stop Controlled	PM		25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	- 2	5	50	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM		-	-	-	-	-	-	0	25	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	Afternoon		-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-		-		-	25	50	-	-	-	-		-	-	-	-	-	-
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-		-		-		-	25	25	-	-	-	-		-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM		-			-	-	-	25	50	-	-		-	50	75	-	-				-			50	75	-	-	-	-				-	-	-	-
	Afternoon		-	-		-	-	-	25	50	-	-	-	-	50	75	-	-		-	-	-		-	50	75	-	-	-	-			-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	25	25	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-	-	-		-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM		-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50		-	25	75	-	-	-
·	Afternoon		-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	0	25	-	-	
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	0	25	-	-	-
Aberdeen Ave and Ridge St	AM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	25	50	-	-	-
· ·	Afternoon		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	25	25	-	-	-
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	25	50	-	-	
CR 66 and Aberdeen Ave	AM			-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	125	-	-		-	-	-	50	75	
	Afternoon		-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-		-	-	-	50	75	
Stop Controlled	PM	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-		-	-	-	50	100	-
CR 66 and Prospect Pointe Rd	AM		-	-	-	-	-	-	-	-	-	-	-	-	25		-	-	-	-	-	-	-	-	25	50	-	-	-	-		-	-	-	-	-	
•	Afternoon		I -	-	-		-	-	-	-	-	-	-	-	25	2.5		-	-	-	-	-	-	-	1 25	50	-	-	-	-		-	-	-	-	-	-

Table 1: Scenario Traffic Operations Analysis - Jordan School Area Study

	_											Mo	ovement De	elay (sec/ve	eh)											
Intersection	Peak Hour	Intersection	on Delay (1.)	NE	BL	NBT		NBR		SBL	S	ВТ	SB	BR	EE	3L	EB	ВТ	E	BR	w	/BL	W	/ВТ	w	/BR
Hillside Dr and High School Access	AM	1	A	5	A	-	2	A		-		-	-		-		1	A	1	A	2	A	1	A		-
· ·	Afternoon	1	A	5	A	-	3	A		-		-			-		1	A	1 A		3	A	0	A		-
Stop Controlled	PM	1	A	4	A	<u> </u>	3	A		-		-	-		-		1	A	1	A	_	-	0	A		-
Sunset Dr and Hillside Dr	AM	5	A	4	A		A 4	A	5	A	5	A	2	A	5	A	5	A	2	A	5	A	5	A	4	A
Stop Controlled	Afternoon PM	4	A A	4	A A		A 3 A 2	A A	4	A A	5	A A	3	A A	4	A A	4	A A	2	A A	3	A A	5	A A	4	A A
•	AM	1	A			-	11 2	-	5	A	3	-	3	A	2	A	0	A		- 71	3	-	1	A	0	A
Sunset Dr and Middle School Access	Afternoon	0	A	-		_		-		-		-	-		3	A	0	A		-		-	0	A	0	A
Stop Controlled	PM	1	A	-	-	-		-	7	A		-	2	A	2	A	0	A		-		-	0	A	0	A
Sunset Dr and North Elementary School Access 4	AM	0	A	-	-	-	3	A		-		-	-		-		0	A	0	A	3	A	0	A		-
•	Afternoon	1	A	5	A	-	3	A		-		-	-		-		0	A		-		-	0	A		-
Stop Controlled	PM	0	A	-	-	-	2	A		-		-	-		-		0	A		-		-	0	A		-
Sunset Dr and North Elementary School Access 3	AM	1	A	6	A	-		-		-		-	-		-		1	A	1	A	2	A	0	A		-
•	Afternoon	1	A			-		-		-		-	-		-		1	<u>A</u>	1	A	2	A	0	A		-
Stop Controlled	PM AM	2	A	2		-	0	-	_	-	+	-	-		-		4	A	-	-		-	0	A		-
Sunset Dr and North Elementary School Access 2	Afternoon	1	A A	1	A A		0	A A		-	+	<u>-</u>	-		-		3	A A	ł	<u>-</u>		-	0	A A		<u>-</u> -
Stop Controlled	PM	2	A	2	A		0	A		-		-					4	A		-	+	-	0	A		-
•	AM	3	A	-			0	-	34	D		_	3	A			4	A		_		_	0	A	0	A
Sunset Dr and Timber Ridge Ct	Afternoon	1	A	-		-		-	10	В		-					1	A	-	-		-	0	A	0	A
Stop Controlled	PM	1	A	-		-		-	17	С		-	3	A	-		2	A		-		-	0	A	0	A
Sunset Dr and North Elementary School Access 1	AM	1	A	-		-		-		-		-	-		-		0	A	0	A	3	A	1	A		-
•	Afternoon	1	A	6	A	-	3	A		-		-	-	-	-		0	A	0	A	1	A	0	A		-
Stop Controlled	PM	0	A	10	В	-		-		-		-	-		-		0	A	0	A	2	A	0	A		-
Sunset Dr and Aberdeen Ave	AM	5	A	-		-	5	A		-	+	-	-				6	<u>A</u>		-	6	A	4	A		-
Stop Controlled	Afternoon PM	3	A	3	A		A 3	A	_	-		-	-				6	A	2	A	4	A	4	A		-
•	AM	4 26	A D			28	D 30	A D	37	- Б	28	D	-		-		6	A	ł – – – – – – – – – – – – – – – – – – –	-	16	A C		- A	4	- A
Aberdeen Ave and West Elementary School Access	Afternoon	1	A				A 0	A	3/	A	1	A								-	3	A		-	2	A
Stop Controlled	PM	1	A			Ů	A 0	A	2	A	1	A	_		_					-	4	A	_	-	3	A
•	AM	10	В	-			B 2	A	3	A	3	A	1	A	24	С	_			-		-		-	13	В
Aberdeen Ave and Ridge St	Afternoon	1	A	_	-		A 2	A	3	A	1	A	1	A	5	A	_			_		_		_	2	A
Stop Controlled	PM	2	A	-	-	2	A 1	A	3	A	1	A	0	A	5	A	-			-	6	A		-	3	A
CR 66 and Aberdeen Ave	AM	9	A	10	В		B 6	A	6	A	7	A	4	A	9	A	13	В	4	A	7	A	11	В	6	A
	Afternoon	8	A	6	A		A 4	A	6	A	7	A	4	A	4	A	10	В	3	A	7	A	12	В	5	A
Stop Controlled	PM	10	В	8	A	8	A 5	A	6	A	8	A	5	A	6	A	11	В	4	A	10	В	14	В	8	A
CR 66 and Prospect Pointe Rd	AM	3	A	5	A	-	3	A	6	A		-	4	A	2	A	0	A	0	A	1	A	0	A	0	A
•	Afternoon	1	A	5	A	-	3	A	6	A		-	3	A	2	A	0	A	0	A	1	A	1	A	0	A
Stop Controlled	PM	2	A	8	A	-	3	A	7	A	1	-	4	A	2	A	1	Α	0	A	1	A	1	A	0	A

Stop Controlled

1. Delay in seconds per vehicle
2. Maximum delay and LOS on any approach and/or movement
3. Limiting Movement is the highest delay movement.

Table 2: Peak Hour Queues By Movement - Scenario Geometry

	eometry																		Queue	Lengths																	-
Intersection	Peak Hour	E	BL	EB	BL/T	EB	SL/T/R	E	BT/R	E	BR	\	NBL	W	BL/R	WE	BL/T	WBL	/T/R	WB1	Γ/R	NE	L	NB	L/R	NBL	/T/R	NB	T/R	SB	L/R	SB	L/T	SBL	L/T/R	S	BBR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25 25	25 25	-	-	-	-	-	-	25 25	25 75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-			-
Sunset Dr and Hillside Dr	AM	50	100	-	-	-	-	25	75	-	-	25	75	-	-	-	-	-	-	50	75	25	25	-	-	-	-	50	75	-	-	50	125	-		50	75
Stop Controlled	Afternoon	50 50	75 100	-	-	-	-	25 25	50 50	-	-	25 25	50 25	-	-	-	-	-	-	50 50	75 75	25 25	25	-	-	-	-	50 25	75 50	-	-	25 25	75 50	-	- -	25 50	75 75
· · · · · · · · · · · · · · · · · · ·	AM	-	-	25	25	-	-	- 23	-	-		-	- 23	-			-	-		-	-	-	-	-	-		-	-	-	25	50	-	-	-		-	-
Sunset Dr and Middle School Access	Afternoon	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 4	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM AM	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	25	-	-	-		-		25 25	25 50		-		-	-	-	-	-	-		-	-
Sunset Dr and North Elementary School Access 3	Afternoon	-	-	-	+ :		-	- 23	- 23	-		-	+ :	-		- 23	-	-	-					-	-		-		-	-	-	-	-	-	+		-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 2	AM	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
· ·	Afternoon	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	50	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	Afternoon	-	-	25 50	75 75	+ -	+ -	-	-	-	-	-	-	-	-	-	-	-	-	25 25	75	-		-	-		-		-	25 25	50	-	-	-		-	-
	AM	-		-	-	-	-	0	25	-		-	-	-	-	25	75	-	-	-	-	-		-	-		-			-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	1 -	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	<u> </u>	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-		-	-
Aberdeen Ave and West Elementary School Access	AM Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	50 25	75 75	-	-	-	-	-	-	-	-	-	-		-	75	250	-	-	50 25	175 25	-	-	-	-
Stop Controlled	PM	-		-	1		-	+ :	+ :	-		-	-	25	50		-	-	-	-				-	-		-			-		0	25	-		+	
•	AM	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	25	150	-	-	-	-	-	-	25	50	-	-
Aberdeen Ave and Ridge St	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	-	-	25	50			-		-	-		-	-	-	25	50	-	-	-	-	-	-	-		-	-		-	-		25	25	-	-
CR 66 and Aberdeen Ave	AM	-	-	-	-	50	150	-	-	-	-	-	-	-	-	-	-	50	125	-	-	-	-	-	-	75	175	-	-	-	-	-	-	50	75	-	-
	Afternoon	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75	-	-
Stop Controlled	PM AM	-	-	25	25	50	75	-	-	-	-	-	-	-	-	25	25	75	125	-	-	-	-	-	-	50 25	100 50	-	-	-	-	-	-	50 50	100 75	-	-
CR 66 and Prospect Pointe Rd	Afternoon	-	-	25	50	+ :	+ -	+ :	-	0	25	1	+ :	-	-	25	50	 	-	- 0	25	 		-	-	25	50		-	-		-	-	50	75	-	-
Stop Controlled	PM	-		25	50	+ -	-	+ -	+ -	-	-		+ -	<u> </u>		25	50		-	-	-	 		-	-	25	50			-		-	-	50	100	-	

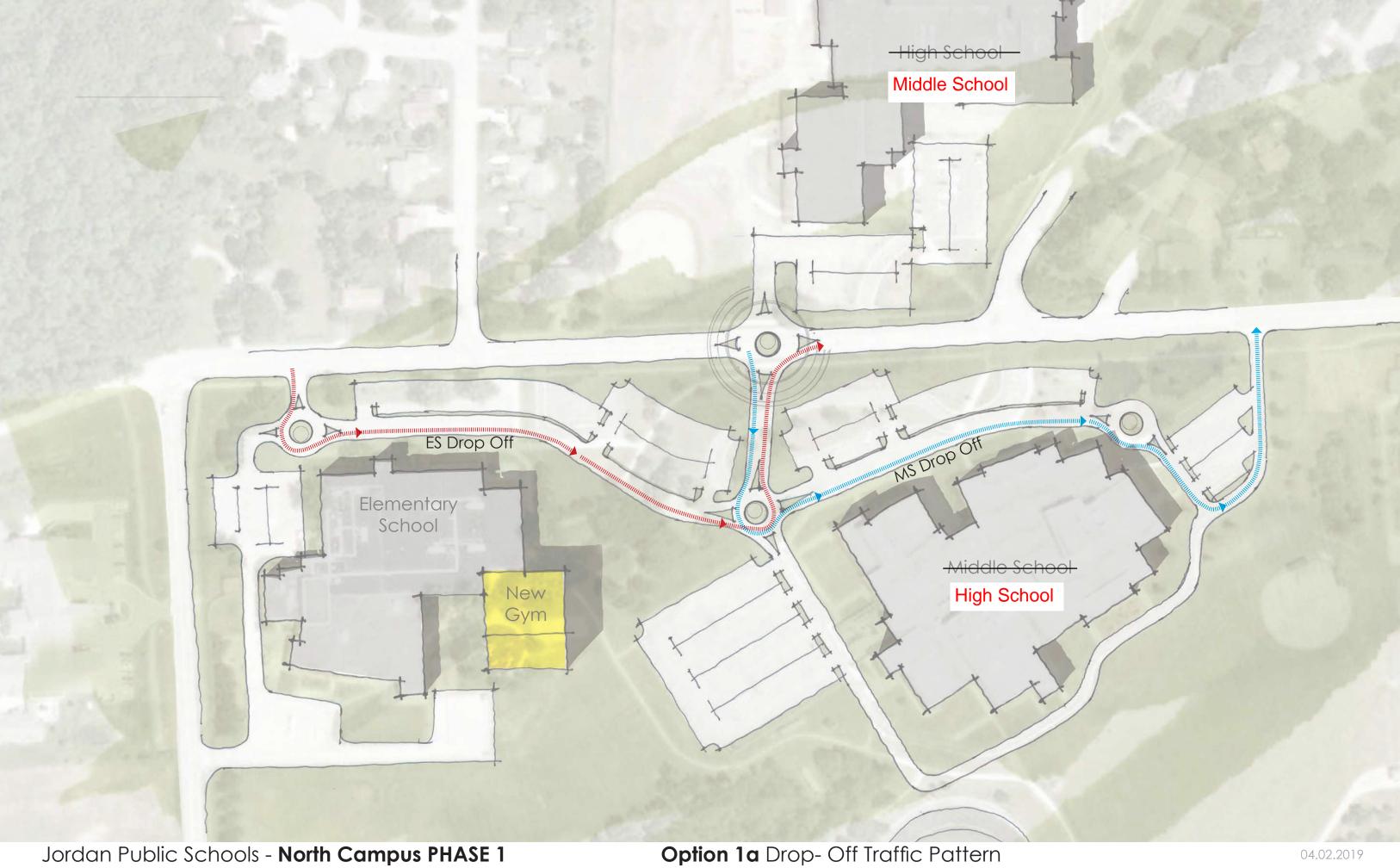
Appendix D: Provided Layouts

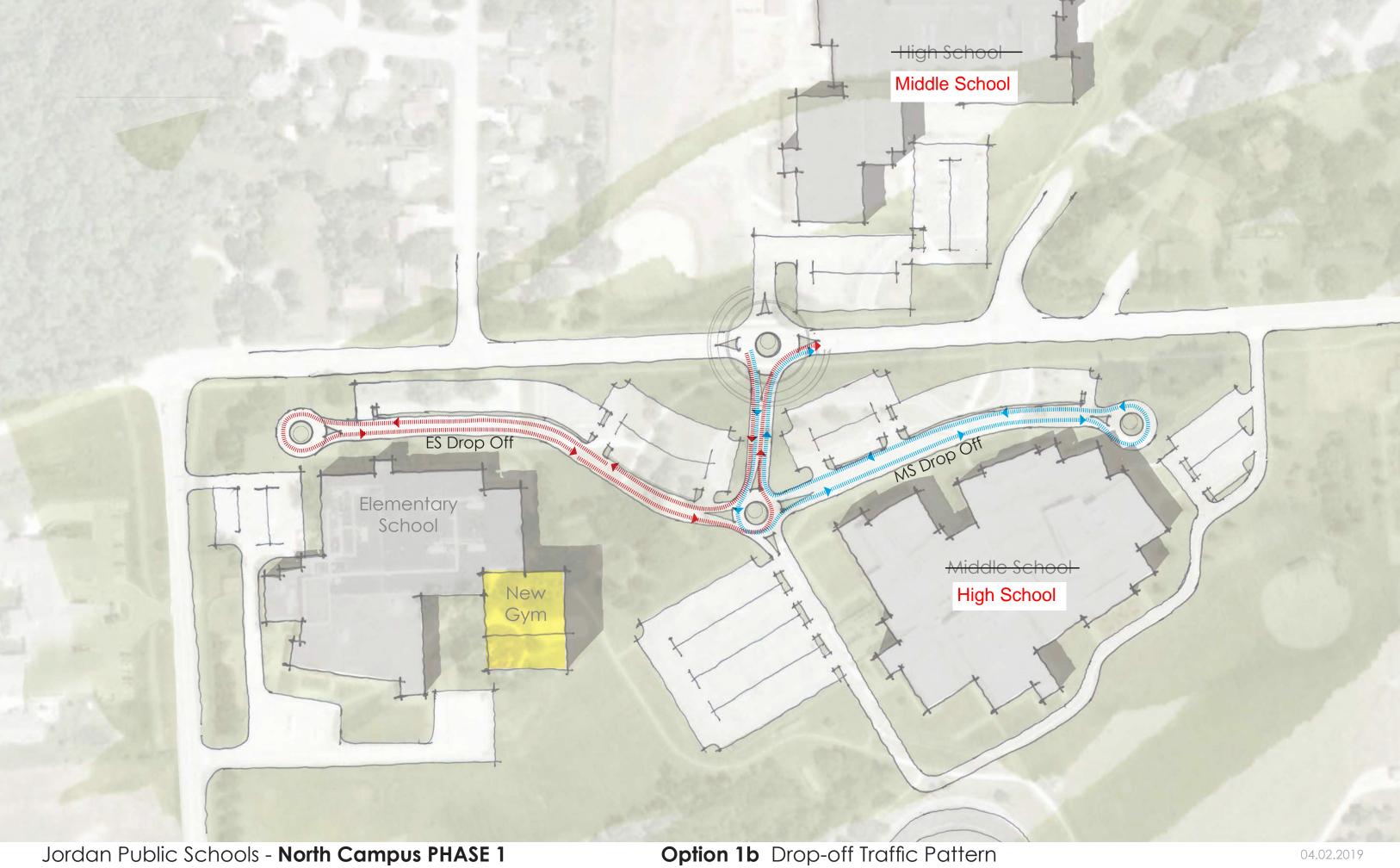




Jordan Public Schools - North Campus PHASE 1

Option 1b





				HCS	7 Rc	ound	abo	uts F	Rep	port							
General Information							Site	e Info	rm	atior	1						
Analyst	CW						Inte	ersection					sed Sun s Round		& High,	/Middle S	chool
Agency or Co.	Bolto	n & Men	k				E/V	V Street	Nam	ne		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street I	Nam	ne		High/	Middle S	School	Access		
Analysis Year	2019						Ana	alysis Tin	ne Pe	eriod (ł	hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ık Hour f	acto	or		0.40					
Project Description	Jorda	n School	Area Stu	udy			Juri	sdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	haract	teristic	cs												
Approach		E	B			V	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	1	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	+	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	6	256	79	0	205	219	16	T	0	85	0	142	0	5	0	3
Percent Heavy Vehicles, %	3	3	4	3	3	3	3	3		3	12	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	15	666	203	0	528	564	41	T	0	237	0	366	0	13	0	8
Right-Turn Bypass		No	ne			No	one		T		No	ne				None	
Conflicting Lanes			1				1		Т		•					1	
Pedestrians Crossing, p/h	Pedestrians Crossing, p/h 0								T		()				0	
Critical and Follow-U	ıt																
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	ypass	Left	Right	Вура	ass	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763	3			4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087	7			2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratio	s												
Approach				EB		\top		WB				NB				SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	ypass	Left	Right	Вура	ass	Left	Right	Bypass
Entry Flow (v _e), pc/h				884				1133				603				21	
Entry Volume veh/h				852				1100				568				20	
Circulating Flow (v₅), pc/h				541				252				694				1329	
Exiting Flow (vex), pc/h				1045				809				56				731	
Capacity (c _{pce}), pc/h				795				1067				680				356	
Capacity (c), veh/h				766				1036				640				345	
v/c Ratio (x)				1.11				1.06				0.89				0.06	
Delay and Level of So	ervice	•															
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	ypass	Left	Right	Вура	ass	Left	Right	Bypass
Lane Control Delay (d), s/veh				89.7				65.4				38.4				11.4	
Lane LOS				F				F				Е				В	
95% Queue, veh				24.0				24.7				10.8				0.2	
Approach Delay, s/veh				89.7				65.4				38.4				11.4	
Approach LOS				F				F				E				В	
Intersection Delay, s/veh LOS	S					67.1								F			

				HCS	7 Ro	und	abo	uts F	Repo	ort							
General Information							Site	e Info	rmat	tior	1						
Analyst	CW						Inte	ersection					sed Suns Rounda		& High/	/Middle S	chool
Agency or Co.	Bolto	n & Men	ık				E/V	V Street	Name			Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street I	Name			High/l	Middle S	chool .	Access		
Analysis Year	2019						Ana	alysis Tin	ne Peri	iod (ł	nrs)	0.25					
Time Analyzed	Afterr	noon Pea	ık				Pea	ık Hour f	actor			0.33					
Project Description	Jorda	n School	Area Stu	udy			Juri	isdiction				Jordar	, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	B			V	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0		0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	5	173	13	0	41	140	8		0	74	0	110	0	0	0	0
Percent Heavy Vehicles, %	3	3	9	3	3	3	9	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	16	572	41	0	128	462	25		0	231	0	343	0	0	0	0
Right-Turn Bypass		No	ne			No	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h											C					0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	ıt												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вура	ass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087				2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratio	S												
Approach				EB				WB				NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вура	ass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				629				615				574				0	
Entry Volume veh/h				579				573				557				0	
Circulating Flow (v _c), pc/h				128				247				588				821	
Exiting Flow (vex), pc/h				915				693				41				169	
Capacity (c _{pce}), pc/h				1211				1073				758				597	
Capacity (c), veh/h				1115				999				735				580	
v/c Ratio (x)				0.52				0.57				0.76				0.00	
Delay and Level of Se	ervice																
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вура	ass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				9.3				11.2				22.3				6.2	
Lane LOS				A				В				С				Α	
95% Queue, veh				3.1				3.8				7.1				0.0	
Approach Delay, s/veh				9.3				11.2				22.3					
Approach LOS				Α		14.2		В				С					
Intersection Delay, s/veh LO														В			

				HCS	7 Ro	und	abo	uts F	≀ер	ort							
General Information							Site	e Info	rma	tior	1						
Analyst	CW						Inte	ersection				Propos	sed Suns Rounda	et Dr & bout	& High/	'Middle S	chool
Agency or Co.	Bolto	n & Men	nk				E/W	V Street	Name	e		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street I	Name	9		High/l	Middle S	chool /	Access		
Analysis Year	2019						Ana	alysis Tin	ne Per	riod (l	hrs)	0.25					
Time Analyzed	PM Pe	eak					Pea	ık Hour l	actor	r		0.33					
Project Description	Jorda	n School	l Area Stu	udy			Juri	isdiction				Jordar	, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	B			V	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	Т	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	3	200	13	0	23	198	3 11		0	38	0	45	0	16	0	6
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	9	624	41	0	72	618	34		0	119	0	140	0	50	0	19
Right-Turn Bypass		No	one			No	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		(0				0				C					0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	ıt												
Approach		\neg		EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)		\neg		4.9763			\neg	4.9763				4.9763		Т		4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratio	s												
Approach		П		EB		Т		WB		П		NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h		\neg		674			\neg	724		\neg		259		Т		69	
Entry Volume veh/h				654				703				251				67	
Circulating Flow (v _c), pc/h				122				128		\neg		683		Т		809	
Exiting Flow (vex), pc/h				814				756				43				113	
Capacity (Cpce), pc/h				1219			П	1211				688		Т		605	
Capacity (c), veh/h				1183				1176				668				587	
v/c Ratio (x)		\Box		0.55				0.60				0.38				0.11	
Delay and Level of Se	ervice																
Approach		\neg		EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				9.5			\neg	10.5		\neg		10.5		Т		7.5	
Lane LOS				А				В				В				Α	
95% Queue, veh				3.5				4.2				1.8				0.4	
Approach Delay, s/veh				9.5				10.5				10.5				7.5	
Approach LOS				Α				В				В				А	
Intersection Delay, s/veh LO	S					10.0								Α			

				HCS	7 Roι	ında	bo	uts R	lepo	rt							
General Information							Site	Info	mati	on	1						
Analyst	CW					\neg	Inte	ersection				Interna	Site Rou	ındab	out		
Agency or Co.	Bolto	n & Mer	nk				E/W	/ Street N	Name								
Date Performed	6/13/	2019					N/S	Street N	lame								
Analysis Year	2020						Ana	alysis Tim	e Perio	d (h	rs)	0.25					
Time Analyzed	AM P	eak					Peal	k Hour F	actor			0.60					
Project Description	Jorda	n Schoo	l Area Stu	ıdy			Juris	sdiction				Jordan,	MN				
Volume Adjustments	and	Site C	haract	teristic	s												
Approach		E	B			W	3		T		NI	3				SB	
Movement	U	L	Т	R	U	L	Т	R	U		L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	T	0	1	0	0	0	1	0
Lane Assignment			נז	TR				LTR				LTR			<u> </u>		LTR
Volume (V), veh/h	0	176	0	0	0	0	0	126	0		0	0	0	0	153	112	265
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	302	0	0	0	0	0	216	0	T	0	0	0	0	263	192	455
Right-Turn Bypass		No	one			Nor	ne				Noi	ne				lone	
Conflicting Lanes			1			1					1					1	
Pedestrians Crossing, p/h			0			0					0					0	
Critical and Follow-U	itical and Follow-Up Headway Adjustment																
Approach				EB				WB		Т		NB		Т		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypas	s	Left	Right	Bypas	5 L	_eft	Right	Bypass
Critical Headway (s)				4.9763				4.9763		T		4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087		1		2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios													
Approach				EB				WB		Т		NB		Т		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypas	s	Left	Right	Bypas	5 L	_eft	Right	Bypass
Entry Flow (v _e), pc/h				302				216		T		0				910	
Entry Volume veh/h				293				210				0				883	
Circulating Flow (v _c), pc/h				455				302				565				0	
Exiting Flow (vex), pc/h				263				455		Т		518		Т		192	
Capacity (c _{pce}), pc/h				868				1014				776				1380	
Capacity (c), veh/h				842				985				753				1340	
v/c Ratio (x)				0.35				0.21				0.00				0.66	
Delay and Level of Se	ervice																
Approach				EB				WB				NB		Т		SB	
Lane	ane Left Right E										Left	Right	Bypas	i L	_eft	Right	Bypass
Lane Control Delay (d), s/veh				8.3				5.7				4.8				11.0	
Lane LOS				А				Α				А				В	
95% Queue, veh				1.6				0.8				0.0				5.3	
Approach Delay, s/veh				8.3				5.7								11.0	
Approach LOS				Α				Α								В	
Intersection Delay, s/veh LOS			s Reserve			9.6								Α			5:00:20 PM

				HCS	7 Rou	ndab	out	ts Re	eport							
General Information						Si	ite l	nforr	matio	า						
Analyst	CW					1	nterse	ection			Interna	Site Rou	ndabo	out		
Agency or Co.	Boltor	n & Mer	nk			E	/W St	reet Na	ame							
Date Performed	6/13/2	2019				١	I/S St	reet Na	ame							
Analysis Year	2020					A	nalys	is Time	Period (hrs)	0.25					
Time Analyzed	Aftern	noon Pea	ak			F	eak H	lour Fa	ctor		1.00					
Project Description	Jorda	n Schoo	l Area Stu	ıdy		J	urisdi	ction			Jordan,	MN				
Volume Adjustments	and S	Site C	haract	teristic	s											
Approach		E	В			WB				N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			Lī	R			LTI	R			LTR					LTR
Volume (V), veh/h	0	159	0	0	0	0	0	35	0	0	109	0	0	35	17	53
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	164	0	0	0	0	0	36	0	0	112	0	0	36	18	55
Right-Turn Bypass		No	one			None				No	ne			N	None	
Conflicting Lanes			1			1				1					1	
Pedestrians Crossing, p/h			0			0				0					0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t											
Approach				EB			٧	VB			NB		T		SB	
Lane			Left	Right	Bypass	Left	Ri	ght	Bypass	Left	Right	Bypass	Le	eft	Right	Bypass
Critical Headway (s)				4.9763			4.9	763			4.9763		П		4.9763	
Follow-Up Headway (s)				2.6087			2.6	087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB			٧	VB			NB				SB	
Lane			Left	Right	Bypass	Left	Ri	ght	Bypass	Left	Right	Bypass	Le	eft	Right	Bypass
Entry Flow (v _e), pc/h				164			3	36			112		П		109	
Entry Volume veh/h				159			3	35			109				106	
Circulating Flow (v₀), pc/h				54			2	76			200				0	
Exiting Flow (vex), pc/h				36			5	55			312		П		18	
Capacity (c _{pce}), pc/h				1306			10	041			1125				1380	
Capacity (c), veh/h				1268			10	011			1093				1340	
v/c Ratio (x)				0.13			0.	.03			0.10				0.08	
Delay and Level of Se	ervice															
Approach				EB			٧	VB			NB		T		SB	
Lane			Left	Right	Bypass	Left	Ri	ght	Bypass	Left	Right	Bypass	Le	eft	Right	Bypass
Lane Control Delay (d), s/veh				3.9			3	3.9			4.2				3.3	
Lane LOS				А				А			А				Α	
95% Queue, veh				0.4			0).1			0.3				0.3	
Approach Delay, s/veh				3.9			3	3.9			4.2				3.3	
Approach LOS				А				A			Α				Α	
Intersection Delay, s/veh LOS	5				3	.8							Α			

				HCS	7 Ro	unda	abo	uts R	lepor	t						
General Information							Site	e Info	matic	n						
Analyst	CW						Inte	ersection			Interna	ıl Site Ro	undab	out		
Agency or Co.	Bolto	n & Mer	nk				E/W	V Street N	Name							
Date Performed	6/13/	2019					N/S	Street N	lame							
Analysis Year	2020						Ana	alysis Tim	e Period	(hrs)	0.25					
Time Analyzed	PM Pe	eak					Pea	ık Hour F	actor		1.00					
Project Description	Jorda	n Schoo	l Area Stu	ıdy			Juri	isdiction			Jordan	, MN				
Volume Adjustments	and S	Site C	haract	teristic	s											
Approach		E	В			W	/B			N	IB				SB	
Movement	U	L	Т	R	U	L	T	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			נז	TR				LTR			LTI	₹				LTR
Volume (V), veh/h	0	68	0	0	0	0	0	23	0	0	37	0	0	23	12	57
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	70	0	0	0	0	0	24	0	0	38	0	0	24	12	59
Right-Turn Bypass		No	one			No	ne			No	ne				lone	
Conflicting Lanes			1				1				1				1	
Pedestrians Crossing, p/h			0			()			()				0	
Critical and Follow-U	Јр Неа	adway	, Adju	stmen	t											
Approach				EB		Т		WB		П	NB		Т		SB	
Lane			Left	Right	Bypass	Le	ft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763		T		4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB		Т		WB		Π	NB		Т		SB	
Lane			Left	Right	Bypass	Le	ft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				70				24			38		Т		95	
Entry Volume veh/h				68				23			37				92	
Circulating Flow (v _c), pc/h				36				108			94				0	
Exiting Flow (vex), pc/h				24				59			132		Т		12	
Capacity (c _{pce}), pc/h				1330				1236			1254				1380	
Capacity (c), veh/h				1291				1200			1217				1340	
v/c Ratio (x)				0.05				0.02			0.03				0.07	
Delay and Level of S	ervice															
Approach				EB				WB			NB		Т		SB	
Lane			Left	Right	Bypass	Le	ft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				3.2				3.2			3.2		\top		3.2	
Lane LOS				А				Α			А				Α	
95% Queue, veh				0.2				0.1			0.1				0.2	
Approach Delay, s/veh				3.2				3.2			3.2				3.2	
Approach LOS				Α				Α			А				Α	
Intersection Delay, s/veh LO						3.2							Α			
Copyright © 2019 University of	Florida /	\II Pight	c Poconyo	od.	Ц	^C7 17M	Rounc	dabouts \	Arsion 7	1			Conor	ratod: 7/	2/2010 5	:09:38 PM

				HCS	7 Roi	unda	abo	uts F	Rep	ort							
General Information							Site	e Info	rma	atior	1						
Analyst	CW						Inte	ersection				Internal	Site Rou	ndabo	out		
Agency or Co.	Bolto	n & Mer	ık				E/V	V Street I	Name	e							
Date Performed	6/13/	2019					N/S	S Street N	lame	9							
Analysis Year	2040						Ana	alysis Tim	ne Per	eriod (l	hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ak Hour F	actor	r		0.60					
Project Description	Jorda	n Schoo	Area Stu	ıdy			Juri	isdiction				Jordan,	MN				
Volume Adjustments	and S	Site C	haract	teristic	s												
Approach		E	В			W	'B				NI	3				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0		0	0	1	0	0	0	1	0
Lane Assignment			LT	R				LTR				LTR					LTR
Volume (V), veh/h	0	186	0	0	0	133	0	126	Т	0	0	0	0	0	189	95	276
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	319	0	0	0	228	0	216		0	0	0	0	0	324	163	474
Right-Turn Bypass		No	ne			No	ne				No	ne			N	lone	
Conflicting Lanes			1			1					1					1	
Pedestrians Crossing, p/h			0			C)		T		0					0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t												
Approach				EB		T		WB				NB		П		SB	
Lane			Left	Right	Bypass	Le	ft	Right	Вур	pass	Left	Right	Bypass	Le	eft	Right	Bypass
Critical Headway (s)				4.9763			\Box	4.9763				4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios													
Approach				EB				WB				NB		П		SB	
Lane			Left	Right	Bypass	Le	ft	Right	Вур	pass	Left	Right	Bypass	Le	eft	Right	Bypass
Entry Flow (v _e), pc/h				319				444				0				961	
Entry Volume veh/h				310		Т	П	431				0				933	
Circulating Flow (v _c), pc/h				715				319				643				228	
Exiting Flow (vex), pc/h				324				474				535				391	
Capacity (c _{pce}), pc/h				666				997				716				1094	
Capacity (c), veh/h				646				968				695				1062	
v/c Ratio (x)				0.48				0.45				0.00				0.88	
Delay and Level of Se	ervice																
Approach				EB				WB				NB				SB	
Lane		Left	Right	Bypass	Le	ft	Right	Вур	pass	Left	Right	Bypass	Le	eft	Right	Bypass	
Lane Control Delay (d), s/veh				13.0				8.9				5.2				26.2	
Lane LOS				В				Α				А				D	
95% Queue, veh				2.6				2.3				0.0				12.3	
Approach Delay, s/veh				13.0				8.9								26.2	
Approach LOS				В				Α								D	
Intersection Delay, s/veh LOS	5					19.3								С			

				HCS	7 Ro	und	abo	uts F	Repor	t						
General Information							Site	e Info	rmatic	n						
Analyst	CW						Inte	ersection			Interna	l Site Ro	oundab	out		
Agency or Co.	Boltor	n & Mer	nk				E/V	V Street N	Name							
Date Performed	6/13/2	2019					N/S	S Street N	lame							
Analysis Year	2040						Ana	alysis Tim	ne Period	(hrs)	0.25					
Time Analyzed	Aftern	oon Pea	ak				Pea	ak Hour F	actor		1.00					
Project Description	Jordai	n Schoo	l Area Stu	ıdy			Juri	isdiction			Jordan,	MN				
Volume Adjustments	and S	Site C	haract	teristic	:s											
Approach		E	В			V	/B			N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			נז	TR .				LTR			LTF	1				LTR
Volume (V), veh/h	0	165	0	0	0	0	0	36	0	0	120	0	0	36	18	63
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	170	0	0	0	0	0	37	0	0	124	0	0	37	19	65
Right-Turn Bypass		No	one			No	ne			No	ne			N	one	
Conflicting Lanes			1				1			,	1				1	
Pedestrians Crossing, p/h			0			(0			()				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t											
Approach				EB		Т		WB		Π	NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB		Т		WB		Π	NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass
Entry Flow (v _e), pc/h				170				37			124				121	
Entry Volume veh/h				165				36			120				117	
Circulating Flow (v _c), pc/h				56				294			207				0	
Exiting Flow (vex), pc/h				37				65			331		Т		19	
Capacity (c _{pce}), pc/h				1303				1022			1117				1380	
Capacity (c), veh/h				1265				993			1085		Т		1340	
v/c Ratio (x)				0.13				0.04			0.11				0.09	
Delay and Level of S	ervice															
Approach				EB				WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				3.9				3.9			4.3				3.4	
Lane LOS				А				Α			А				Α	
95% Queue, veh				0.4				0.1			0.4				0.3	
Approach Delay, s/veh				3.9				3.9			4.3				3.4	
Approach LOS				Α				Α			Α				Α	
Intersection Delay, s/veh LO	S					3.9							Α			
Copyright © 2019 University of	Florida /	II Diaht	Poconyo	od.	Ш	CS7 17M	Round	dabouts \	Jersian 7	1			Gener	rated: 7/	/2019 5	:13:56 PM

& Men 019 ak School	k			HCS7 Roundabouts Report Seneral Information Analyst CW Intersection Internal Site Roundabout													
019 ak	k			\neg													
019 ak	k				Inter	rsection			Internal	Site Rou	ndabo	ut					
ak					E/W	Street N	lame										
					N/S	Street N	lame										
					Anal	lysis Tim	e Period	(hrs)	0.25								
School					Peak	k Hour Fa	actor		1.00								
	Area Stu	ıdy			Juris	diction			Jordan,	MN							
ite Cl	haract	teristic	s														
Е	В			WB	3			N	В				SB				
L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R			
0	1	0	0	0	1	0	0	0	1	0	0	0	1	0			
	LT	R				LTR			LTR					LTR			
71	0	0	0	0	0	24	0	0	39	0	0	24	12	60			
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
73	0	0	0	0	0	25	0	0	40	0	0	25	12	62			
No	ne			Non	ie			No	ne			N	one				
1	1			1				1					1				
()			0				C					0				
dway	/ Adju	stmen	t														
		EB				WB			NB				SB				
	Left	Right	Bypass	Left	t	Right	Bypass	Left	Right	Bypass	Le	ft	Right	Bypass			
\Box		4.9763			4	4.9763			4.9763			4	4.9763				
		2.6087			2	2.6087			2.6087			ä	2.6087				
ity an	ıd v/c	Ratios				·											
		EB				WB			NB				SB				
	Left	Right	Bypass	Left	:	Right	Bypass	Left	Right	Bypass	Le	ft	Right	Bypass			
\Box		73				25			40				99				
		71				24			39				96				
		37				113			98				0				
		25				62			138				12				
		1329				1230			1249				1380				
		1290				1194			1212				1340				
		0.05				0.02			0.03				0.07				
		EB				WB			NB				SB				
	Left	Right	Bypass	Left	:	Right	Bypass	Left	Right	Bypass	Le	ft	Right	Bypass			
		3.2				3.2			3.2				3.3				
		А				Α			А				Α				
		0.2				0.1			0.1				0.2				
		3.2				3.2			3.2				3.3				
		Α				Α			Α				Α				
				3.2							A						
	3 73 No O dway	71 0 3 3 73 0 None 1 0 dway Adju Left ity and v/c Left Left	71 0 0 0 3 3 3 3 3 73 0 0 0 None 1 0 0 dway Adjustmen EB Left Right 4.9763 2.6087 ity and v/c Ratios EB Left Right 73 71 37 71 37 25 1329 1290 0.05 EB Left Right 3.2 A 0.2 3.2 A	71 0 0 0 0 0	71 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	71 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 3 3 3	71 0 0 0 0 0 0 0 0 24 3 3 3 3 3 3 3 3 3 3 3 73 0 0 0 0 0 0 0 0 25 None	71 0 0 0 0 0 0 0 0 24 0 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	71 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	71	71 0 0 0 0 0 0 0 0 24 0 0 0 39 0 0 7 39 0 0 7 39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	The color of the	The color of the	The color of the			

				HCS	7 Rc	und	abo	uts F	Rep	oort							
General Information							Site	e Info	rma	atior	1						
Analyst	CW						Inte	ersection	1				sed Suns Rounda		& High/l	Middle S	chool
Agency or Co.	Bolto	n & Mer	ık				E/V	V Street	Nam	ne		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	S Street I	Vame	ie		High/I	Middle S	chool <i>i</i>	Access		
Analysis Year	2020						Ana	alysis Tin	ne Pe	eriod (ł	hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ak Hour I	acto	or		0.40					
Project Description	Jorda	n Schoo	Area Stu	udy			Juri	isdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	:B			V	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	T	0	0	1	0	0	0	1	0
Lane Assignment		•	Lī	ΓR				LTR				LT	R		•		LTR
Volume (V), veh/h	0	6	120	202	0	358	46	16		0	85	0	234	0	5	0	3
Percent Heavy Vehicles, %	3	3	4	6	3	3	3	3		3	12	3	18	3	3	3	3
Flow Rate (VPCE), pc/h	0	15	312	533	0	922	118	3 41		0	237	0	687	0	13	0	8
Right-Turn Bypass		No	one			N	one				No	ne			Ν	lone	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h	0										()				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763	;			4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087	·			2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratio	S												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				860				1081				924				21	
Entry Volume veh/h				819				1050				797				20	
Circulating Flow (v _c), pc/h				935				252				340				1277	
Exiting Flow (vex), pc/h				1012				363				56				1455	
Capacity (c _{pce}), pc/h				532				1067				976				375	
Capacity (c), veh/h				507				1036				842				364	
v/c Ratio (x)				1.62				1.01				0.95	<u> </u>	\perp		0.06	
Delay and Level of Se	ervice	•															
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				307.4				51.3				41.4				10.7	
Lane LOS				F				F				E				В	
95% Queue, veh				45.8				20.7				14.7				0.2	
Approach Delay, s/veh				307.4				51.3				41.4				10.7	
Approach LOS				F				F				E				В	
Intersection Delay, s/veh LO	S					126.2								F			

				HCS	7 Rc	und	abo	uts F	Rep	port							
General Information							Site	e Info	rma	atior	1						
Analyst	CW						Inte	ersection					sed Suns Rounda		& High/	Middle S	chool
Agency or Co.	Bolto	n & Mer	nk				E/V	V Street	Nam	ne		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street I	Nam	ne		High/l	Middle S	chool	Access		
Analysis Year	2020						Ana	alysis Tin	ne Pe	eriod (l	hrs)	0.25					
Time Analyzed	Afterr	noon Pea	ak				Pea	ık Hour f	acto	or		0.33					
Project Description	Jorda	n Schoo	l Area St	udy			Juri	sdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	B			٧	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	T	0	0	1	0	0	0	1	0
Lane Assignment			Ľ	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	5	61	40	0	77	104	8	T	0	60	0	261	0	0	0	0
Percent Heavy Vehicles, %	3	3	9	3	3	8	9	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	16	202	125	0	252	343	25	T	0	187	0	815	0	0	0	0
Right-Turn Bypass		No	one			N	one				No	ne				None	
Conflicting Lanes			1				1		Ť		1					1	
Pedestrians Crossing, p/h			0				0				C)				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	ıt												
Approach		T		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763	3	Т		4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087	7			2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratio	s												
Approach		T		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				343				620		\neg		1002		T		0	
Entry Volume veh/h				322				572				973				0	
Circulating Flow (v _c), pc/h				252				203				218		Т		782	
Exiting Flow (vex), pc/h				1017				530				41				377	
Capacity (Cpce), pc/h				1067				1122				1105		\top		622	
Capacity (c), veh/h		ĺ		1001				1036				1073	Ì			603	
v/c Ratio (x)				0.32				0.55				0.91				0.00	
Delay and Level of Se	ervice																
Approach				EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				6.9				10.4				29.5				6.0	
Lane LOS				А				В				D				Α	
95% Queue, veh				1.4				3.5				13.9				0.0	
Approach Delay, s/veh				6.9				10.4				29.5					
Approach LOS				Α				В				D					
Intersection Delay, s/veh LO														С			

				HCS	7 Rc	und	abo	outs F	Repo	ort							
General Information							Site	e Info	rmat	ior	1						
Analyst	CW						Inte	ersection	ı				sed Sun s Round		& High/	Middle S	chool
Agency or Co.	Bolto	n & Mer	ık				E/V	V Street	Name			Sunse	t Dr				
Date Performed	6/13/	2019					N/S	S Street I	Name			High/	Middle S	School	Access		
Analysis Year	2019						Ana	alysis Tin	ne Perio	od (ł	hrs)	0.25					
Time Analyzed	PM Pe	eak					Pea	ak Hour I	actor			0.33					
Project Description	Jorda	n Schoo	Area Stu	udy			Juri	isdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	:B			V	VB				N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	ı	J	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	()	0	1	0	0	0	1	0
Lane Assignment		•	Lī	ΓR				LTR				LT	R		•		LTR
Volume (V), veh/h	0	3	149	38	0	58	154	1 11	()	36	0	98	0	16	0	6
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	9	465	119	0	181	481	1 34	()	112	0	306	0	50	0	19
Right-Turn Bypass		No	one			N	one				No	ne			ı	None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h			0				0				()				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	it												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Вура	ss	Left	Right	Вура	ass	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763	3			4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087	7			2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratio	S												
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Вура	ss	Left	Right	Вура	ass	Left	Right	Bypass
Entry Flow (v _e), pc/h				593				696				418				69	
Entry Volume veh/h				576				676				406				67	
Circulating Flow (v₅), pc/h				231				121				524				774	
Exiting Flow (vex), pc/h				821				612				43				300	
Capacity (c _{pce}), pc/h				1090				1220				809				627	
Capacity (c), veh/h				1059				1184				785				608	
v/c Ratio (x)				0.54		\perp		0.57				0.52				0.11	
Delay and Level of So	ervice	,															
Approach				EB				WB				NB				SB	
Lane			Left	Right	Вура	ss L	eft	Right	Вура	ss	Left	Right	Вура	ass	Left	Right	Bypass
Lane Control Delay (d), s/veh				10.1				9.9				12.0				7.2	
Lane LOS				В				Α				В				Α	
95% Queue, veh				3.4				3.8				3.0		\perp		0.4	
Approach Delay, s/veh				10.1				9.9				12.0		\perp		7.2	
Approach LOS				В				Α				В				Α	
Intersection Delay, s/veh LO	S					10.3								В			

				HCS	7 Rc	und	abo	uts F	Re	port							
General Information							Site	e Info	rm	natior	า						
Analyst	CW						Inte	ersection	1				sed Sun s Rounda			/Middle S	chool
Agency or Co.	Bolto	n & Mer	nk				E/W	V Street	Nar	me		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street	Nan	ne		High/	Middle S	chool	l Access		
Analysis Year	2020						Ana	alysis Tir	ne F	Period (l	hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ık Hour	Fact	or		0.40					
Project Description	Jorda	n Schoo	l Area Stu	udy			Juri	isdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristic	:s												
Approach		E	:B			٧	VB		П		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	T	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	T	0	0	1	0	0	0	1	0
Lane Assignment		•	Lī	ΓR				LTR				LT	R		· ·		LTR
Volume (V), veh/h	0	6	147	202	0	358	55	16		0	85	0	234	0	5	0	3
Percent Heavy Vehicles, %	3	3	4	6	3	3	3	3		3	12	3	18	3	3	3	3
Flow Rate (VPCE), pc/h	0	15	382	533	0	922	142	41		0	238	0	690	0	13	0	8
Right-Turn Bypass		No	one			N	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h			0				0				()				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	ıt												
Approach		$\neg \neg$		EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	В	ypass	Left	Right	Вура	iss	Left	Right	Bypass
Critical Headway (s)				4.9763			\exists	4.9763	Т			4.9763	3	\top		4.9763	
Follow-Up Headway (s)				2.6087				2.6087	T			2.6087	7			2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratio	s												
Approach		T		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	В	ypass	Left	Right	Вура	iss	Left	Right	Bypass
Entry Flow (v _e), pc/h				930				1105	Т			928		\top		21	
Entry Volume veh/h				887				1073				797				20	
Circulating Flow (v _c), pc/h				935				253				410		Т		1302	
Exiting Flow (vex), pc/h				1085				388				56				1455	
Capacity (c _{pce}), pc/h				532				1066	Γ			908		\top		366	
Capacity (c), veh/h		ĺ		507				1035				780				355	
v/c Ratio (x)				1.75				1.04	Γ			1.02				0.06	
Delay and Level of Se	ervice																
Approach				EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	В	ypass	Left	Right	Вура	iss	Left	Right	Bypass
Lane Control Delay (d), s/veh				365.0				57.8				60.8				11.0	
Lane LOS				F				F				F				В	
95% Queue, veh				53.7				22.6				18.4				0.2	
Approach Delay, s/veh				365.0				57.8				60.8				11.0	
Approach LOS				F				F				F				В	
Intersection Delay, s/veh LOS	S					156.4								F			

				HCS	7 Rc	und	abo	outs	Re	port							
General Information							Site	e Info	rn	natio	า						
Analyst	CW						Inte	ersectio	า				sed Sun s Rounda			n/Middle	School
Agency or Co.	Bolto	n & Mer	nk				E/V	V Street	Na	me		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	S Street	Nar	me		High/	Middle S	choo	l Access	;	
Analysis Year	2020						Ana	alysis Tir	ne	Period (hrs)	0.25					
Time Analyzed	Afterr	noon Pea	ak				Pea	ak Hour	Fac	tor		0.33					
Project Description	Jorda	n Schoo	l Area Stu	udy			Juri	isdictior	1			Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristi	:s												
Approach		E	B			V	VB				N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	T	R	U	L	. Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0		0	0	1	0	0	C	1	0
Lane Assignment		•	Lī	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	5	70	40	0	77	123	8 8		0	60	0	261	0	С	C	0
Percent Heavy Vehicles, %	3	3	9	3	3	8	9	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	16	232	125	0	252	406	5 25	;	0	187	0	815	0	С	C	0
Right-Turn Bypass		No	one			N	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h			0				0				C)				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	ıt												
Approach		$\neg \neg$		EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	E	Bypass	Left	Right	Вура	iss	Left	Right	Bypass
Critical Headway (s)				4.9763			\neg	4.9763	T			4.9763	3	\neg		4.9763	3
Follow-Up Headway (s)				2.6087				2.6087				2.6087	7			2.6087	,
Flow Computations,	Capa	city ar	nd v/c	Ratio	s												
Approach		П		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	E	Bypass	Left	Right	Вура	iss	Left	Right	Bypass
Entry Flow (v _e), pc/h				373			\neg	683	T			1002		T		0	
Entry Volume veh/h		ĺ		349				630				973				0	
Circulating Flow (v _c), pc/h				252				203				248				845	
Exiting Flow (vex), pc/h				1047				593				41				377	
Capacity (c _{pce}), pc/h				1067			П	1122				1072		\neg		583	
Capacity (c), veh/h				1000				1035				1040				566	
v/c Ratio (x)				0.35			\neg	0.61				0.94		\Box		0.00	
Delay and Level of Se	ervice	•															
Approach				EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss L	eft	Right	E	Bypass	Left	Right	Вура	iss	Left	Right	Bypass
Lane Control Delay (d), s/veh				7.3				11.8	T			34.4				6.4	
Lane LOS				А				В				D				А	
95% Queue, veh				1.6				4.3				15.3				0.0	
Approach Delay, s/veh				7.3				11.8				34.4					
Approach LOS				Α				В				D					
Intersection Delay, s/veh LO	S					22.2								С			

				HCS	7 Ro	und	abo	uts F	Rep	oort							
General Information							Site	Info	rma	atior	1						
Analyst	CW						Inte	ersection					sed Suns Rounda		ያ High/	Middle S	chool
Agency or Co.	Bolto	n & Men	k				E/W	V Street	Nam	ne		Sunse	t Dr				
Date Performed	6/13/	2019					N/S	Street I	Nam	ie		High/I	Middle S	chool A	Access		
Analysis Year	2040						Ana	alysis Tin	ne Pe	eriod (ł	nrs)	0.25					
Time Analyzed	PM Pe	eak					Pea	k Hour l	acto	or		0.33					
Project Description	Jorda	n School	Area Stu	udy			Juri	sdiction				Jordar	n, MN				
Volume Adjustments	and	Site C	harac	teristic	S												
Approach		E	В			V	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	Ť	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	Т	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR				LT	R				LTR
Volume (V), veh/h	0	3	167	38	0	58	184	. 11	T	0	36	0	98	0	16	0	6
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	9	521	119	0	181	574	34	T	0	112	0	306	0	50	0	19
Right-Turn Bypass		No	ne			No	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		()				0				O	ı				0	
Critical and Follow-U	Јр Неа	adway	, Adju	stmen	t												
Approach		T		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)		\neg		4.9763			7	4.9763				4.9763		T		4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087		†		2.6087	
Flow Computations,	Capac	ity ar	ıd v/c	Ratio	5												
Approach	-			EB		\top		WB		П		NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				649			\neg	789				418		+		69	
Entry Volume veh/h				630				766				406		$^{+}$		67	
Circulating Flow (v _c), pc/h				231				121				580		Т		867	
Exiting Flow (vex), pc/h				877				705				43				300	
Capacity (c _{pce}), pc/h				1090			Т	1220				764		Т		570	
Capacity (c), veh/h				1059				1184				742				553	
v/c Ratio (x)		\Box		0.60				0.65				0.55				0.12	
Delay and Level of Se	ervice																
Approach		$\neg \neg$		EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Ву	/pass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				11.2				11.7				13.3				8.0	
Lane LOS				В				В				В				Α	
95% Queue, veh				4.1				5.0				3.4				0.4	
Approach Delay, s/veh		_ 1		11.2				11.7				13.3				8.0	
Approach LOS				В				В				В				Α	
Intersection Delay, s/veh LO	S					11.7								В			

														M	lovement D	elay (sec/ve	eh)									
Intersection	Peak Hour	Intersection	on Delay (1.)	N	BL	N	ВТ	N	IBR	s	BL	S	ВТ	S	BR	El	3L	E	ВТ	EI	BR	w	BL	W	/BT	WBR
Hillside Dr and High School Access	AM	1	A	4	A	-	-	3	A		-		-		-			1	A	0	A	2	A	1	A	-
Thirside Di and High School Access	Afternoon	1	A	4	A		-	3	A		-		-		-		-	1	A	1	A	2	A	0	A	-
Stop Controlled	PM	1	A	3	A	-	-	3	A		-		-		-	-	-	1	A	1	A	2	A	0	A	-
Sunset Dr and Hillside Dr	AM	3	A		-	-	-		-	12	В		-	4	A	3	A	2	A		-		-	1	A	0 A
	Afternoon	2	A		-	-	-		-	8	A		-	3	A	2	A	1	A		-	-	•	0	A	0 A
Two-Way Stop Controlled	PM	3	A		-	-	-		-	8	A		-	3	A	2	A	1	A		-	-	-	0	A	0 A
Sunset Dr and Middle/High School Access	AM	11	В	69	F	0	A	9	A	22	C		-	3	A	2	A	1	A	1	A	8	A	1	A	0 A
	Afternoon	3	A	5	A	0	A	4	A		-		-		-	3	A	1	A	0	A	3	A	0	A	0 A
Two-Way Stop Controlled	PM	2	A	7	A	0	A	4	A	7	A		-	3	A	3	A	1	A	0	A	3	A	0	A	0 A
Sunset Dr and Timber Ridge Ct	AM	1	A		-	-	-		-	8	A		-	4	A	-	-	1	A		-	-	-	1	A	0 A
_	Afternoon	1	A		-	-	-		-	6	A		-		-	-	-	0	A		-	-	-	1	A	1 A
Stop Controlled	PM	1	A		-	-	-		-	8	A		-	2	A	-	•	0	A		-	-	•	1	A	0 A
Sunset Dr and Aberdeen Ave	AM	4	A		-	-	-	4	A		-		-		-	-	-	5	A		-	4	A	4	A	-
Sunset Di and Aberdeen Ave	Afternoon	3	A		-	-	-	3	A		-		-		-	-	-		-	3	A	4	A	4	A	-
Stop Controlled	PM	4	A		-	-	-	3	A		-		-		-	-	-	6	A		-	4	A	4	A	-
Aberdeen Ave and West Elementary School Access	AM	1	A		-	1	A	0	A	3	A	1	A		-		-		-		-	5	A		-	3 A
Aberdeen Ave and West Elementary School Access	Afternoon	1	A		-	0	A	0	A	2	A	1	A		-	-	-		-		-	-	-		-	2 A
Stop Controlled	PM	1	A		-	0	A		-		-	1	A		-	-	-		-		-	-	-		-	-
Aberdeen Ave and Ridge St	AM	2	A		-	2	A	2	A	3	A	1	A		-	-	-		-		-	-	-		-	4 A
Aberdeen Ave and Ridge St	Afternoon	1	A		-	2	A	1	A	3	A	1	A		-	-	-		-		-	-	-		-	2 A
Stop Controlled	PM	2	A		-	2	A	1	A	3	A	1	A		-	-	-		-		-	4	A		-	3 A
CR 66 and Aberdeen Ave	AM	6	A	7	A	8	A	5	A	6	A	7	A	4	A	4	A	10	В	2	A	4	A	10	В	3 A
CK 00 and Aberdeen Ave	Afternoon	6	A	6	A	6	A	3	A	6	A	7	A	4	A	3	A	9	A	2	A	5	A	9	A	3 A
Stop Controlled	PM	6	A	6	A	7	A	4	A	6	A	7	A	4	A	4	A	10	В	3	A	5	A	10	В	3 A
CR 66 and Prospect Pointe Rd	AM	1	A	4	A		-	2	A		-		-		-			0	A	0	A	1	A	0	A	-
CK 00 and Frospect Forme Kd	Afternoon	1	A	5	A		-	2	A		-		-		-		-	0	A	0	A	1	A	0	A	-
Stop Controlled	PM	1	A	5	Α		_	2	A		-		-		-			0	A	0	A	1	A	1	A	_

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

T A D				
Table 2: Peak Hour (Jueues By	viovement -	Scenario	Geometr

																				Queue	Lengths																		
Intersection	Peak Hour	E	BL/T	El	BL/T/R	El	BT/R	EB	R	WBL		WE	BL/R	W	BL/T	W	BL/T/R	W	BT/R	N	IBL	NE	L/R	N	BL/T	NBL	./T/R	NB	BR	SE	3L	SB	L/R	SB	L/T	SBL/	T/R	SF	BR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max /	lvg I	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	N
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-		-	-	-			
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	<u> </u>	-	-	-		-	
Sunset Dr and Hillside Dr	AM	50	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-		-	-	-		75	
	Afternoon	25	75	-	-	-	-	-	-		-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-		-	-	-	-	50	H
Two-Way Stop Controlled	PM	25	100	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	<u> </u>	-	-	-		50	_
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	50	,,,	225		-	-	-	-	-	25	50	-	-	-	-	75	200	-	-	75	225	-	-	-	<u> </u>	-	-	25	50		_
m m o o	Afternoon	25	25	-	-	-	-	-			50		-	-	-		-	-	-	25	75	-	-	-	-	-	-	50	125	-	-	-	<u> </u>	-	-	-	-		_
Two-Way Stop Controlled	PM	25	25	-	-	-	-	0	25		50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	 _	-	-	25	50		_
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-		-		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25 25	50	-	-	-		-	_
0. 0 . 11.1	Afternoon	-	-	-	-	-	-		-	_	-	-	-	-	-	-		-	-	-		-	-	-	-	-	-	-	-	-	-	25	50 50	-	-	-			_
Stop Controlled	PM	-	-	-	-	- 25	- 25	-	-		-		-	50	7.5	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-		50	-	-	-		-	_
Sunset Dr and Aberdeen Ave	AM Afternoon	-	-	+ -	-	25	25		-	-	-		-	50	100	+ -	+ -	-	<u> </u>	-	-	50	100 75	-	<u> </u>	-	-		-	-		-			-	-			r
Stop Controlled	PM	-	-	+ -	-	25	50	-	-	-	-		-	50	100	+ -	_	-	-	-	-	50	75	-	-		-	-	-	-	-	-			-			-	г
Stop Controlled	AM	-	-	+	-	23	50	-			-	2.5	50	30	100	+ :			-			50	13		-	-	_	-	-			-		25	25	<u> </u>			_
perdeen Ave and West Elementary School Access	Afternoon		 	+ -	-	-	-		-	_	-	25	50		-	+ :	+ :	+ -	+ -	-		- : -	-	+ -	-	-	-	H : 1	-	- :	-	-			- 23				_
Stop Controlled	PM		+	+	-		+				-				+	+	+	+	 			 			 														_
	AM			+ -							-					25	75	+ -										-	-	-	-			-		25	75		٢
Aberdeen Ave and Ridge St	Afternoon		<u> </u>	+ -	-	-		-			-		-		· .	25	50	<u> </u>	<u> </u>		-			-	-				-			-	$\overline{}$	-		2.5	50		r
Stop Controlled	PM	-	-	-	-		-	-	-		-	-	-	-	-	25	50	-	-	-	-	-		-	-	-		-		-	-	-		-	-	2.5	50	-	Т
	AM	-	-	50	75	-	-	-	-		-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	$\overline{}$	-	-	50	100		ō
CR 66 and Aberdeen Ave	Afternoon	-	-	50	50	-	-		-	-	-	-	-	-	-	50	75	T -	T -	-	-	-	-	-	-	50	75	-	-		-	-		-	-	50	100		ī
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-		-	-	50	100		ī
•	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	50	- 1	-		-	-			-	-	-	-	ſ
CR 66 and Prospect Pointe Rd	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-		-	-	-	-	-	-	-	-	ī
Ston Controlled	PM				_									25	50											25	50												-

												N	/lovement D	elay (sec/v	eh)										
Intersection	Peak Hour	Intersection	on Delay (1.)	NBL	-	NBT	N	BR	S	BL	SBT	9	SBR	E	BL	E	ВТ	E	BR	WBL	L	W	/ВТ	W	3R
Hillside Dr and High School Access	AM	1	A	5	A	-	3	A		-	=		-		-	1	A	1	A	3	A	1	A		-
Timside Di and Tiigii School Access	Afternoon	1	A	5	A	-	3	A		-	-		-		-	0	A	1	A	3	A	0	A		_
Stop Controlled	PM	1	A	3	A	-	3	A		-	-		-		-	1	A	1	A	2	A	0	A		
Sunset Dr and Hillside Dr	AM	4	A	-		-		-	21	C	=	6	A	4	A	2	A		-	-		1	A	1	A
	Afternoon	3	A	-		-		-	11	В	-	3	A	2	A	1	A		-	-		0	A	0	A
Two-Way Stop Controlled	PM	3	A	-		-		-	11	В	-	4	A	2	A	1	A		-	-		0	A	0	A
Sunset Dr and Middle/High School Access	AM	25	D	203	F	2 A	19	C	57	F	-	13	В	2	A	1	A	1	A	15	С	1	A	0	A
	Afternoon	4	A	10	В	1 A	6	A		-	-		-	2	A	1	A	0	A	3	A	0	A	0	A
Two-Way Stop Controlled	PM	2	A	10	В	0 A	4	A	10	В	-	4	A	4	A	1	A	0	A	4	A	1	A	0	A
Sunset Dr and Timber Ridge Ct	AM	1	A	-		-		-	8	A	-	4	A		-	1	A		-	-		1	A	1	A
	Afternoon	1	A	-		-		-	7	A	-		-		-	0	A		-	-		1	A	0	A
Stop Controlled	PM	1	A	-		-		-	7	A	-	3	A		-	1	A		-	-		1	A	0	A
Sunset Dr and Aberdeen Ave	AM	5	A	-		-	5	A		-	-		-		-	7	A	3	A	5	A	4	A		
	Afternoon	4	A	-		-	3	A		-	-		-		-	6	A	3	A	4	A	4	A		_
Stop Controlled	PM	4	A	-		-	4	A		-	-		-		-	6	A	3	A	4	A	5	A		-
Aberdeen Ave and West Elementary School Access	AM	1	A	-		0 A		-		-	1 A		-		-				-	-			-		_
	Afternoon	1	A	-		0 A		-		-	1 A		-		-	-			-	-			-		-
Stop Controlled	PM	1	A	-		0 A		-		-	1 A				-	-			-	-			-		
Aberdeen Ave and Ridge St	AM	2	A	4	A	2 A	2	A	3	A	1 A	0	A	7	A			4	A	-			-	4	A
_	Afternoon	1	A	4	A	2 A	1	A	3	A	1 A	0	A	8	A			3	A				-	3	A
Stop Controlled	PM	2	A	4	A	2 A	2	A	3	A	1 A	1	A	9	A			3	A	7	A		-	3	A
CR 66 and Aberdeen Ave	AM	9	A	6	A	10 B	7	A	8	A	9 A	6	A	7	A	12	В	6	A	6	A	11	В	5	A
	Afternoon	7	A	4	A	7 A	4	A	6	A	7 A	4	A	4	A	10	В	2	A	6	A	12	В	5	A
Stop Controlled	PM	8	A	8	A	8 A	5	A	7	A	8 A	5	A	6	A	11	В	4	A	8	A	13	В	7	A
CR 66 and Prospect Pointe Rd	AM	2	A	6	A	-	3	A	6	A	-	3	A	1	A	0	A	0	A	1	A	1	A	0	A
CR 00 and 1 rospect 1 office Ru	Afternoon	1	A	6	A	-	2	A	5	A	-	2	A	1	A	0	A	0	A	1	A	1	A	0	Α
Stop Controlled	PM	2	A	5	A	-	3	A	6	A	-	3	A	1	A	0	A	0	A	1	A	1	A	0	A

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

Table 2: Peak Hour Queues By Movement - Scenario Geometry

·																	Queue	Lengths															
Intersection	Peak Hour	E	BL/T	EB	L/T/R	EB	T/R	Е	BR	W	'BL	WE	BL/T	WBI	/T/R	WB	T/R	NB	L/R	NB	BL/T	NBL,	/T/R	NB	R	S	BL	SB	L/R	SBL	/T/R	SE	JR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	25	-			-	50	75	-	-	-	-	-	-	-	-	-	-	-	-		-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sunset Dr and Hillside Dr	AM	75	150	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	50	150	-	-	-	-	75	200
	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	50	75	-	-	-	-	50	100
Two-Way Stop Controlled	PM	25	100	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	50	100	-	-	-	-	75	125
Sunset Dr and Middle/High School Access	AM	25	50	-	-	-	-	25	75	100	350	-	-	-	-	25	275	-	-	175	375	-	-	175	400	-	-	-	-	25	50	<u> </u>	
· ·	Afternoon	0	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	50	100	-	-	50	150	-	-	-	-	-	-	-	
Two-Way Stop Controlled	PM	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	75	-	-	50	75	-	-	-	-	25	75	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	75	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-		-	-	-	-	-		-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	- 25	- 50	-	-	-	-	-	-	-	-	- 25	-	-	-	-	-	-	-	- 25	- 25	-	-	-	-	-	-	- 25	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25 50	-		-	-	-	-	25	50	-	-
C C . II I	Afternoon	-	-	25 25	50	-	-	-	-	-	-	-	-	25 25	50	-	-	-	-	-	-	25 25	50	-		-	-	-	-	25 25	25 50	-	
Stop Controlled	PM	-	-	-	50	-	-	-	-	-	-	-	-			-	-	-	-	-	-		50	-	-	-	-	-	-	20		-	-
CR 66 and Aberdeen Ave	AM Afternoon	-	-	50 50	100 75	 	-	-	-	-	-	-	-	50	75 100	-	-	-	-	-	-	75 50	150 75	-		-	-	-	-	75 50	125 100	-	
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	75	125		-	-	-	-	-	50	125	-	-	-	-	-	-	75	100	-	-
· ·	AM	-	 -	30	100	-	-	-	-	25	50	-	-	-	123	_	-	-	-	-	-	25	75	-		<u> </u>	-	-	-	50	75	-	\vdash
CR 66 and Prospect Pointe Rd	Afternoon	25	25	-	+ -	+ -	-	1 -	-	25	50	_	_	_	-	-	-	1 -	-	-	1 -	25	50	-		<u> </u>	<u> </u>	-	-	25	50	-	-
Stop Controlled	PM	25	25	 	+ -	 	 	-	 	25	50		-	-	-	_	-	-	 	 	-	25	75	-		 	 	 	 	50	75	-	
Stop Controlled	1 141	43	43							43	50	_							_	_		23	13	-						50	13		

									Movement D	elay (sec/veh)					
Intersection	Peak Hour	Intersection De	elay (1.)	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Hillside Dr and High School Access	AM	1	A	5 A	-	4 A	-	-	-	-	1 A	1 A	2 A	1 A	-
	Afternoon	1	A	4 A	-	3 A	-	-	-	-	1 A	1 A	2 A	0 A	-
Stop Controlled	PM	1	A	3 A	-	3 A	-	-	-	-	1 A	1 A	2 A	0 A	-
Sunset Dr and Hillside Dr	AM	6	A	-	-	-	5 A	-	5 A	6 A	5 A	-	-	6 A	4 A
All Way Stop Controlled	Afternoon PM	4	A	-	-	-	4 A A	-	3 A 3 A	5 A	3 A	-	-	4 A	3 A
	AM	12	B	8 A	0 A	- A		-		9 A	10 B	- A	22 C	7 A	3 A
Sunset Dr and Middle/High School Access	Afternoon	12 4	Δ	8 A A	0 A	0 A Δ Δ	6 A	-	3 A	8 A A	10 B	8 A 3 A	5 A	/ A	4 A 3 Δ
All Way Stop Controlled	PM	5	A	4 A	0 A	3 A	5 A	-	4 A	6 A	7 A	3 A	5 A	6 A	4 A
	AM	1	A	-	-	-	7 A	-	2 A	-	1 A	-	-	2 A	-
Sunset Dr and Timber Ridge Ct	Afternoon	1	A	-	-	-	5 A	-	-	-	0 A	-	-	2 A	2 A
Stop Controlled	PM	1	A	-	-	-	8 A	-	2 A	-	0 A	-	-	1 A	0 A
G (D 141 1 4	AM	4	A	-	-	4 A	-	-	-	-	8 A	-	4 A	4 A	-
Sunset Dr and Aberdeen Ave	Afternoon	3	A	-	-	3 A	-	-	-	-	-	3 A	4 A	4 A	-
Stop Controlled	PM	4	A	-	-	3 A	-	-	-	-	6 A	-	4 A	4 A	-
berdeen Ave and West Elementary School Access	AM	1	A	-	1 A	1 A	3 A	1 A	-	-	-	-	4 A	-	3 A
tocracen Ave and West Elementary School Access	Afternoon	1	A	-	0 A	0 A	2 A	1 A	-	-	-	-	-	-	2 A
Stop Controlled	PM	1	A	-	0 A	-	-	1 A	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	2	A	-	2 A	1 A	3 A	1 A	-	-	-	-	4 A	-	3 A
	Afternoon	1	A	-	2 A	1 A	3 A	1 A	-	-	-	-	-	-	2 A
Stop Controlled	PM	2	A	-	2 A	1 A	3 A	1 A	-	-	-	-	4 A	-	3 A
CR 66 and Aberdeen Ave	AM	6	A	7 A	8 A	5 A	6 A	7 A	4 A	4 A	10 B	2 A	4 A	10 B	3 A
	Afternoon	6	A	6 A	6 A	3 A	5 A	7 A	4 A	3 A	9 A	2 A	5 A	10 B	4 A
Stop Controlled	PM	6	A	6 A	/ A	4 A	6 A	/ A	4 A	4 A	10 B	3 A	5 A	10 B	5 A
CR 66 and Prospect Pointe Rd	AM	1	A	5 A	-	2 A	-	-	-	-	0 A	0 A	I A	0 A	-
Stop Controlled	Afternoon PM	1	A	5 A	-	2 A	-	-	-	-	0 A	0 A 0 A	1 A 1 A	1 A	-

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

																			Queue	Lengths																		
Intersection	Peak Hour	EBL/T	E	BL/T/R		EBT/R		EBR	W	BL	WE	L/R	WB	_/T	WBL	/T/R	WBT	/R	N	IBL	NE	BL/R	N	BL/T	NB	L/T/R	N	NBR	S	BL	SB	L/R	SI	BL/T	SBL	/T/R	Sr	3R
		Avg Ma	x Avg	Max	c Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Afternoon		-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stop Controlled	PM			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sunset Dr and Hillside Dr	AM	75 12:		-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	25	100	-	-	-	-	-	-	75	150
	Afternoon	50 10		-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-		-	50	75	-	-	-	-	-	-	50	75
All Way Stop Controlled	PM	50 10		-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	75 12:		-	-	-	75	150	125	300	-	-	-	-	-	-	50	250	-		-	-	50	100	-	-	50	125	-	-	-	-	-	-	25	50	-	
<u> </u>	Afternoon	50 75		-	-	-	50	75	25	50	-	-	-	-	-	-	50	75	25	50	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	
All Way Stop Controlled	PM	50 10) -	-	-	-	25	50	25	75	-	-	-	-	-	-	50	75	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	25	50	-	
Sunset Dr and Timber Ridge Ct	AM				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	
	Afternoon		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	
Sunset Dr and Aberdeen Ave	AM Afternoon		-	-	25	25	-	-	-	-	-	-	50	75 75	-	-	-	-	-	-	75 50	100 75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stop Controlled	PM		-		25		-		-	-	-	-	50	100		-	-	-			50	75	-	-	-	-			-	-	-	-	-	-		-	-	-
	AM			_	23	- 50		-	-	-	25	50	50	-		-				-	50	- 13		+ -	+ -	-	<u> </u>	-		 	-	-	25	50	-			<u> </u>
Aberdeen Ave and West Elementary School Access	Afternoon		- 	+ :		+ :					25	50					-	-						 	 	 			 	 	- : -	-	0	25	-	-	<u> </u>	-
Stop Controlled	PM		_	_	_	_	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11 1 1 1P11 C	AM		-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Aberdeen Ave and Ridge St	Afternoon		-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	T -	-
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM		50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Aberdeen Ave	Afternoon		50	50	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM		50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	
CR 66 and Prospect Pointe Rd	AM		-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
CK 00 and Frospect Forme Kd	Afternoon		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM		-	-	-	-	-	-		-	-	-	2.5	50	-	-	-		-	-	-	-	-	-	2.5	50	-	-	-	-	-	-	-	-	-		-	-

						_	•							M	ovement D	elay (sec/ve	h)					_		
Intersection	Peak Hour	Intersecti	on Delay (1.)	N	BL	NBT		NBR	2	s	BL	s	ВТ	s	BR	EB	L	EBT		EB	SR .	WBL	WBT	WBR
Hillside Dr and High School Access	AM	1	A	5	A	-		3	A		-		-		-	-		1	A	1	A	2 A	0 A	-
Thirside Di and Trigii School Access	Afternoon	2	A	5	A	-		3	A		-		-		-	-		1	A	1	A	2 A	0 A	-
Stop Controlled	PM	1	A	4	A	-		3	A		-		-		-	-		1	A	1	A	2 A	0 A	-
Sunset Dr and Hillside Dr	AM	8	A		-	-		-		7	A		-	10	В	6	A	5	A	-		-	6 A	4 A
	Afternoon	4	A		-	-		-		4	A		-	3	A	5	A	4	A	-		-	4 A	3 A
All Way Stop Controlled	PM	4	A		-	-		-		4	A		-	3	A	5	A	5	A	-		-	4 A	3 A
Sunset Dr and Middle/High School Access	AM	13	В	8	A	0 A	1	6	A	6	A		-	3	A	8	A	9	A	8	A	27 D	7 A	4 A
	Afternoon	5	A	4	A	0 A	1	4	A	5	A		-	3	A	5	A	7	A	3	A	5 A	6 A	3 A
All Way Stop Controlled	PM	5	A	5	A	0 A	1	3	A	5	A		-	3	A	6	A	7	A	3	A	5 A	6 A	3 A
Sunset Dr and Timber Ridge Ct	AM	1	A		-	-		-		7	A		-	3	A	-		1	A	-	•	-	2 A	2 A
_	Afternoon	1	A		-	-		-		6	A		-		-	-		0	A	-		-	2 A	2 A
Stop Controlled	PM	1	A		-	-		-		7	A		-	3	A	-		0	A	-		-	2 A	2 A
Sunset Dr and Aberdeen Ave	AM	4	A		-	-		5	A		-		-		-	-		6	A	-		4 A	3 A	-
Suisct Di and Aberdeen Ave	Afternoon	4	A	3	A	-		3	A		-		-		-	-		6	A	2	A	4 A	4 A	-
Stop Controlled	PM	4	A		-	-		3	A		-		-		-	-		6	A	-		4 A	4 A	-
Aberdeen Ave and West Elementary School Access	AM	1	A		-	1 A	1	1	A	3	A	1	A		-	-		-		-		5 A	-	3 A
Aberdeen Ave and West Elementary School Access	Afternoon	1	A		-	0 A	1	0	A	2	A	1	A		-	-		-		-		4 A	-	2 A
Stop Controlled	PM	1	A		-	1 A	1	-			-	1	A		-	-		-		-		-	-	-
Aberdeen Ave and Ridge St	AM	2	A	4	A	2 A	1	2	A	4	A	1	A	1	A	7	A	-	•	3	A	-	-	4 A
Aberdeen Ave and Ridge St	Afternoon	2	A	3	A	2 A	1	1	A	3	A	1	A	0	A	5	A	-		3	A	-	-	3 A
Stop Controlled	PM	2	A	4	A	2 A	1	3	A	3	A	1	A	0	A	6	A	-		3	A	9 A	-	3 A
CR 66 and Aberdeen Ave	AM	8	A	9	A	9 A	1	7	A	7	A	8	A	5	A	6	A	12	В	4	A	7 A	11 B	5 A
CR 00 and Aberdeen Ave	Afternoon	7	A	6	A	7 A	1	4	A	6	A	7	A	4	A	4	A	10	В	2	A	7 A	12 B	5 A
Stop Controlled	PM	8	A	6	A	8 A	1	5	A	7	A	8	A	5	A	5	A	11	В	3	A	9 A	14 B	7 A
CR 66 and Prospect Pointe Rd	AM	2	A	5	A	-		3	A	5	A		-	3	A	2	A	0	A	0	A	1 A	0 A	0 A
CK 00 and Flospect Pointe Kd	Afternoon	1	A	5	A	-		2	A	5	A		-	3	A	1	A	0	A	0	A	1 A	0 A	0 A
Stop Controlled	PM	2	Α	6	Α	_		3	A	6	Α		_	3	Α	2	A	0	A	0	A	1 A	1 A	0 A

Stop Controlled

1. Delay in seconds per vehicle
2. Maximum delay and LOS on any approach and/or movement
3. Limiting Movement is the highest delay movement.

1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

																		Queue	Lengths																
Intersection	Peak Hour	EB	L/T	EBL	_/T/R	E	BT/R	EI	BR	W	BL	WE	BL/R	WBI	./T	WBL	/T/R	WI	BT/R	NB	L/R	NE	BL/T	NBI	/T/R	N	BR	9	BL	SB	L/T	SBL	/T/R	9	BR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
· ·	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	<u> </u>	-	
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sunset Dr and Hillside Dr	AM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	250	-	-	-	-	75	175
	Afternoon	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	<u> </u>	50	75
All Way Stop Controlled	PM	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	325	-	-	-	-	-	-	75	300	-	-	50	100	-	-	50	125	-	-	-	-	25	50	-	-
· ·	Afternoon	50	75	-	-	-	-	25	75	50	75	-	-	-	-	-	-	50	75	-	-	25	75	-	-	50	150	-	-	-	-	25	50	-	
All Way Stop Controlled	PM	50	100	-	-	-	-	25	75	25	50	-	-	-	-	-	-	50	75	-	-	25	50	-	-	50	75	-	-	-	-	25	50	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u> </u>	-	
•	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u> </u>
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	↓
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	- 25	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	25	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	Afternoon	-	-	-	-	-		-	-	-	-	25	50		-	-	-	-	-		-	-	-	-	-	<u> </u>	-	-	-	23	50	-	 '	-	-
Stop Controlled	PM	-	-	-	 -	-	-	-	-	-	-	25	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
	AM	-	-	50	75	 -	-	-	-	-	-	-	-	-	-	2.5	75		-	+ -	-	-	-	25	- 25	-	-	-	-	-	-	25	50	-	-
Aberdeen Ave and Ridge St	Afternoon		-	25	50	<u> </u>	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	+
Stop Controlled	PM			50	50		 							-		25	50					-		25	75			-	-			25	50		+
	AM	-	-	50	75		 	-	-		_	-	-	-	-	50	100		<u> </u>		-	-	<u> </u>	75	125		<u> </u>	-	-	<u> </u>	_	50	125	 	+
CR 66 and Aberdeen Ave	Afternoon	<u> </u>	-	50	75	1 -	-	-	-				<u> </u>		-	50	100	-	 			-	 	50	100	 	<u> </u>	-	-	 	_	50	100	 	+-
Stop Controlled	PM		 	50	75	+ -	+ -					<u> </u>		 		75	125					 	<u> </u>	50	100			-	-	 		50	100	 	+
	AM	2.5	25	- 30	- 13	+ -	-	_			-	<u> </u>	-	25	50	- 13	-		 			-	 	25	75	 		-	-	-		50	75	 	+ -
CR 66 and Prospect Pointe Rd	Afternoon	0	25	_	_	+	 _	_	-	_	_	_		25	25		_	_	-	-	-	-	-	25	25	-	-	-	_	_	_	25	50	-	+-
Stop Controlled	PM	25	25	<u> </u>	 	+ -	 		_		_		<u> </u>	25	50			_	 	<u> </u>		 	 	25	50	 	 	 	 	-		50	75	<u> </u>	+ -

•														Movement D	elay (sec/veh)										•
Intersection	Peak Hour	Intersect	ion Delay (1.)	N	IBL	NE	ВТ	N	BR	s	BL	s	ВТ	SBR	EBL	ı	ЕВТ	E	BR	w	/BL	W	/BT	W	VBR
Hillside Dr and High School Access	AM	1	A	5	A			3	A		-		-	-	-	1	A	1	A	2	A	1	A		_
	Afternoon	1	A	4	A			3	A		-		-	-	-	1	A	1	A	2	A	0	A		-
Stop Controlled	PM	1	A	5	A	-		3	A		-		-	-	-	1	A	1	A	2	A	0	A		-
Sunset Dr and Hillside Dr	AM	4	A		-				-	14	В		-	5 A	3 A	2	A		-		-	1	A	0	A
	Afternoon	2	A		-	-			-	9	A		-	3 A	2 A	1	A		-		-	0	A	0	A
Two-Way Stop Controlled	PM	3	A		-	-			-	9	A		-	3 A	2 A	1	A		-		-	0	A	0	A
Sunset Dr and Middle/High School Access	AM	12	В	7	A	0	A	5	A	7	A		-	3 A	8 A	10	В	8	A	22	С	7	A	3	A
	Afternoon	5	A	4	A	0	A	4	A		-		-	-	5 A	7	A	3	A	5	A	6	A	3	A
All Way Stop Controlled	PM	5	A	5	A	0	A	3	A	5	Α		-	3 A	6 A	7	A	3	A	5	A	6	Α	4	A
Sunset Dr and Timber Ridge Ct	AM	1	A		-	-			-	6	A		-	3 A	-	1	A		-		-	2	A	2	A
	Afternoon	1	A		-	-			-	5	A		-	-	-	0	A		-		-	2	A	2	A
Stop Controlled	PM	1	A		-	-			-	7	A		-	7 A	-	0	A		-		-	2	A	2	A
Sunset Dr and Aberdeen Ave	AM	4	A		-	-		4	A		-		-	-	-	5	A		-	4	A	4	A		-
	Afternoon	3	A		-	-		3	A		-		-	-	-		-	3	A	4	A	4	A		-
Stop Controlled	PM	4	A		-	-		3	A		-		-	-	-	6	A		-	4	A	4	A		-
Aberdeen Ave and West Elementary School Access	AM	1	A		-	1	A	1	A	3	A	1	A	-	-		-		-	4	A		-	3	A
•	Afternoon	1	A		-	0	A	0	A	3	Α	1	A	-	-		-		-	1	A		-	2	A
Stop Controlled	PM	1	A		-	1	A		-		-	1	A	-	-		-		-		-		-		
Aberdeen Ave and Ridge St	AM	2	A		-	2	A	2	A	3	Α	1	A	-	-		-		-	3	A		-	4	A
_	Afternoon	1	A		-	2	A	1	A	3	A	1	A	-	-		-		-	<u> </u>	-		-	2	A
Stop Controlled	PM	1	A		-	2	A	2	A	3	Α	1	A	-	-		-		-	5	A		-	3	A
CR 66 and Aberdeen Ave	AM	6	A	7	A	8	A	5	A	6	Α	7	A	3 A	4 A	10	В	2	A	4	A	9	A	3	A
	Afternoon	6	A	6	A	7	A	3	A	6	A	7	A	4 A	3 A	9	A	2	A	5	A	10	В	4	A
Stop Controlled	PM	6	A	6	A	7	A	4	A	5	A	7	A	4 A	4 A	9	A	3	A	5	A	10	В	3	A
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	-		3	A		-		-	-	-	0	A	0	A	1	A	0	A		-
	Afternoon	1	A	5	A	-		2	A		-		-	-	-	0	A	0	A	1	A	0	A		-
Stop Controlled	PM	1 1	1 A	1 6	A			3	1 A		-		-	_	_	1 0	1 A	1 0	1 A	1 1	1 A	1 1	1 A	1	-

Stop Controlled

1. Delay in seconds per vehicle
2. Maximum delay and LOS on any approach and/or movement
3. Limiting Movement is the highest delay movement.

•																			Queue	Lengths																		
Intersection	Peak Hour	EBL/T		BL/T/R		EBT/R		EBR	W	BL	WE	L/R	WB	L/T	WBL	/T/R	WBT	/R	N	BL	NB	L/R	NE	BL/T	NBI	./T/R	N	IBR	S	BL	SB	L/R	SBL	L/T	SBL	/T/R	SB	R
		Avg Ma	x Avg	Max	x Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Timiside Di and Trigii School Access	Afternoon	-	-	-	-	-	-	-	-	-		-	0	25		-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	25	25		-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sunset Dr and Hillside Dr	AM	50 12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	175
	Afternoon	25 10	*	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Two-Way Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	-		-	25	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	50 10	-	-	-	-	75	125	100	325	-	-	-	-	-	-	50	250	-	-	-	-	50	100	-	-	50	125	-	-	-	-	-	-	25	50	-	
	Afternoon	50 75		-	-	-	25	75	50	75	-	-	-	-	-	-	50	75	25	75	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	
All Way Stop Controlled	PM	50 10	0 -	-	-	-	25	75	50	75	-	-	-	-		-	50	75	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	50	-	
Sunset Dr and Timber Ridge Ct	AM		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	لــــــــا	-	-	-	-	
	Afternoon			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	
Stop Controlled	PM			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	
Sunset Dr and Aberdeen Ave	AM		-	_	25			-	-	-	-		50	75	-		-	-		-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stop Controlled	Afternoon PM			-	25			-	-	-	-		50	100 75	-		-	-	-	-	50	50 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controllea	AM		_	+ -			_	_	-	-	2.5	50	30		-		-	-	-	-			-	-	-	-	-	+	-	-	-	-	2.5	50	-	-	-	
Aberdeen Ave and West Elementary School Access	Afternoon		-		-	-	-		-	-	2.5	50	-		-		-	-		-	-	-	-	-	-	-	-	-	-	-	<u> </u>	-	25	25	-	-	-	
Stop Controlled	PM		-	_		-	-	_	-	-	23	30	-				-			-	-	- :	-	-	-	-	-	-			-	-	- 23	23	-	-	-	
1			-	_	_	_	-	_	-	-	-		-		25	75	-	-		-			-	-			<u> </u>	-				-			25	50		<u> </u>
Aberdeen Ave and Ridge St	AM Afternoon		_	-	-	_	+ :		-	-	-		-	-:-	25	50	-	-			-	-					-	1	-			-		-	25	25		-
Stop Controlled	PM			_				+						-	25	50	-	-				-													25	50	-	
	AM		50	75		_	_	_							50	75		-				-			75	125									50	75		
CR 66 and Aberdeen Ave	Afternoon		50	75										-	50	75	-	-	-			-	-	-	50	75									50	100		
Stop Controlled	PM		50	75	-	-	-	-	-	-	-	-	-		50	75		-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	
	AM		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	
CR 66 and Prospect Pointe Rd	Afternoon		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	- 1	-	-	-	-	
Stop Controlled	PM		-			_			-	-			2.5	50			-	-			-	-		1	25	75	1	-	-	-	1	-	-	1	-	-	-	-

			•							Movement	Delay (sec/veh)	•						
Intersection	Peak Hour	Intersec	tion Delay (1.)	N	BL	NBT	NBR	SBL	SBT	SBR	EBL		EBT	EBR	WBL	WBT	WI	BR
Hillside Dr and High School Access	AM	1	A	4	A	-	4 A	=	-	-	-		1 A	1 A	2 A	0 A	-	-
	Afternoon	1	A	5	A	-	3 A	-	-	-	-		0 A	0 A	3 A	0 A	-	-
Stop Controlled	PM	1	A	4	A	-	3 A	-	-	-	-		1 A	0 A	3 A	0 A	-	
Sunset Dr and Hillside Dr	AM	6	A		-	-	-	18 C	-	9 A	3	A	2 A	-	-	2 A	1	A
	Afternoon	2	A		-	-	-	9 A	-	3 A	2	A	1 A	-	-	0 A	0	A
Two-Way Stop Controlled	PM	3	A		-	-	-	9 A	-	3 A	2	A	2 A	-	-	0 A	0	A
Sunset Dr and Middle/High School Access	AM	14	В	8	A	0 A	6 A	6 A	-	3 A	8		10 B	9 A	29 D	7 A	4	A
411 W. C. C. 11 1	Afternoon	5	A	5	A	0 A	4 A	5 A	-	3 A	5	A	7 A	3 A	5 A	6 A	3	A
All Way Stop Controlled	PM	3	A	4	A	0 A	3 A	5 A	-	3 A	6	А	/ A	3 A	5 A	0 A	3	A
Sunset Dr and Timber Ridge Ct	AM	1	A	†	-	-	-	/ A	-	3 A	-		1 A	-	-	Z A	1 2	A
	Afternoon	1	A		•	-	-	5 A	-	-	-		0 A	-	-	2 A	2	A
Stop Controlled	PM	5	A		•	-	-	8 A	-	2 A	-		0 A	-		Δ Λ	2	A
Sunset Dr and Aberdeen Ave	AM Afternoon	5	A	7		-	5 A	-	-	-	-		6 A A	- - 1 1 A	4 A	4 A A	-	
Stop Controlled	PM	4	A	2	A	-	3 A	-	-	-	-		6 A	4 A	4 A	4 A	 	-
•	AM	1	A	3	A	1 A	1 Λ	3 A	1 A	-	-		- A	-	4 A	4 A	3	Δ.
Aberdeen Ave and West Elementary School Access	Afternoon	1	Δ		-	0 Δ	0 Δ	2 Δ	1 A	-	+ -				J A	<u> </u>	2	Δ
Stop Controlled	PM	1	A		-	1 A	- A	- 1	1 A	_	_		-	-	_	_		
· · · · · · · · · · · · · · · · · · ·	AM	2	A	4	Α	2 A	2 A	4 A	1 A	0 A	9	A	-	3 A	7 A	_	4	A
Aberdeen Ave and Ridge St	Afternoon	2	A	3	A	2 A	1 A	3 A	1 A	1 A	5	A	-	3 A		_	3	A
Stop Controlled	PM	2	A	4	A	2 A	2 A	3 A	1 A	0 A	6	A	-	3 A	7 A	-	3	A
	AM	8	A	7	A	10 B	7 A	7 A	7 A	4 A	6	A	12 B	5 A	7 A	11 B	4	A
CR 66 and Aberdeen Ave	Afternoon	7	A	6	A	7 A	4 A	6 A	7 A	4 A	4	A	10 B	2 A	7 A	12 B	5	A
Stop Controlled	PM	8	A	7	A	8 A	4 A	7 A	8 A	5 A	5	A	11 B	3 A	9 A	14 B	7	A
CR 66 and Prospect Pointe Rd	AM	2	A	5	A	-	3 A	6 A	-	4 A	1	A	0 A	0 A	1 A	0 A	0	A
CR 00 and Flospect Follite Rd	Afternoon	1	A	4	A	-	2 A	5 A	-	3 A	1	A	0 A	0 A	1 A	0 A	0	A
Stop Controlled	PM	2	A	6	A	-	3 A	6 A		3 A	2	A	0 A	0 A	1 A	1 A	0	A

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

																			Queue	Lengths																	
Intersection	Peak Hour	EBI	L/T	EBL,	/T/R	EB	T/R	E	BR	W	BL	WI	BL/R	W	BL/T	WBL	L/T/R	WB	T/R	NBL	/R	NB	L/T	NBL	/T/R	N	BR	S	BL	SBI	/R	SBI	L/T	SBL/	/T/R	SI	BR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	M
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	Afternoon	-		-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	50	50	-		-	-	-	-	-	-	-	-	-		-		-	
Stop Controlled	PM	-		-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-		-	-	-		-	-		-	
Sunset Dr and Hillside Dr	AM	50	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-		-	-	-	-	50	150	-	-	-		-		75	
Suisci Di and Thiiside Di	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-		-	-	-	-	50	75	-	-	-		-		50	
Two-Way Stop Controlled	PM	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	50	100	-	-		-	-		50	
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	350	-	-	-	-	-	-	75	350	-	-	50	100	-	-	50	150	-	-	-	-	-		25	50	-	
Suisci Di ana wildate/riigii School Access	Afternoon	50	75	-	-	-	-	25	75	50	50	-	-	-	-	-	-	50	75	-	-	25	75	-	-	50	125	-	-	-	-	-		25	50	-	Г
All Way Stop Controlled	PM	50	100	-	-	-	-	25	75	25	50	-	-	-	-	-	-	50	75	-	-	25	50	-	-	50	75	-	-	-	-	-		25	50	-	Г
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50		-	-	-	-	Г
Suiset Di and Timber Ridge Ct	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50		-	-	-	-	Г
Stop Controlled	PM	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	Г
Sunset Dr and Aberdeen Ave	AM	-		-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	125	-	-	-	-	-	-		-	-	-		-	-		-	
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stop Controlled	PM	-		-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-		-	-	-	-	-	-	-	-	-		-		-	Г
deen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	Ĺ
•	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	1_
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	Ĺ
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	1
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	-	丄
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	丄
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	┸
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	L
·	Afternoon	0	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	丄
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	1

													M	ovement D	elay (sec/v	eh)										
Intersection	Peak Hour	Intersection	on Delay (1.)	N	IBL	NBT		NBR	:	SBL	SI	ВТ	SE	BR	E	BL	E	ВТ	Е	BR	W	VBL	W	/ВТ	V	VBR
Hillside Dr and High School Access	AM	1	A	5	A	-	3	A		-		-		-		-	1	A	1	A	2	A	1	A		-
	Afternoon	1	A	4	A	-	3	A		-		-		-		-	1	A	1	A	2	A	0	A		-
Stop Controlled	PM	1	A	4	A	-	3	A		-		-		-		-	1	A	1	A	3	A	0	A		-
Sunset Dr and Hillside Dr	AM	6	A		-	-		-	5	A		-	4	A	8	A	6	A		-		-	6	A	5	Α
	Afternoon	4	A		-	-		-	5	A		-	3	A	5	A	3	A		-		-	5	A	3	A
All Way Stop Controlled	PM	4	A		-	-		-	4	A		-	3	A	5	A	5	A		-		-	4	A	4	A
Sunset Dr and Middle/High School Access	AM	12	В	80	F	0	A 11	В	10	В		-	3	A	2	A	1	A	1	A	8	A	1	A	1	A
	Afternoon	3	A	6	A	0	A 4	A		-		-		-	2	A	1	A	0	A	3	A	1	A	0	A
Two-Way Stop Controlled	PM	2	A	7	A	0	A 4	A	7	A		-	4	A	2	A	1	A	0	A	3	A	1	A	0	A
Sunset Dr and Timber Ridge Ct	AM	1	A		-	-		-	6	A		-	2	A		-	1	A		-		-	1	A	1	A
	Afternoon	1	A		-	-		-	5	A		-		-		-	0	A		-		-	1	A	0	
Stop Controlled	PM	1	A		-	-		-	7	A		-	3	A		-	0	A		-		-	1	A	0	1
Sunset Dr and Aberdeen Ave	AM	4	A		-	-	4	A		-		-		-		-	6	A		-	4	A	4	A		-
	Afternoon	3	A		-	-	3	A		-		-		-		-	3	A	3	A	4	A	4	A		-
Stop Controlled	PM	4	A	3	A	-	3	A		-		-		-		-	5	A		-	4	A	4	A		-
Aberdeen Ave and West Elementary School Access	AM	1	A		-	1	A 0	A	3	A	1	A		-		-		-		-	4	A		-	3	
	Afternoon	1	A		-	0	A 0	A	2	A	1	A		-		-		-		-	2	A		-	2	
Stop Controlled	PM	1	A		-	0	A	-		-	1	A		-		-		-		-		-		-		-
Aberdeen Ave and Ridge St	AM	2	A		-	2	A 2	A	3	A	1	A		-		-		-		-	6	A		-	3	
_	Afternoon	1	A		-	2	A 1	A	3	A	1	A		-		-		-		-		-		-	2	
Stop Controlled	PM	1	A		-	2	A 1	A	3	A	1	A		-		-		-		-	4	A		-	3	
CR 66 and Aberdeen Ave	AM	6	A	7	A	8	A 5	A	6	A	7	A	4	A	4	A	10	В	3	A	5	A	9	A	3	_
	Afternoon	6	A	5	A	7	A 3	A	5	A	7	A	4	A	3	A	9	A	2	A	4	A	9	A	3	1
Stop Controlled	PM	6	A	6	A	7	A 4	A	5	A	7	A	4	A	4	A	10	В	3	A	5	A	10	В	3	
CR 66 and Prospect Pointe Rd	AM	1	A	4	A	-	3	A		-		-		-		-	0	A	0	A	1	A	0	A		-
	Afternoon	1	A	5	A	-	2	A		-		-		-		-	0	A	0	A	1	A	0	A		-
Stop Controlled	PM	1 1	Α	5	Α	_	3	А		_	1	_	1 .	_	1	-	0	A	0	A	1 1	A	1 1	A	I	_

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

																				Queue	Lengths																		
Intersection	Peak Hour	EBL/T		EBL/	T/R	EB	T/R	E	BR	WI	BL	WE	BL/R	WB	L/T	WB	./T/R	WBT	/R	N	BL	NB	L/R	NE	BL/T	NB	_/T/R	N	NBR	S	BL	SB	L/R	S	BL/T	SBL	/T/R	ć	BR
	1 1	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-		-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-		-	-	-	-	-	-	-	-	<u> </u>
8	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 -
Stop Controlled	PM	-		-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	_
Sunset Dr and Hillside Dr	AM		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	150	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	75	12
	Afternoon		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-		-	50	75	-	-	-	-	-	-	50	10
All Way Stop Controlled	PM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	10
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	75	75	200	-	-	-	-	-	-	-	-	-	-	-	-	100	200	-	-	100	225	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	50	-	-	-	-	25	25	25	50	-	-	-	-	-	-	0	25	25	75	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-
Two-Way Stop Controlled	PM	0	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-	-	-	-	-	25	50	-	
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	—
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	—
Sunset Dr and Aberdeen Ave	AM Afternoon	-	-	-	-	25	50		-	-		-	-	50	75 100	-	-	-		-	-	75 50	100 75	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-		25	50		 	H :		-		50	100	-	-	- :		- :		50	75	-	-	-				 		- : -	-	-			-	 	- :
	AM	-	-	-	-	-	-	-	-	-	-	2.5	50	-	-	-	-	-	-	-		-	-	-		-	-	-		-		-	-	2.5	50	-	-	-	_
Aberdeen Ave and West Elementary School Access	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	_
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Aberdeen Ave and Ridge St	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	50	75	-	-
CR 66 and Aberdeen Ave	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-		-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
CK 00 and 1 tospect Pointe Kd	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-		-		2.5	50	-	-	-		-	-	-	-	-	-	2.5	50		-	-	-		-	-	-	-	-	-	-

														N	lovement D	elay (sec/v	eh)							
Intersection	Peak Hour	Intersection	on Delay (1.)	N	BL	NI	ВТ	N	BR	s	BL	s	ВТ	s	BR	E	BL	EI	зт	Е	BR	WBL	WBT	WBR
Hillside Dr and High School Access	AM	1	A	5	A		-	3	A		-		-		-		-	1	A	1	A	2 A	1 A	-
	Afternoon	2	A	5	A		-	3	A		-		-		-		-	1	A	1	A	2 A	0 A	-
Stop Controlled	PM	1	A	3	A		-	2	A		-		-		-		-	1	A	1	A	2 A	0 A	-
Sunset Dr and Hillside Dr	AM	6	A		-		-		-	5	A		-	5	A	7	A	5	A		-	-	5 A	4 A
	Afternoon	4	A		-		-		-	4	A		-	3	A	5	A	3	A		-	-	4 A	3 A
All Way Stop Controlled	PM	4	A		-		-		-	4	A		-	3	A	5	A	5	A		-	-	4 A	3 A
Sunset Dr and Middle/High School Access	AM	12	В	74	F	1	A	11	В	27	D		-	3	A	2	A	1	A	1	A	9 A	1 A	1 A
	Afternoon	3	A	7	A	0	A	4	A	6	A		-	4	A	3	A	1	A	0	A	2 A	1 A	0 A
Two-Way Stop Controlled	PM	2	A	7	A	0	A	4	A	9	A		-	3	A	3	A	1	A	0	A	3 A	1 A	0 A
Sunset Dr and Timber Ridge Ct	AM	1	A		-		-		-	7	A		-	3	A		-	1	A		-	-	1 A	0 A
Sunset Di and Timber Riage Ct	Afternoon	1	A		-		-		-	6	A		-		-		-	0	A		-	-	1 A	0 A
Stop Controlled	PM	1	A		-		-		-	6	A		-	3	A		-	0	A		-	-	1 A	0 A
Sunset Dr and Aberdeen Ave	AM	4	A		-		-	5	A		-		-		-		-	6	A		-	4 A	4 A	-
Sunset Di and Aberdeen Ave	Afternoon	4	A	5	A		-	3	A		-		-		-		-	6	A	3	A	4 A	4 A	-
Stop Controlled	PM	4	A	4	A		-	3	A		-		-		-		-	6	A		-	4 A	4 A	-
Aberdeen Ave and West Elementary School Access	AM	1	A		-	1	A	1	A	3	A	1	A		-		-				-	2 A	-	3 A
	Afternoon	1	A		-	0	A		-	2	A	1	A		-		-		-		-	1 A	-	2 A
Stop Controlled	PM	1	A		-	1	A		-		-	1	A		-		-		-		-	-	-	-
Aberdeen Ave and Ridge St	AM	2	A	4	A	2	A	2	A	3	A	1	A	1	A	7	A		-	4	A	3 A	-	4 A
	Afternoon	2	A	4	A	2	A	1	A	3	A	1	A	1	A	4	A		-	3	A	-	-	2 A
Stop Controlled	PM	2	A	4	A	2	A	2	A	3	A	1	A	0	A	7	A		-	3	A	9 A	-	3 A
CR 66 and Aberdeen Ave	AM	8	A	7	A	9	A	6	A	7	A	8	A	5	A	6	A	11	В	6	A	7 A	12 B	5 A
	Afternoon	7	A	6	A	7	A	4	A	6	A	7	A	4	A	4	A	9	A	2	A	7 A	12 B	5 A
Stop Controlled	PM	8	A	7	A	8	A	4	A	7	A	8	A	4	A	5	A	11	В	3	A	9 A	14 B	7 A
CR 66 and Prospect Pointe Rd	AM	2	A	5	A		-	3	A	5	A		-	3	A	1	A	0	A	0	A	1 A	0 A	0 A
	Afternoon	1	A	5	A		-	2	A	5	A		-	3	A	2	A	0	A	0	A	1 A	1 A	0 A
Stop Controlled	PM	2	A	6	A		-	3	A	6	A		-	3	A	2	A	0	A	0	Α	1 A	1 A	0 A

Delay in seconds per vehicle
 Maximum delay and LOS on any approach and/or movement
 Limiting Movement is the highest delay movement.

	1

																			Queue	Lengths																
Intersection	Peak Hour	EB	L/T	EB	L/T/R	EB	T/R	E	BR	W	/BL	WE	BL/R	W	BL/T	WBL	/T/R	WB	T/R	NB	L/R	NB	./T	NBL/	/T/R	N	BR	9	SBL	SB	L/R	SB	L/T	SBL/T	r/R	SBR
		Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg I
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75 50	-	-	-	-	-	-	-	-	-	-	-	-	-		
Stop Controlled	PM		-	-	-	-	-	-	-	-	-	-	-	0	25	-	-			25	50	-	-	-	-	-	-	-	-	-	-		-	-		
Sunset Dr and Hillside Dr	AM	75	200 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	125 75	-	-	-	-	-		75
W.W. C. C	Afternoon PM	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-		50
All Way Stop Controlled		75	25	-	-	-	-	25	50	75	225		-	-	-	-	-	25	100	-	-	100	200	-	-	75	225	50	13	-	-	-	-	25	50	50
Sunset Dr and Middle/High School Access	AM Afternoon	25	25	-	-	-	-	25	50	75 25	50	-	-	-	-	-		- 25	25	-	-	100 50	200 75	-	-	50	150	-	-	-	-		-	25	50	
Two-Way Stop Controlled	PM	25	25	-	+ -	-	-	0	25	25	50	-	-	-	+	-		-	-	-	-	25	75		-	50	100	-	 	-	-		-	25	50	
	AM	23	- 23		+	-	-	-	- 23	- 23	-				+	-	-	-			-	- 23	73	-		30	100		-	25	50		-	- 23	30	
Sunset Dr and Timber Ridge Ct	Afternoon		<u> </u>			-							<u> </u>	<u> </u>	+-:-		-		-		-		-				<u> </u>			25	50		-		-	
Stop Controlled	PM				_			_										-	-		-	 	-						-	25	50		-	-		-
•	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Sunset Dr and Aberdeen Ave	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-		
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
deen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	- 1	-
deen Ave and West Elementary School Access	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-		-	-	_	-	-	-	-	-	-	-	-	-	_	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75			-		-	-	25	25	-	-	-	-	-	-	-		25	50	-
Aberdeen Ave and Ridge St	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50			-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-
Stop Controlled	PM	-	-	25	75	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-		-	-	25	75	-	-	-	-	-	-	-	-	25	50	-
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	75	150	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-
	Afternoon	25	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-

2040 All Way Stop Control - 3

				HCS	7 Ro	und	abo	outs F	Rep	ort							
General Information							Site	e Info	rma	tio	า						
Analyst	CW						Inte	ersection				West N	1ini-Rou	ındab	out		
Agency or Co.	Bolto	n & Men	nk				E/V	V Street	Name	9		Sunset	Dr				
Date Performed	6/13/	2019					N/S	S Street I	Name			High/N	1iddle S	chool	l Access		
Analysis Year	2020						Ana	alysis Tin	ne Per	riod (hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ak Hour I	actor	r		0.60					
Project Description	Jorda	n School	l Area Stu	ıdy			Juri	isdiction				Jordan	, MN				
Volume Adjustments	s and S	Site C	haract	teristic	:s												
Approach		E	В			٧	VB		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0		0	0	1	0	0	0	1	0
Lane Assignment			נז	ΓR				LTR				LTF	۲		<u>'</u>		LTR
Volume (V), veh/h	0	6	194	116	0	149	69	15		0	58	0	118	0	5	0	3
Percent Heavy Vehicles, %	3	5	7	11	3	7	6	3		3	27	13	0	3	3	5	6
Flow Rate (VPCE), pc/h	0	10	346	215	0	266	122	2 26		0	123	0	197	0	9	0	5
Right-Turn Bypass		No	one			No	one				No	ne			<u>'</u>	None	•
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h		(0				0				C					0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t												
Approach				EB				WB				NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вур	oass	Left	Right	Вура	iss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763		T		4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	s												
Approach				EB				WB				NB		Т		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вур	oass	Left	Right	Вура	iss	Left	Right	Bypass
Entry Flow (v _e), pc/h		\Box		571				414				320				14	
Entry Volume veh/h				527				389				294				13	
Circulating Flow (v _c), pc/h				275				133				365		T		511	
Exiting Flow (vex), pc/h				552				250				36				481	
Capacity (c _{pce}), pc/h				1042				1205				951				819	
Capacity (c), veh/h				961				1132				873				788	
v/c Ratio (x)				0.55				0.34				0.34		\top		0.02	
Delay and Level of S	ervice																
Approach				EB				WB				NB		П		SB	
Lane			Left	Right	Вура	ss Le	eft	Right	Вур	oass	Left	Right	Вура	iss	Left	Right	Bypass
Lane Control Delay (d), s/veh				10.9				6.6				7.9				4.7	
Lane LOS				В				А				А				А	
95% Queue, veh				3.4				1.5				1.5				0.1	
Approach Delay, s/veh				10.9				6.6				7.9			'	4.7	
Approach LOS				В				Α				Α				А	
Intersection Delay, s/veh LO	S					8.7								Α			
Copyright © 2019 University of	Elorida /	All Diabte	c Poconyo	od		ICS7 TIM	Round	dabouts	Versio	on 7.4			G	onora	tod: 6/29	2/2010 11	·06·12 AM

				HCS	7 Ro	und	abo	uts F	Repor	t									
General Information							Site	e Info	rmatio	n									
Analyst	CW						Inte	ersection			West M	lini-Rou	ndabo	out					
Agency or Co.	Boltor	n & Men	nk				E/V	V Street N	Name		Sunset	Dr							
Date Performed	6/13/	2019					N/S	S Street N	lame		High/N	liddle S	chool <i>i</i>	Access					
Analysis Year	2020						Ana	alysis Tim	ne Period	(hrs)	0.25								
Time Analyzed	AM Pe	eak					Pea	ak Hour F	actor		1.00								
Project Description	CW or Co. Bolton & Menk erformed 6/13/2019 s Year 2020 nalyzed AM Peak Description Jordan School Area Stu ne Adjustments and Site Charact neth er of Lanes (N) ter of Lanes (N) the (V), veh/h the eq (V), veh/h to be the computations, point and Follow-Up Headway Adju and Follow-Up Headway Adju and Computations, Capacity and v/c and c						Juri	isdiction			Jordan,	MN							
Volume Adjustments	s and S	Site C	haract	teristic	:s														
Approach		E	В			٧	∕ B			N	В				SB				
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R			
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0			
Lane Assignment			Lī	ΓR				LTR			LTR					LTR			
Volume (V), veh/h	0	74	27	0	26	119	8	0	43	0	89	0	0	0	0				
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
Flow Rate (VPCE), pc/h	0	76	28	0	27	123	8 8	0	44	0	92	0	0	0	0				
Right-Turn Bypass		No	one			No	one			No	ne			N	lone				
Conflicting Lanes			1				1			1			MN SB R U L T 0 0 0 1 1 89 0 0 0 3 3 3 3 3 3						
Pedestrians Crossing, p/h		(0				0			()				0				
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t														
Right-Turn Bypass None None None Conflicting Lanes 1 1 1 1 Pedestrians Crossing, p/h 0 0 0 0 Critical and Follow-Up Headway Adjustment Approach EB WB NB Lane Left Right Bypass Left Right Bypass Left Right Critical Headway (s) 4.9763 4.9763 4.9763													Т		SB				
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass			
Critical Headway (s)		\Box		4.9763				4.9763			4.9763				4.9763				
Follow-Up Headway (s)			2.6087				2.6087			2.6087				2.6087					
Flow Computations,	Capac	ity ar	nd v/c	Ratios	5														
Approach				EB				WB			NB		Т		SB				
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass			
Entry Flow (v _e), pc/h				109				158			136				0				
Entry Volume veh/h				106				153			132				0				
Circulating Flow (v _c), pc/h				27				49			81				194				
Exiting Flow (vex), pc/h				168				167			13				55				
Capacity (c _{pce}), pc/h				1343				1313			1271				1132				
Capacity (c), veh/h				1303				1274			1234				1099				
v/c Ratio (x)				0.08				0.12			0.11				0.00				
Delay and Level of S	ervice																		
Approach				EB				WB			NB		Т		SB				
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass			
Lane Control Delay (d), s/veh				3.4				3.8			3.8				3.3				
Lane LOS				А				Α			А				Α				
95% Queue, veh				0.3				0.4			0.4				0.0				
Approach Delay, s/veh				3.4				3.8			3.8								
Approach LOS				Α				Α			Α								
Intersection Delay, s/veh LO						3.7							Α						
opyright @ 2019 University of	Flanisla /	ALL Diamet	- D		- 11	CC756VI	Dauma	dahauta \	Jorgian 7	4				- d. C /20	/2010 11	·17·20 A N			

General InformationSite InformationAnalystCWIntersectionWest Mini-RoundaboutAgency or Co.Bolton & MenkE/W Street NameSunset DrDate Performed6/13/2019N/S Street NameHigh/Middle School AccessAnalysis Year2020Analysis Time Period (hrs)0.25Time AnalyzedAM PeakPeak Hour Factor1.00Project DescriptionJordan School Area StudyJurisdictionJordan, MNVolume Adjustments and Site CharacteristicsApproachEBWBNBSE	В
Agency or Co. Bolton & Menk E/W Street Name Sunset Dr Date Performed 6/13/2019 N/S Street Name High/Middle School Access Analysis Year 2020 Analysis Time Period (hrs) 0.25 Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Date Performed 6/13/2019 N/S Street Name High/Middle School Access Analysis Year 2020 Analysis Time Period (hrs) 0.25 Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Analysis Year 2020 Analysis Time Period (hrs) 0.25 Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Volume Adjustments and Site Characteristics Approach EB WB NB SE	В
Approach EB WB NB SE	В
	 В
Movement U L T R U L T R U L T R U L L	T R
Number of Lanes (N) 0 0 1 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0	1 0
Lane Assignment LTR LTR LTR	LTR
Volume (V), veh/h 0 3 162 24 0 33 166 11 0 23 0 43 0 15	0 6
Percent Heavy Vehicles, % 3 <td>3 3</td>	3 3
Flow Rate (VPCE), pc/h 0 3 167 25 0 34 171 11 0 24 0 44 0 15	0 6
Right-Turn Bypass None None None No	ne
Conflicting Lanes 1 1 1 1 1	ı
Pedestrians Crossing, p/h 0 0 0)
Critical and Follow-Up Headway Adjustment	
Approach EB WB NB	SB
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left R	Right Bypas
Critical Headway (s) 4.9763 4.9763 4.9763 4.9763 4.9763	.9763
Follow-Up Headway (s) 2.6087 2.6087 2.6087 2.6087 2.6087	.6087
Flow Computations, Capacity and v/c Ratios	
Approach EB WB NB	SB
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left R	Right Bypas
Entry Flow (v _e), pc/h 195 216 68	21
Entry Volume veh/h 189 210 66	20
Circulating Flow (vc), pc/h 49 27 185 2	229
Exiting Flow (vex), pc/h 226 201 14	59
Capacity (c _{pce}), pc/h 1313 1343 1143 1	1093
Capacity (c), veh/h 1274 1303 1109 1	1061
v/c Ratio (x) 0.15 0.16 0.06 0	0.02
Delay and Level of Service	
Approach EB WB NB	SB
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left R	Right Bypas
Lane Control Delay (d), s/veh 4.1 4.1 3.7 3.7	3.6
Lane LOS A A A A A A A A A A A A A A A A A A A	А
95% Queue, veh 0.5 0.6 0.2 0.2	0.1
Approach Delay, s/veh 4.1 4.1 3.7	3.6
Approach LOS A A A	Α
Intersection Delay, s/veh LOS 4.0 A	

				HCS	7 Ro	und	abo	uts F	Rep	ort							
General Information							Site	e Info	rma	tior	า						
Analyst	CW						Inte	ersection				West N	1ini-Rou	ndab	out		
Agency or Co.	Bolto	n & Mer	nk				E/V	V Street	Name	9		Sunset	Dr				
Date Performed	6/13/	2019					N/S	S Street I	Name			High/N	1iddle S	chool	Access		
Analysis Year	2040						Ana	alysis Tin	ne Per	riod (l	hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ak Hour f	actor	r		0.60					
Project Description	Jorda	n Schoo	l Area Stu	ıdy			Juri	isdiction				Jordan	, MN				
Volume Adjustments	and S	Site C	haract	teristic	:s												
Approach		E	В			٧	/B		Т		N	В				SB	
Movement	U	L	Т	R	U	L	Т	R		U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0		0	0	1	0	0	0	1	0
Lane Assignment			נז	TR .				LTR				LTI	₹				LTR
Volume (V), veh/h	0	6	270	123	0	153	111	16		0	61	0	125	0	5	0	3
Percent Heavy Vehicles, %	3	5	7	11	3	7	6	3		3	27	13	0	3	3	5	6
Flow Rate (VPCE), pc/h	0	10	482	228	0	273	196	5 27		0	129	0	208	0	9	0	5
Right-Turn Bypass		No	one			No	one				No	ne				None	
Conflicting Lanes			1				1				1					1	
Pedestrians Crossing, p/h	nment						0				C)				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t												
Approach				EB		\top		WB				NB		Т		SB	
Lane			Left	Right	Bypas	ss Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763				4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087				2.6087			Ì	2.6087	
Flow Computations,	Capac	city ar	nd v/c	Ratios	S												
Approach				EB		Т		WB				NB		Т		SB	
Lane			Left	Right	Bypas	ss Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				720				496				337				14	
Entry Volume veh/h				665				466				310				13	
Circulating Flow (v _c), pc/h				282				139				501				598	
Exiting Flow (vex), pc/h				699				330				37				501	
Capacity (c _{pce}), pc/h				1035				1198				828				750	
Capacity (c), veh/h				957				1126				760				721	
v/c Ratio (x)				0.70				0.41				0.41				0.02	
Delay and Level of S	ervice																
Approach				EB				WB				NB		Т		SB	
Lane			Left	Right	Bypas	ss Le	eft	Right	Вур	oass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				15.4				7.5				10.0				5.2	
Lane LOS				С				Α				А				Α	
95% Queue, veh				5.9				2.1				2.0				0.1	
Approach Delay, s/veh				15.4				7.5				10.0				5.2	
Approach LOS				С				Α				Α				Α	
Intersection Delay, s/veh LO						11.6								В			
Copyright © 2019 University of	Elorida /	All Diabt	. Poconic	vd		ICS 7 STAVI	Pound	dabouts	Vorcio	on 7.4			G	anorat	tod: 7/10	/2010 10	:05:25 AM

				HCS	7 Roi	unda	abo	uts R	eport	t						
General Information							Site	Infor	matio	n						
Analyst	CW						Inte	ersection			West M	1ini-Roui	ndabo	ut		
Agency or Co.	Bolto	n & Men	nk				E/W	√ Street N	lame		Sunset	Dr				
Date Performed	6/13/	2019					N/S	Street N	ame		High/N	1iddle Sc	hool A	Access		
Analysis Year	2040						Ana	alysis Tim	e Period ((hrs)	0.25					
Time Analyzed	Aftern	oon Pea	ak				Pea	k Hour Fa	actor		1.00					
Project Description	Jorda	n School	l Area Stu	ıdy			Juri	sdiction			Jordan,	MN				
Volume Adjustments	and S	Site C	haract	teristic	S											
Approach		E	В			W	/B			N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR			LTF	2				LTR
Volume (V), veh/h	0	5	97	27	0	36	170	8	0	44	0	94	0	0	0	0
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	5	100	28	0	37	175	8	0	45	0	97	0	0	0	0
Right-Turn Bypass		No	one			No	ne			No	ne			Ν	lone	
Conflicting Lanes			1				1			1					1	
Pedestrians Crossing, p/h		(0			()			()				0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t											
Approach				EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypass	Le	eft	Right	Bypass	Left	Right	Bypas	s l	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763		T		4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypass	Le	eft	Right	Bypass	Left	Right	Bypas	s l	Left	Right	Bypass
Entry Flow (v _e), pc/h				133				220			142		\top		0	
Entry Volume veh/h				129				214			138				0	
Circulating Flow (v _c), pc/h				37				50			105		Т		257	
Exiting Flow (vex), pc/h				197				220			13				65	
Capacity (c _{pce}), pc/h				1329				1311			1240				1062	
Capacity (c), veh/h				1290				1273			1204		Т		1031	
v/c Ratio (x)				0.10				0.17			0.11		Т		0.00	
Delay and Level of Se	ervice															
Approach				EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypass	. Le	eft	Right	Bypass	Left	Right	Bypas	s l	Left	Right	Bypass
Lane Control Delay (d), s/veh				3.6				4.2			3.9				3.5	
Lane LOS				А				Α			А				Α	
95% Queue, veh				0.3				0.6			0.4				0.0	
Approach Delay, s/veh				3.6				4.2			3.9	_				
Approach LOS				А				Α			Α					

				HCS	7 Roι	ında	bo	uts R	lepoi	t						
General Information						П	Site	Infor	matic	n						
Analyst	CW						Inte	rsection			West N	1ini-Roun	dabou	ut		
Agency or Co.	Bolto	n & Mer	nk				E/W	/ Street N	Name		Sunset	Dr				
Date Performed	6/13/	2019					N/S	Street N	lame		High/N	1iddle Scl	nool A	ccess		
Analysis Year	2040						Ana	llysis Tim	e Perioc	(hrs)	0.25					
Time Analyzed	PM Pe	eak					Peal	k Hour F	actor		1.00					
Project Description	Jorda	n Schoo	l Area Stu	ıdy			Juris	sdiction			Jordan	, MN				
Volume Adjustments	and S	Site C	haract	teristic	S											
Approach		E	В			WE	3			١	IB				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			Lī	R				LTR			LTF	₹				LTR
Volume (V), veh/h	0	3	209	25	0	35	258	11	0	24	0	45	0	16	0	6
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Flow Rate (VPCE), pc/h	0	3	215	26	0	36	266	11	0	25	0	46	0	16	0	6
Right-Turn Bypass		No	one			Nor	ne			No	one			١	None	
Conflicting Lanes	U										1				1	
Pedestrians Crossing, p/h	Turn Bypass None cting Lanes 1 trians Crossing, p/h 0 cal and Follow-Up Headway Adjust pach Left										0				0	
Critical and Follow-U	Јр Неа	adway	/ Adju	stmen	t											
Approach				EB				WB			NB		Т		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Bypass	L	.eft	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB		Π		WB			NB		Τ		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Bypass	L	.eft	Right	Bypass
Entry Flow (v _e), pc/h				244				313			71		Т		22	
Entry Volume veh/h				237				304			69				21	
Circulating Flow (v _c), pc/h				52				28			234		Т		327	
Exiting Flow (vex), pc/h				277				297			14				62	
Capacity (c _{pce}), pc/h				1309				1341			1087				989	
Capacity (c), veh/h				1271				1302			1055				960	
v/c Ratio (x)				0.19				0.23			0.07				0.02	
Delay and Level of S	ervice															
Approach				EB				WB			NB		T		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Bypass	L	.eft	Right	Bypass
Lane Control Delay (d), s/veh				4.4				4.8			4.0				3.9	
Lane LOS				А				Α			А				Α	
95% Queue, veh				0.7				0.9			0.2				0.1	
Approach Delay, s/veh				4.4				4.8			4.0				3.9	
Approach LOS				Α				Α			А				Α	
Intersection Delay, s/veh LO	S				4	4.5							Α			
opyright @ 2019 University of		NII Di La		-1	110	C7 ED4 D		laboute \	, · -	4				l. 7/2	2 /2010 0	2·12·27 ΛΝ

				HCS	7 Ro	und	abo	uts R	eport	t						
General Information							Site	e Infor	matio	n						
Analyst	CW						Inte	ersection			East M	ini-Roun	dabou	ıt		
Agency or Co.	Bolto	n & Men	nk				E/W	V Street N	lame		Sunset	: Dr				
Date Performed	6/13/	2019					N/S	Street N	ame		Hillside	e Dr				
Analysis Year	2020						Ana	alysis Tim	e Period ((hrs)	0.25					
Time Analyzed	AM P	eak					Pea	ık Hour Fa	actor		0.74					
Project Description	Jorda	n School	l Area Stu	ıdy			Juri	sdiction			Jordan	, MN				
Volume Adjustments	and S	Site C	haract	teristic	s											
Approach		E	В			V	VB			N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR			LT	R				LTR
Volume (V), veh/h	0	213	30	74	0	42	18	64	0	23	80	23	0	37	149	188
Percent Heavy Vehicles, %	3	5	7	11	3	7	6	0	3	27	13	0	3	3	5	6
Flow Rate (VPCE), pc/h	0	302	43	111	0	61	26	86	0	39	122	31	0	52	211	269
Right-Turn Bypass		No	one			No	one			No	ne			N	lone	
Conflicting Lanes			1				1			1					1	
Pedestrians Crossing, p/h		(0			(0			()				0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t											
Approach		T		EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass
Critical Headway (s)		\Box		4.9763				4.9763			4.9763		T		4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	cal and Follow-Up He oach cal Headway (s) w-Up Headway (s) v Computations, Capa				;											
Approach		\Box		EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Entry Flow (v _e), pc/h				456			\Box	173			192				532	
Entry Volume veh/h				428				168			170				505	
Circulating Flow (v₀), pc/h				324				463			397		Т		126	
Exiting Flow (vex), pc/h				126				334			510				383	
Capacity (c _{pce}), pc/h				992				861			920				1214	
Capacity (c), veh/h				930			П	833			813		Т		1152	
v/c Ratio (x)				0.46				0.20			0.21		Т		0.44	
Delay and Level of Se	ervice															
Approach		\Box		EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass
Lane Control Delay (d), s/veh				9.4				6.4			6.6				7.7	
Lane LOS				А				А			А				Α	
95% Queue, veh				2.5				0.7			0.8				2.3	
Approach Delay, s/veh				9.4				6.4			6.6				7.7	
Approach LOS				Α				Α			Α		\perp		Α	

Site Information	
Agency or Co. Bolton & Menk E/W Street Name Sunset Dr Date Performed 6/13/2019 N/S Street Name Hillside Dr Analysis Year 2020 Analysis Time Period (hrs) 0.25 Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SB Movement U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T L L T L L L L L L L L L L L	
Date Performed 6/13/2019	
Analysis Year 2020 Analysis Time Period (hrs) 0.25 Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB NB SB Movement U L T R U L T R U L T R U L T T R U L T T T L T T T L T T L T T L T T L T	
Time Analyzed AM Peak Peak Hour Factor 1.00 Project Description Jordan, School Area Study Jurisdiction NB SB Movement U L T R U L T R U L T L T L T L T L T <	
Project Description Jordan School Area Study Jurisdiction Jordan, MN Volume Adjustments and Site Characteristics Approach EB WB WB NB SB SB Movement U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T L T L T L T L T L T L T L T L L T L	
Volume Adjustments and Site Characteristics Approach EB WB WB NB SB SB Movement U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T L T L T L T L T L T L T L T L T L	
Approach	
Movement U L T R U L T L L T L L T L L T L T L T L T L T L T	
Number of Lanes (N) 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 0 1 1 0 0 0 0 0 0 1 0	
Lane Assignment LTR LTR	R
Volume (V), veh/h 0 127 23 13 0 7 11 40 0 15 96 60 0 53 32 Percent Heavy Vehicles, % 3 <td>0</td>	0
Percent Heavy Vehicles, % 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	R
Flow Rate (V _{PCE}), pc/h 0 131 24 13 0 7 11 41 0 15 99 62 0 55 33 Right-Turn Bypass Conflicting Lanes 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	111
Right-Turn Bypass None None None None Conflicting Lanes 1 1 1 1 Pedestrians Crossing, p/h 0 0 0 0	3
Conflicting Lanes 1 1 1 1 Pedestrians Crossing, p/h 0 0 0 0	114
Pedestrians Crossing, p/h 0 0 0 0	
Critical and Follow-Up Headway Adjustment	
Approach EB WB NB SB	
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left Right Right	Bypass
Critical Headway (s) 4.9763 4.9763 4.9763 4.9763 4.9763 4.9763	
Follow-Up Headway (s) 2.6087 2.6087 2.6087 2.6087	
Flow Computations, Capacity and v/c Ratios	
Approach EB WB NB SB	
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left Right Right	Bypass
Entry Flow (ve), pc/h 168 59 176 202	
Entry Volume veh/h 163 57 171 196	
Circulating Flow (vc), pc/h 95 245 210 33	
Exiting Flow (vex), pc/h 141 140 271 53	
Capacity (c _{pce}), pc/h 1253 1075 1114 1334	
Capacity (c), veh/h 1216 1044 1081 1295	
v/c Ratio (x) 0.13 0.05 0.16 0.15	
Delay and Level of Service	
Approach EB WB NB SB	
Lane Left Right Bypass Left Right Bypass Left Right Bypass Left Right Right Right	Bypass
Lane Control Delay (d), s/veh 4.1 3.9 4.7 4.0 4.0	
Lane LOS A A A A A A A A A A A A A A A A A A A	
95% Queue, veh 0.5 0.2 0.2 0.6 0.5 0.5	
Approach Delay, s/veh 4.1 3.9 4.7 4.0	
Approach LOS A A A A	
Intersection Delay, s/veh LOS 4.2 A	

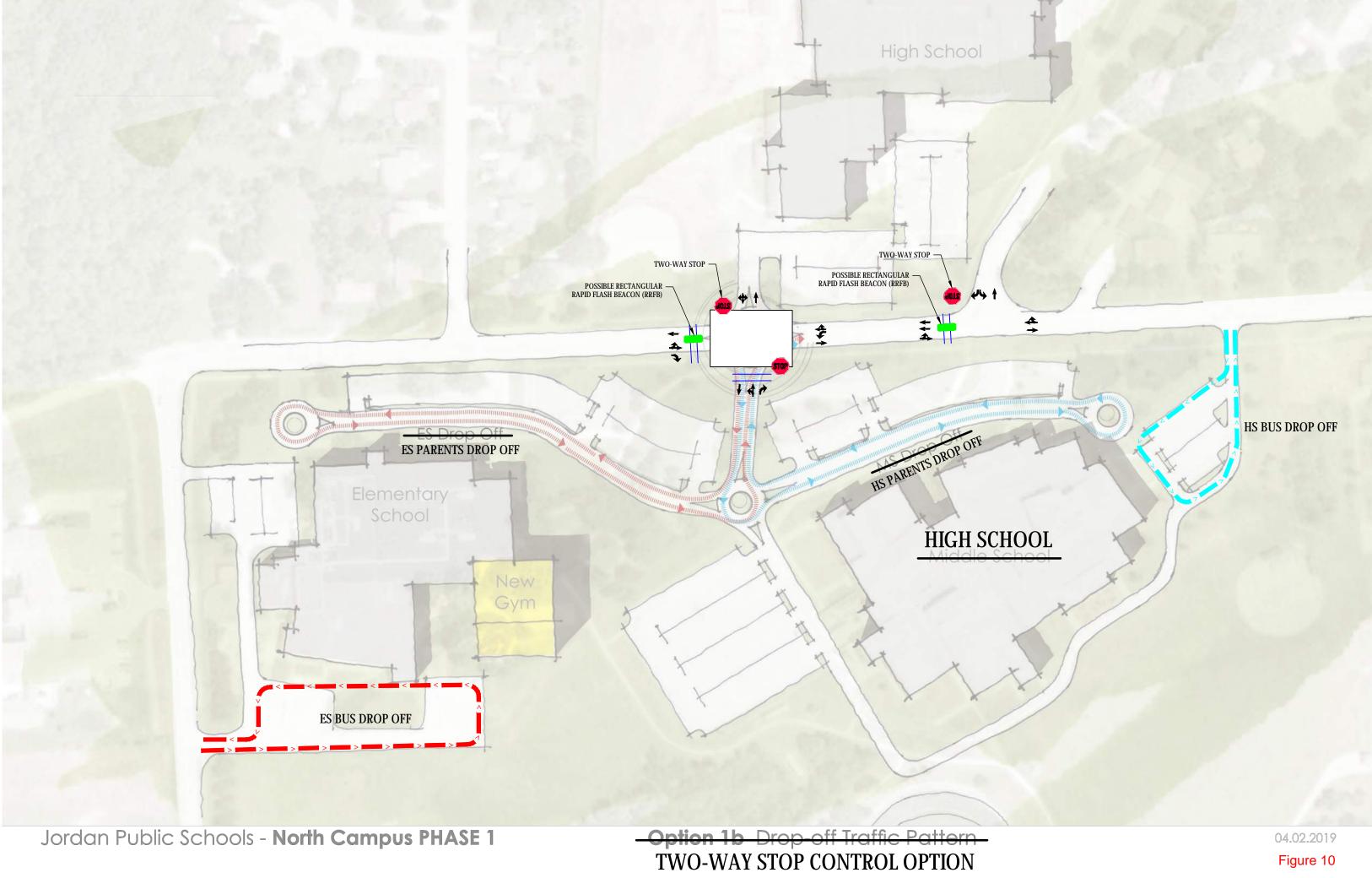
				HCS	7 Roı	ında	bo	uts R	lepor	t						
General Information							Site	e Infor	matio	n						
Analyst	CW						Inte	ersection			East M	ini-Roun	dabou	ut		\neg
Agency or Co.	Bolto	n & Mer	nk				E/W	√ Street N	Name		Sunset	Dr				
Date Performed	6/13/	2019					N/S	Street N	lame		Hillside	e Dr				
Analysis Year	2020						Ana	alysis Tim	e Period	(hrs)	0.25					
Time Analyzed	AM P	eak					Pea	k Hour F	actor		1.00					
Project Description	Jorda	n Schoo	l Area Stu	ıdy			Juri	sdiction			Jordan	, MN				
Volume Adjustments	and	Site C	haract	teristic	s											
Approach		E	B			WE	3		T	N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			נז	R				LTR			LTI	₹				LTR
Volume (V), veh/h	0	183	24	13	0	3	11	55	0	12	33	17	0	64	19	184
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (VPCE), pc/h	0	188	25	13	0	3	11	57	0	12	34	18	0	66	20	190
Right-Turn Bypass		No	one			Nor	ne			No	ne			1	Vone	
Conflicting Lanes			1			1				1	1				1	
Pedestrians Crossing, p/h			0			0				()				0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t											
Approach				EB				WB			NB				SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Вураз	s	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capa	city ar	nd v/c	Ratios	;											
Approach				EB				WB			NB		Т		SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Вурая	s	Left	Right	Bypass
Entry Flow (v _e), pc/h				226			\Box	71			64				276	
Entry Volume veh/h				219			Т	69			62				268	
Circulating Flow (v _c), pc/h				89				234			279				26	
Exiting Flow (vex), pc/h				109				213			279				36	
Capacity (c _{pce}), pc/h				1260				1087			1038				1344	
Capacity (c), veh/h				1224				1055			1008				1305	
v/c Ratio (x)				0.18				0.07			0.06				0.21	
Delay and Level of So	ervice															
Approach				EB				WB			NB				SB	
Lane			Left	Right	Bypass	Lef	t	Right	Bypass	Left	Right	Вурая	s	Left	Right	Bypass
Lane Control Delay (d), s/veh				4.5				4.0			4.1				4.5	
Lane LOS				А				А			А				Α	
95% Queue, veh				0.7				0.2			0.2				0.8	
Approach Delay, s/veh				4.5				4.0			4.1				4.5	
Approach LOS				Α				Α			А				Α	
Intersection Delay, s/veh LO	S	A III D' . I .				4.4							Α	1.6.00		

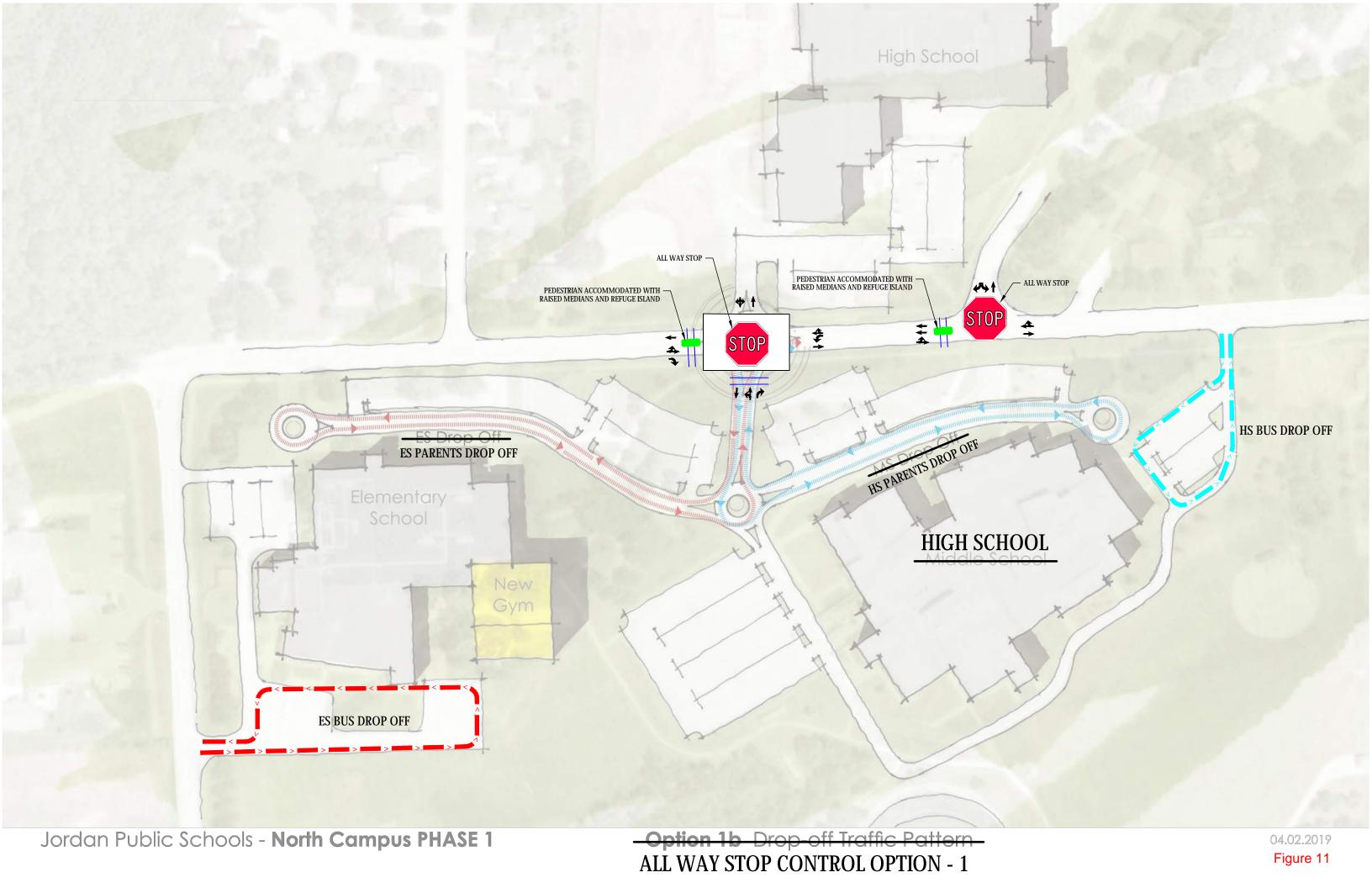
				HCS	7 Ro	und	abo	uts R	epor	t						
General Information							Site	Infor	matio	n						
Analyst	CW						Inte	ersection			East M	ini-Rour	dabou	ıt		
Agency or Co.	Bolto	n & Men	ık				E/W	√ Street N	lame		Sunset	: Dr				
Date Performed	6/13/	2019					N/S	Street N	ame		Hillside	e Dr				
Analysis Year	2040						Ana	alysis Tim	e Period	(hrs)	0.25					
Time Analyzed	AM P	eak					Pea	k Hour Fa	actor		0.74					
Project Description	Jorda	n School	Area Stu	ıdy			Juri	sdiction			Jordan	, MN				
Volume Adjustments	and S	Site C	haract	teristic	s											
Approach		E	:B			V	/B			N	В				SB	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			Lī	ΓR				LTR			LTI	R				LTR
Volume (V), veh/h	0	291	30	79	0	45	18	64	0	24	85	24	0	38	160	216
Percent Heavy Vehicles, %	3	5	7	11	3	7	6	0	3	27	13	0	3	3	5	6
Flow Rate (VPCE), pc/h	0	413	43	119	0	65	26	86	0	41	130	32	0	53	227	309
Right-Turn Bypass		No	one			No	one			No	ne			N	lone	
Conflicting Lanes			1				1			1					1	
Pedestrians Crossing, p/h		(0			(0			()				0	
Critical and Follow-U	р Неа	adway	/ Adju	stmen	t											
Approach		T		EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS I	Left	Right	Bypass
Critical Headway (s)				4.9763				4.9763			4.9763				4.9763	
Follow-Up Headway (s)				2.6087				2.6087			2.6087				2.6087	
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;											
Approach				EB		Т		WB			NB		Т		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	SS	Left	Right	Bypass
Entry Flow (v _e), pc/h				575			\Box	177			203				589	
Entry Volume veh/h				541				171			179				559	
Circulating Flow (v _c), pc/h				345				584			509				132	
Exiting Flow (vex), pc/h				128				376			629				411	
Capacity (c _{pce}), pc/h				971				761			821				1206	
Capacity (c), veh/h				913				736			725				1145	
v/c Ratio (x)				0.59				0.23			0.25				0.49	
Delay and Level of Se	ervice															
Approach				EB				WB			NB		П		SB	
Lane			Left	Right	Bypas	s Le	eft	Right	Bypass	Left	Right	Вура	ss	Left	Right	Bypass
Lane Control Delay (d), s/veh				12.5				7.5			7.8				8.5	
Lane LOS				В				Α			А				Α	
95% Queue, veh				4.0				0.9			1.0				2.8	
Approach Delay, s/veh				12.5				7.5			7.8				8.5	
Approach LOS				В				Α			Α				Α	
	5					9.8							Α			

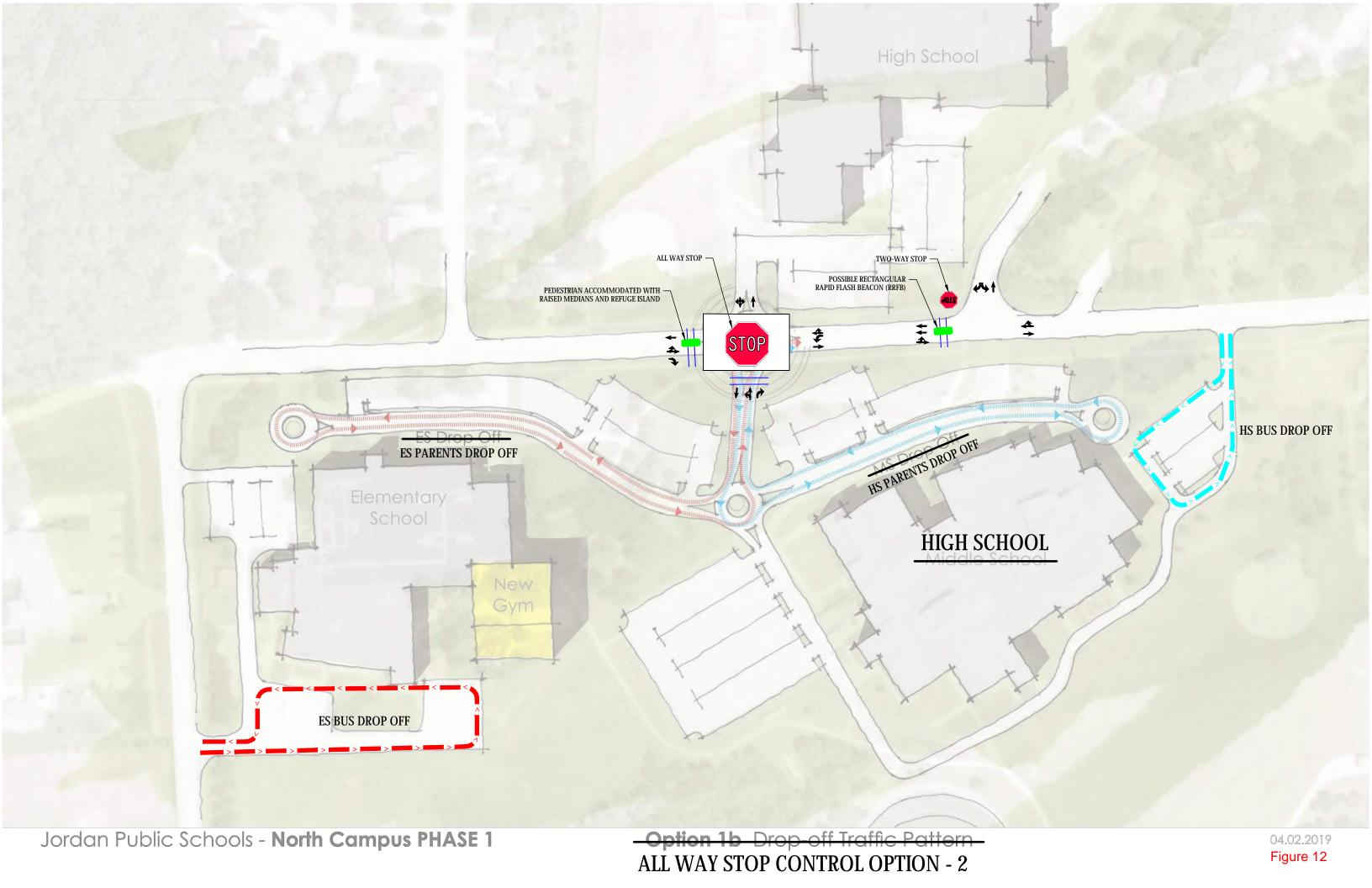
				HCS	7 Ro	und	abo	uts F	Repo	ά							
General Information							Site Information										
Analyst	CW	CW					Inte	ersection			East Mini-Rounda				dabout		
Agency or Co.	Bolto	n & Men	ık				E/V	V Street	Name		Sunse	t Dr					
Date Performed	6/13/	2019					N/S	S Street I	Name		Hillsid	e Dr					
Analysis Year	2020						Ana	alysis Tin	ne Perio	l (hrs)	0.25						
Time Analyzed	Afterr	noon Pea	ık				Pea	ak Hour F	actor		1.00						
Project Description	Jorda	n School	Area Stu	ıdy			Juri	isdiction			Jordar	n, MN					
Volume Adjustments	and S	Site C	haract	teristic	s												
Approach		E	В			V	/B		Т	1	NΒ				SB		
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R	
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	
Lane Assignment			נז	TR				LTR			LT	R				LTR	
Volume (V), veh/h	0	155	23	13	0	7	11	40	0	16	103	64	0	53	34	168	
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Flow Rate (VPCE), pc/h	0	160	24	13	0	7	11	41	0	16	106	66	0	55	35	173	
Right-Turn Bypass		No	ne			No	one			N	one				None	·	
Conflicting Lanes			1				1 1				1 1						
Pedestrians Crossing, p/h	0					(0				0				0		
Critical and Follow-Up Headway Adjustment																	
Approach	EB							WB		T	NB				SB		
Lane			Left	Right	Bypas	s Le	eft	Right	Bypas	Left	Right	Вура	iss	Left	Right	Bypass	
Critical Headway (s)				4.9763				4.9763			4.9763	3			4.9763		
Follow-Up Headway (s)				2.6087				2.6087			2.6087	7			2.6087		
Flow Computations,	Capac	ity ar	nd v/c	Ratios	;												
Approach				EB			WB				NB			SB			
Lane			Left	Right	Bypas	s Le	eft	Right	Bypas	Left	Right	Вура	iss	Left	Right	Bypass	
Entry Flow (v _e), pc/h				197				59			188				263		
Entry Volume veh/h				191				57		Τ	183	Т	\top		255		
Circulating Flow (v _c), pc/h				97				282			239				34		
Exiting Flow (vex), pc/h				145				200		Τ	307		\top		55		
Capacity (c _{pce}), pc/h				1250				1035			1081				1333		
Capacity (c), veh/h				1214				1005			1050				1294		
v/c Ratio (x)				0.16				0.06			0.17				0.20		
Delay and Level of So	ervice																
Approach				EB				WB			NB				SB		
Lane			Left	Right	Bypas	s Le	eft	Right	Bypas	Left	Right	Вура	iss	Left	Right	Bypass	
Lane Control Delay (d), s/veh	4.3			4.3				4.1			5.0				4.5		
Lane LOS	A							Α			А				Α		
95% Queue, veh	95% Queue, veh 0.6						0.2			0.6				0.7			
Approach Delay, s/veh				4.3			4.1				5.0			4.5			
Approach LOS				Α				Α			Α				Α		
Intersection Delay, s/veh LO	S	NI 5: 1 /				4.5							A				

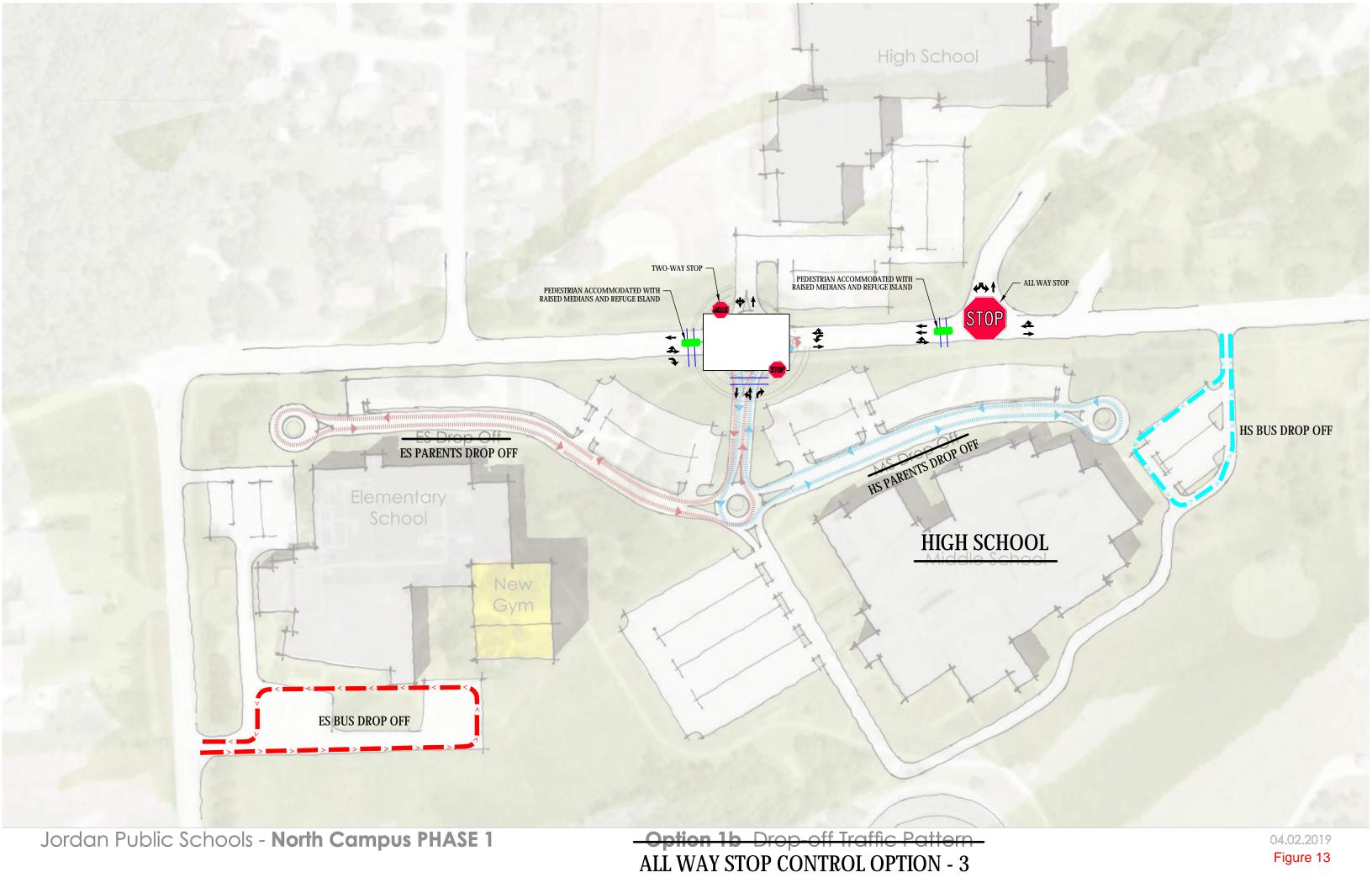
HCS7 Roundabouts Report																		
General Information							Site Information											
Analyst	CW						Inte	ersection			East Mini-Round			dabout				
Agency or Co.	Bolto	n & Men	k				E/W	V Street I	Name			Sunset	Dr					
Date Performed	6/13/	2019					N/S	Street N	lame			Hillside	Dr					
Analysis Year	2040						Ana	alysis Tim	e Perio	d (h	ırs)	0.25						
Time Analyzed	PM Pe	eak					Pea	k Hour F	actor			1.00						
Project Description	Jorda	n School	Area Stu	ıdy			Juris	sdiction				Jordan,	MN					
Volume Adjustments	and	Site C	haract	teristic	s													
Approach		E	В			WI	В		Т		NI	3				SB		
Movement	U	L	Т	R	U	L	Т	R	U		L	Т	R	U	L	Т	R	
Number of Lanes (N)	0	0	1	0	0	0	1	0	0		0	1	0	0	0	1	0	
Lane Assignment		•	Lī	ΓR				LTR				LTF	1				LTR	
Volume (V), veh/h	0	233	24	13	0	3	11	55	0		12	35	18	0	64	20	268	
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3	
Flow Rate (VPCE), pc/h	0	240	25	13	0	3	11	57	0		12	36	19	0	66	21	276	
Right-Turn Bypass		No	ne			Nor	ne				Noi	ne			None			
Conflicting Lanes			1			1					1			1				
Pedestrians Crossing, p/h		()			0					0					0		
Critical and Follow-Up Headway Adjustment																		
Approach EB WB NB SB																		
Lane			Left	Right	Bypass	Lef	t	Right	Bypas	s	Left	Right	Bypas	s	Left	Right	Bypass	
Critical Headway (s)		\Box		4.9763				4.9763		T		4.9763		T		4.9763		
Follow-Up Headway (s)				2.6087				2.6087		T		2.6087				2.6087		
Flow Computations,	Capa	ity ar	ıd v/c	Ratios														
Approach		T		EB				WB		NB				SB				
Lane			Left	Right	Bypass	Lef	t	Right	Bypas	s	Left	Right	Bypas	s	Left	Right	Bypass	
Entry Flow (v _e), pc/h		\Box		278				71		T		67				363		
Entry Volume veh/h				270				69		Ť		65				352		
Circulating Flow (v₂), pc/h				90				288		T		331				26		
Exiting Flow (vex), pc/h				110				299				333				37		
Capacity (c _{pce}), pc/h				1259				1029				985				1344		
Capacity (c), veh/h				1222			П	999		Т		956		Т		1305		
v/c Ratio (x)				0.22				0.07				0.07				0.27		
Delay and Level of Se	ervice	1																
Approach				EB				WB		Т		NB		Т		SB		
Lane			Left	Right	Bypass	Lef	t	Right	Bypas	s	Left	Right	Bypas	s I	Left	Right	Bypass	
Lane Control Delay (d), s/veh	n 4.9					4.2				4.4				5.1				
Lane LOS	A						Α				А				А			
95% Queue, veh				0.8				0.2				0.2				1.1		
Approach Delay, s/veh 4.9							4.2				4.4				5.1			
Approach LOS				Α				Α				Α				Α		
Intersection Delay, s/veh LOS	S					4.9								Α				

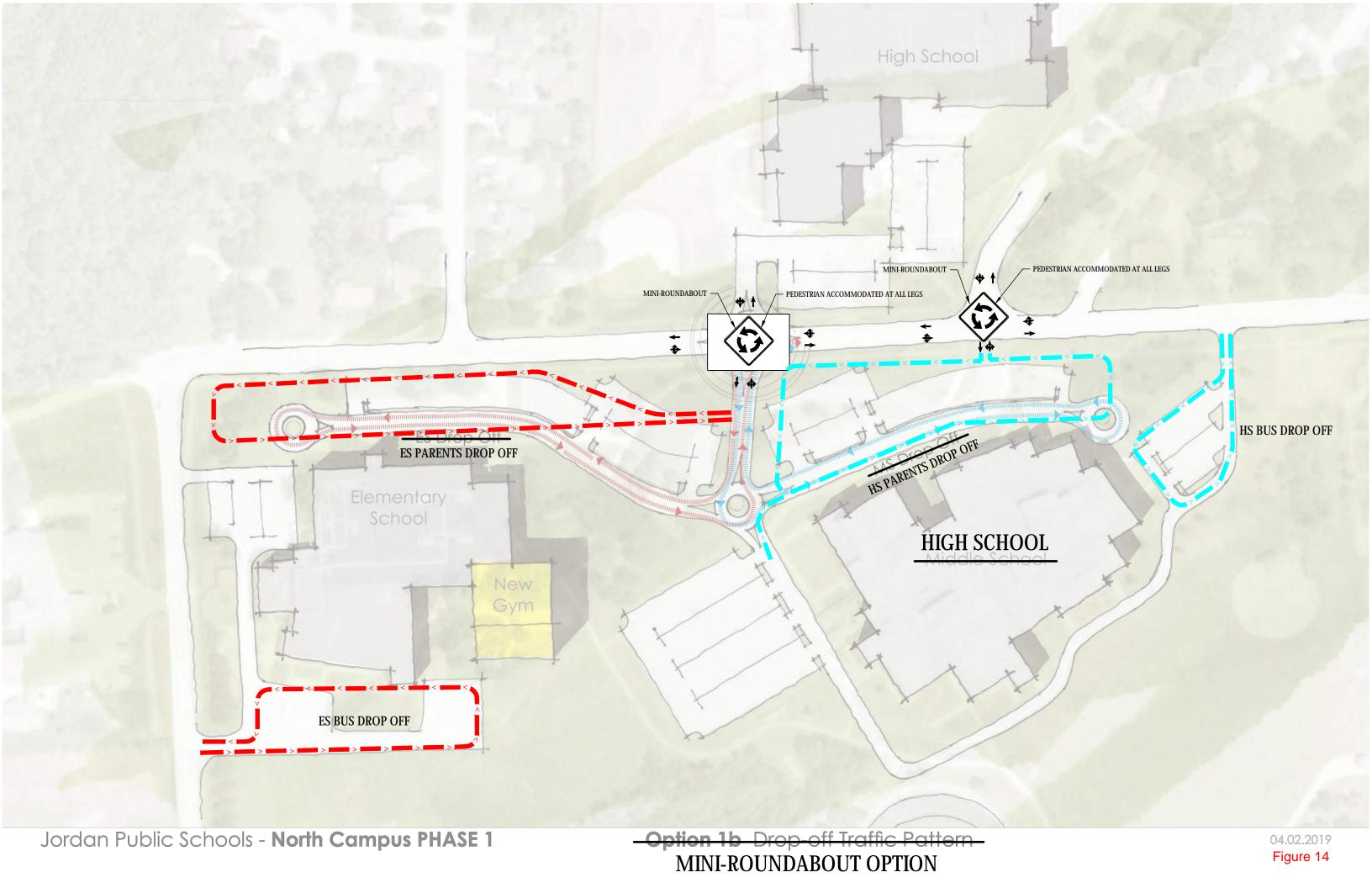
Appendix F: Mitigation Layouts











Appendix G: Warrant Analysis



SIGNAL WARRANTS ANALYSIS FOR Sunset Dr and Middle/High School Access

Lanes

2

1

1

Real People. Real Solutions.

LOCATION: Jordan

COUNTY: Scott County

REF. POINT:

Major App1: SUNSET DR (WESTBOUND) DATE: 6/26/2019 30 30 Major App3: SUNSET DR (EASTBOUND)

30 Minor App2: HILLSIDE DR (SOUTHBOUND) OPERATOR: CW

Speed

Minor App4: dsf

Approach Description

0.70 FACTOR USED? POPULATION < 10,000?

N/A

No	
No	-
Yes	T

THRESHOLDS 14/1R: 480/720 120/60

THRESHOLDS	1A/1B:		480/720				120/60			
	MAJOR	MAJOR	TOTAL	MAJOR	MINOR	MINOR 2	MINOR	MINOR 4	MET SAME	
HOUR	APP. 1	APP. 3	1+3	1A/1B	APP. 2	1A/1B	APP. 4	1A/1B	1A/1B	
0:00 - 1:00	0	0	0	1	0	1			1	
1:00 - 2:00	0	0	0	/	0	/			1	
2:00 - 3:00	0	0	0	/	0	/			1	
3:00 - 4:00	0	0	0	/	0	/			1	
4:00 - 5:00	0	0	0	/	0	/			1	
5:00 - 6:00	0	0	0	/	0	/			1	
6:00 - 7:00	41	147	188	/	8	/			1	
7:00 - 8:00	99	306	405	/	39	/			1	
8:00 - 9:00	67	161	228	1	17	/			1	
9:00 - 10:00	24	80	104	1	11	/			1	
10:00 - 11:00	22	109	131	1	17	/			1	
11:00 - 12:00	25	84	109	1	21	/			1	
12:00 - 13:00	34	92	126	/	25	/			1	
13:00 - 14:00	20	103	123	/	21	/			1	
14:00 - 15:00	48	172	220	1	32	/			1	
15:00 - 16:00	52	269	321	1	46	/			1	
16:00 - 17:00	49	219	268	1	60	/X			1	
17:00 - 18:00	62	230	292	1	53	/			1	
18:00 - 19:00	76	159	235	1	78	/X			1	
19:00 - 20:00	0	0	0	1	0	/			1	
20:00 - 21:00	0	0	0	1	0	1			1	
21:00 - 22:00	0	0	0		0	1			1	
22:00 - 23:00	0	0	0	1	0	/			1	
23:00 - 24:00	0	0	0	1	0	/			1	

Required (Hr)

Warrant 1A	0	8	Not satisfied
Warrant 1B	0	8	Not satisfied
Warrant 2	0	4	Not satisfied
Warrant 3	0	1	Not satisfied
Warrant 7	0	8	Not satisfied

LOCATION: Jordan
COUNTY: Scott County

REF. POINT: Approach Description Speed Lanes Major App1: SUNSET DR (WESTBOUND) DATE: 6/26/2019 30 2 30 Major App3: SUNSET DR (EASTBOUND) 1 Minor App2: HILLSIDE DR (SOUTHBOUND) OPERATOR: CW 30 1

Minor App4: dsf

0.70 FACTOR USED? No POPULATION < 10,000? No EXISTING SIGNAL ? Yes

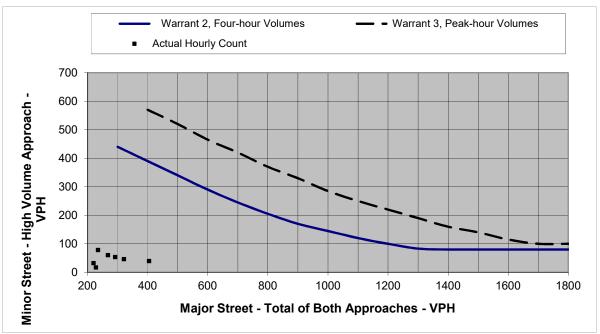


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

	Warrant Criteria	ì	Actual Hourly Count				
Major	Warrant 2, F	Warrant 3, Pe	Major	Actual Hourly Count			
200			0	0			
300	440		0	0			
400	390	570	0	0			
500	340	520	0	0			
600	290	465	0	0			
700	245	420	0	0			
800	205	370	188	8			
900	170	330	405	39			
1000	145	285	228	17			
1100	120	250	104	11			
1200	100	220	131	17			
1300	83	190	109	21			
1400	80	160	126	25			
1500	80	140	123	21			
1600	80	115	220	32			
1700	80	100	321	46			
1800	80	100	268	60			
			292	53			
			235	78			
			0	0			
			0	0			
			0	0			
			0	0			
			0	0			

ALL WAY STOP WARRANT ANALYSIS FOR

Sunset Dr and Middle/High School Access

LOCATION: Jordan COUNTY: Scott County

REF. POINT:	Speed	Approach Description	Lanes
DATE: 6/26/2019	30	Major App1: SUNSET DR (WESTBOUND)	2
	30	Major App3: SUNSET DR (EASTBOUND)	1
OPERATOR: CW	30	Minor App2: MS ACCESS (SOUTHBOUND)	1
		Minor App4:	

0.70 FACTOR USED? No

300 200

					300	200	
	MAJOR	MAJOR	MINOR	MINOR	MAJOR TOTAL	MINOR TOTAL	WARRANT
HOUR	APP. 1	APP. 3	APP. 2	APP. 4	Σ (APP. 1 & APP. 3)	APP. 2 + APP. 4	MET
0:00 - 1:00	0	0	0		0	0	/
1:00 - 2:00	0	0	0		0	0	/
2:00 - 3:00	0	0	0		0	0	/
3:00 - 4:00	0	0	0		0	0	/
4:00 - 5:00	0	0	0		0	0	/
5:00 - 6:00	0	0	0		0	0	/
6:00 - 7:00	41	147	8		188	8	1
7:00 - 8:00	99	306	39		405	39	X/
8:00 - 9:00	67	161	17		228	17	1
9:00 - 10:00	24	80	11		104	11	/
10:00 - 11:00	22	109	17		131	17	/
11:00 - 12:00	25	84	21		109	21	/
12:00 - 13:00	34	92	25		126	25	/
13:00 - 14:00	20	103	21		123	21	/
14:00 - 15:00	48	172	32		220	32	/
15:00 - 16:00	52	269	46		321	46	X/
16:00 - 17:00	49	219	60		268	60	/
17:00 - 18:00	62	230	53		292	53	/
18:00 - 19:00	76	159	78		235	78	/
19:00 - 20:00	0	0	0		0	0	/
20:00 - 21:00	0	0	0		0	0	/
21:00 - 22:00	0	0	0		0	0	/
22:00 - 23:00	0	0	0	_	0	0	/
23:00 - 24:00	0	0	0		0	0	/

Met (Hr) Required (Hr)

Allway Stop Warrant: 0 8 Not satisfied

REMARKS:			



Real People. Real Solutions.

SIGNAL WARRANTS ANALYSIS FOR

Sunset Dr and Middle/High School Access

LOCATION: Jordan

COUNTY: Scott County

REF. POINT:

Speed Approach Description Major App1: SUNSET DR (WESTBOUND) DATE: 6/26/2019 30 2 30 Major App3: SUNSET DR (EASTBOUND) 1 30 Minor App2: HS ACCESS (NORTHBOUND) OPERATOR: CW 1

Minor App4: MS ACCESS (SOUTHBOUND)

0.70 FACTOR USED? POPULATION < 10,000?

No No No

30

N/A

THRESHOLDS	1A/1B:		4	600/900			150/75	150/75	
	MAJOR	MAJOR	TOTAL	MAJOR	MINOR	MINOR 2	MINOR	MINOR 4	MET SAME
HOUR	APP. 1	APP. 3	1+3	1A/1B	APP. 2	1A/1B	APP. 4	1A/1B	1A/1B
0:00 - 1:00	0	0	0	/	0	/	0	/	1
1:00 - 2:00	0	0	0	/	0	/	0	/	1
2:00 - 3:00	0	0	0	/	0	/	0	/	1
3:00 - 4:00	0	0	0	1	0	/	0	/	1
4:00 - 5:00	0	0	0	/	0	/	0	/	1
5:00 - 6:00	0	0	0	/	0	/	0	/	1
6:00 - 7:00	81	105	186		12	1	0	1	1
7:00 - 8:00	240	252	492	/	58	/	4	/	1
8:00 - 9:00	247	197	444	1	39	/	2	/	1
9:00 - 10:00	37	39	76	1	12	/	0	/	1
10:00 - 11:00	69	60	129	1	8	/	0	/	1
11:00 - 12:00	66	42	108	1	35	/	1	/	1
12:00 - 13:00	90	43	133	1	16	/	0	/	1
13:00 - 14:00	106	57	163	/	20	/	1	/	1
14:00 - 15:00	150	135	285	/	19	/	1	/	1
15:00 - 16:00	272	231	503	/	58	/	3	/	1
16:00 - 17:00	91	169	260	1	36	/	2	/	1
17:00 - 18:00	133	118	251	1	43	/	2	/	1
18:00 - 19:00	110	85	195		31	1	1	1	1
19:00 - 20:00	0	0	0		0	1	0	1	1
20:00 - 21:00	0	0	0		0	1	0	1	1
21:00 - 22:00	0	0	0		0	1	0	1	1
22:00 - 23:00	0	0	0	1	0	1	0	1	1
23:00 - 24:00	0	0	0		0	/	0	/	1

Required (Hr) Met (Hr)

Warrant 1A	0	8	Not satisfied
Warrant 1B	0	8	Not satisfied
Warrant 2	0	4	Not satisfied
Warrant 3	0	1	Not satisfied
Warrant 7	0	8	Not satisfied

1 of 3

Lanes

LOCATION: Jordan
COUNTY: Scott County

REF. POINT: Approach Description Speed Lanes DATE: 6/26/2019 30 Major App1: SUNSET DR (WESTBOUND) 2 30 Major App3: SUNSET DR (EASTBOUND) 1 OPERATOR: CW Minor App2: HS ACCESS (NORTHBOUND) 30 1 Minor App4: MS ACCESS (SOUTHBOUND) 30 1 0.70 FACTOR USED? No POPULATION < 10,000? No

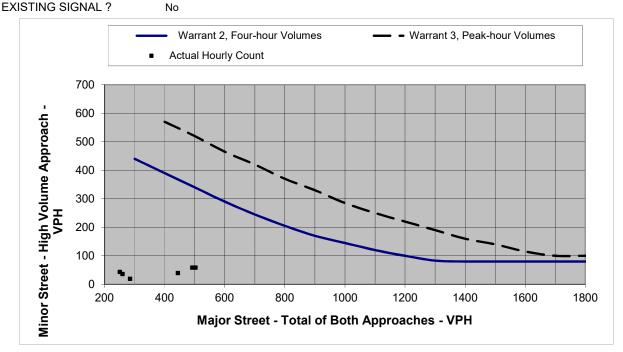


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

	Warrant Criteria	a	Actual I	Hourly Count
Major	Warrant 2, F	Warrant 3, Pe	Major	Actual Hourly Count
200			Ö	Ö
300	440		0	0
400	390	570	0	0
500	340	520	0	0
600	290	465	0	0
700	245	420	0	0
800	205	370	186	12
900	170	330	492	58
1000	145	285	444	39
1100	120	250	76	12
1200	100	220	129	8
1300	83	190	108	35
1400	80	160	133	16
1500	80	140	163	20
1600	80	115	285	19
1700	80	100	503	58
1800	80	100	260	36
			251	43
			195	31
			0	0
			0	0
			0	0
			0	0
			0	0

ALL WAY STOP WARRANT ANALYSIS FOR

Sunset Dr and Middle/High School Access

LOCATION: Jordan COUNTY: Scott County

REF. POINT:	Speed	Approach Description	Lanes
DATE: 6/26/2019	30	Major App1: SUNSET DR (WESTBOUND)	2
	30	Major App3: SUNSET DR (EASTBOUND)	1
OPERATOR: CW	30	Minor App2: HS ACCESS (NORTHBOUND)	1
	30	Minor App4: MS ACCESS (SOUTHBOUND)	1

0.70 FACTOR USED? No

300 200

					300	200	
	MAJOR	MAJOR	MINOR	MINOR	MAJOR TOTAL	MINOR TOTAL	WARRANT
HOUR	APP. 1	APP. 3	APP. 2	APP. 4	Σ (APP. 1 & APP. 3)	APP. 2 + APP. 4	MET
0:00 - 1:00	0	0	0	0	0	0	/
1:00 - 2:00	0	0	0	0	0	0	/
2:00 - 3:00	0	0	0	0	0	0	/
3:00 - 4:00	0	0	0	0	0	0	/
4:00 - 5:00	0	0	0	0	0	0	/
5:00 - 6:00	0	0	0	0	0	0	/
6:00 - 7:00	81	105	12	0	186	12	/
7:00 - 8:00	240	252	58	4	492	62	X/
8:00 - 9:00	247	197	39	2	444	41	X/
9:00 - 10:00	37	39	12	0	76	12	/
10:00 - 11:00	69	60	8	0	129	8	/
11:00 - 12:00	66	42	35	1	108	36	/
12:00 - 13:00	90	43	16	0	133	16	/
13:00 - 14:00	106	57	20	1	163	21	/
14:00 - 15:00	150	135	19	1	285	20	/
15:00 - 16:00	272	231	58	3	503	61	X/
16:00 - 17:00	91	169	36	2	260	38	/
17:00 - 18:00	133	118	43	2	251	45	/
18:00 - 19:00	110	85	31	1	195	32	/
19:00 - 20:00	0	0	0	0	0	0	/
20:00 - 21:00	0	0	0	0	0	0	/
21:00 - 22:00	0	0	0	0	0	0	/
22:00 - 23:00	0	0	0	0	0	0	/
23:00 - 24:00	0	0	0	0	0	0	/

Met (Hr) Required (Hr)

Allway Stop Warrant: 0 8 Not satisfied

REMARKS:			
-			